HYMNOSIS

IN

CLINICAL DENTISTRY

by

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A critical review of literature incorporating original work in this field, submitted in fulfilment of the requirements for the degree of Master of Dental Surgery.

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'All sciences alike have descended from magic and superstition, but none has been so slow as hypnosis in shaking off the evil association of its origin.'

C.L. Hull, 1933.
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SECTION 1
INTRODUCTION

One cannot practice dentistry without realising that for the patient, the control of pain and fear is extremely important. Modern techniques have made painless dentistry a reality and yet research has shown that more people avoid dental treatment through fear of pain than all other factors combined.

Dental surgeons and psychologists agree that patients frequently magnify their unpleasant dental experiences. This observation is substantiated in a research investigation of the "dentist-patient relation" published by Professor R.T. Martin in October, 1965. There are deep-seated psychological reasons for this exaggerated fear; the mouth, being a highly charged erotogenic region, is a primary zone of interaction with the environment and can have important, far-reaching emotional significance. To many people the anticipation of dental treatment is sufficient to arouse extreme anxiety.
Dental schools lay great emphasis on the basic medical sciences and the technical excellence of students, while scant reference is made to the psychological considerations of dental treatment. The psychosomatic approach to the alleviation of apprehension, fear and pain is consequently often sadly neglected. The use of controlled suggestion and hypnosis can be shown to play a very important role in clinical dentistry. Modern authorities agree that at least ninety percent of the adult population is susceptible to some degree of hypnotic suggestion and this percentage is even higher in children. To learn and practice the science of hypnosis is well within the capacity of every student of dentistry, providing he is willing to undertake the necessary research and study.

The author has used positive suggestion and hypnosis routinely in dental practice for many years and has been amazed at what can be accomplished without the use of drugs once the patient's faith and confidence have been gained. Effective relaxation and co-operation can usually be obtained even in the lightest stage of hypnosis; a relaxed person has a depressed pain reaction and a pain threshold inversely
raised. When the patient is relaxed, intricate and prolonged operative procedures are far less arduous for both dentist and patient.

This thesis outlines the history of hypnosis from its primitive origins to its modern status as an accepted and ethical science. Important hypnotic phenomena are described, and selected contemporary theories which attempt to explain the nature of hypnosis are included. There has been no attempt to discuss in detail the many complex psychological and physiological aspects of hypnosis. The specific application of hypnosis to clinical dentistry is emphasised and chapters are devoted to waking suggestibility, hypnotic induction techniques and psychological problems of the dentist-patient relation.

During the last three decades the tempo of investigation and research into hypnotic phenomena has quickened. Hypnosis has emerged as a science with vast possibilities, not only in the various medical fields, but in all those facets of nature that embrace human relations. The material presented is from current literature and from observations and records compiled by the author during twenty-five years application of controlled suggestion and hypnosis in
dentistry. The thesis has not been physically divided into two sections, a review of literature and personal research, but rather have the author's observations been integrated with the work of others.

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MARTIN, R.T. 1965. An exploratory investigation of the Dentist-Patient relation. A research investigation carried out under the direction of Professor R.T. Martin, School of Applied Psychology, University of New South Wales for the Dental Health Education and Research Foundation of the University of Sydney.
HISTORY OF HYPNOSIS

From time immemorial, when people first settled into tribal communities, some form of hypnosis has probably been practised. The hypnosis may have been self-induced by watching the unceasing motion of the sea, listening to the monotonous rhythm of a chant, or staring at shining objects.

The history of hypnosis is a neglected field, despite the fact that throughout the ages there runs the almost uninterrupted story of man's experience with hypnotic phenomena. There is a record of hypnosis being practised in China in the eighteenth century B.C. (Williams 1952). At this time persons in a hypnotic or ecstatic condition, while seeking communion with the dead, would show convulsive motions of the face and limbs, shivering and uncontrollable jumping and running. This condition was induced by singing and dancing, two methods of inducing hypnosis that have remained unchanged in some cultures throughout the ages. Evidence that hypnosis for therapeutic purposes was used by priests and medicine men as early as the thirteenth century B.C., was unearthed on certain stone tablets (votive tablets) found in Greece in the last century (Marcuse 1959). In ancient Egypt
there were "sleep temples", and a papyrus of three thousand years ago sets forth the procedure for hypnosis much as it is performed today. In Greece, pilgrimages were regularly made to Epidaurus, where the Temple of Asclepius, God of Medicine, was located together with other temples devoted to healing. Here the sick were put into a hypnotic trance by priests and through suggestion saw visions of the gods, with resulting cure (Le Cron & Boreaux 1947).

The Old Testament Hebrews were familiar with hypnotic phenomena. Prophets "called on the name of Baal from morning until noon", "leaped about the altar", and "cut themselves with knives till the blood gushed out upon them ... When midday was past, they prophesied." (I Kings 18:26-29). Also in biblical times, priests in temples of India and Eastern Mediterranean countries also ministered as doctors using "temple sleep" in suggestive therapy (Shaw 1958).

In the middle ages "laying on of hands" resulted in cures in certain cases where sufficient faith was developed. The kings of both England and France were believed to have the power to cure all types of ailments simply by touching the afflicted. This practice
was known as "touching for the King's Evil" (Hartland 1966).

The primitive Australian aborigine whose way of life has changed little since stone age times, uses a form of suggestion in tribal rituals and dances. The subsequent dramatic outcome of "pointing the bone" by the tribal medicine man is an example of the tremendous power of suggestion. Modern counterparts of ceremonial rites involving some sort of "trance state" can be found today amongst almost all primitive people. Williams (1952) concluded that hypnosis in some form is found among all peoples whose activities have been adequately reported.

Franz Anton Mesmer revived modern interest in the power of suggestion. He studied theology and medicine at the Universities of Ingostadt (Germany) and Vienna. His interest in the teachings of Paracelsus caused him to believe that the stars influenced the health and general condition of human beings by way of a subtle invisible fluid, which permeated the universe. In 1773 Mesmer introduced the theory of "invisible animal magnetism". He became convinced that there was a healing and magnetic power in his own hands and that he could
transmit this "fluid" from his own body to that of
the patient. He conjectured the human body had two
poles, similar to a magnet, and was constantly throw-
ing off invisible fluid. Disease was presumably due
to some interruption or maladjustment in the flow of
this fluid and it could therefore be cured once the
normal emanation of the fluid was re-established.

He discovered that it was important that there
should exist between physician and patient a close
interest in, and sympathy for, each other. He de-
scribed this as "rapport", a French word meaning
harmony or "connection". This term is still used,
among other meanings, to describe the relationship
in which the doctor has the interest and co-operation
of his patient.

Mesmer had striking success especially with
hysterical patients, but he consistently believed and
emphasised that his remarkable cures were entirely
natural phenomena.

Medical colleagues soon became jealous of his
success and accused him of practising magic, and in
1778 he was asked to leave Austria. He then set up
practice in Paris where pressure of work became so
great he introduced group therapy. His clinic appears to have been a remarkable place; treatment was given in a large hall which was darkened by covering up the windows. In the centre of this room stood Mesmer's famous "baquet", which was a device consisting of an open, wooden tub about one foot high and large enough to permit thirty patients to stand around it. This was filled with water, into which had been placed iron filings, ground glass, and a variety of bottles arranged in a symmetrical pattern. The tub was covered with wooden slats provided with openings through which jointed, iron rods projected. The patients applied these rods to their various ailing parts, thus allowing the healing forces of animal magnetism to act. They were instructed to remain silent and plaintive music was played by an orchestra hidden from view throughout the session. At the psychological moment, Mesmer himself would appear in a brilliant silk robe. He would move among the patients, fixing his eyes upon them, passing his hands over their bodies and touching them with a long, iron wand. When touched with the wand, susceptible patients appeared to have spon-
taneous hysterical convulsions and similar emotional upheavals and "abreactions". This behaviour constituted what Mesmer termed the "crisis" and was supposedly responsible for the cure of innumerable ailments (Hull 1933).

Mesmer's popularity continued for some years, but orthodox medical men again soon became jealous of his success and branded him a charlatan. In 1784, the French government set up a scientific commission to investigate his activities. Although the commission reported Mesmer had effected many cures, the "animal-magnetism" theory was discounted and the cures attributed to some as yet unknown physiological causes. The report was unfavourable to Mesmer; he lost his practice and went into retirement in Switzerland. He eventually died in 1815 near his native village of Iznang. Mesmer's faith in his own cures was undoubtedly sincere, and he did make an important contribution to science. Although his theories were completely wrong and many followed blindly in his lead, he did initiate investigation and research which eventually led to the discovery of the phenomenon of modern hypnotism.
Moll (1890) stated, "I do not wish to join the contemptible group of Mesmer's professional slanderers. He is dead, and can no longer defend himself from those who disparage him without taking into consideration the circumstances or the time in which he lived.

"Against the universal opinion that he was avaricious, I remark that in Vienna, as well as later in Morsburg and Paris, he always helped the poor without reward. I believe that he erred in his teaching, but think it is just to attack this only, and not his personal character ... Mesmer did not behave worse than those who nowadays discover a new drug, and regard the manufacture of it as a means of enriching themselves."

In 1784, the Marquis de Puységur, a student of Mesmer, discovered the sleep trance as distinct from the response obtained by Mesmer. While trying to induce the usual hysterical convolution using the magnetising method on a young shepherd named Victor, the Marquis found that the latter fell into a quiet, sleeping trance from which he did not awake for a long time. The chief characteristic of this state was a kind of sleep in which the ideas and actions of the magnetised person could be directed by the magnetiser (Eysenck 1957).
In 1813 Abbé Faria recognised that suggestion was the major factor for obtaining the sleep trance. He was the first to induce somnambulism in his subjects by simply saying to them, "I wish you to go to sleep;" he called this state "lucid slumber" (Hull 1933).

In 1821 Récamier in France reported painless surgery on a patient in the magnetised sleep state. Cloquet in Paris performed painless surgery on a patient in the somnambulistic state in 1829 and Oudet, 1837, in France was credited with being the first dentist to painlessly extract a tooth while the patient was in the trance state (Shaw 1958).

In 1837 John Elliotson became interested in mesmerism after he had witnessed a demonstration given in England by the visiting French mesmerist, Baron Dupotet. Dr. Elliotson, a brilliant and well-respected member of the medical profession, studied at the universities of Edinburgh and Cambridge and later in London at St. Thomas' and Guy's hospitals. In 1831 he was elected professor of the Principles and Practice of Physic in London University, and in 1834 he became physician to the University College
Hospital. Elliotson was one of the first teachers in London to appreciate the value of clinical lecturing, and one of the earliest among British physicians to advocate the employment of the stethoscope (Encyclopaedia Britannica).

He began to use mesmerism with selected medical cases and achieved some remarkable cures. His demonstrations were so popular with students he was often forced to take the patient from the ward and carry out his mesmeric demonstrations in the hospital amphitheatre. Elliotson's success soon aroused jealousy within the medical profession in much the same manner as did Mesmer half a century before him. He resigned from the hospital and lost many of his medical friends, but he keenly persisted with his experiments in mesmerism. He gathered around him a band of loyal supporters and produced a journal called "Zoist", devoted to magnetism and cranial physiology. The journal published many reports of painless surgery using mesmeric sleep and was influential in the establishment of clinics in London, Edinburgh, Dublin and other cities. Elliotson's work on hypnosis was particularly noteworthy and some of his observations still hold good today (Hartland 1966).
In 1841 James Braid, a Scot practising medicine in Manchester, examined a patient who had been mesmerised by a visiting French magnetiser named Le Fontaine. Braid at first thought the trance to be a fake but soon discovered that it was genuine. He became interested and soon found that he could produce the trance state with his own patients.

Braid's method of trance induction was to have his patients stare at a shining object such as his lancet case. He discovered that he obtained excellent results when he used the trance state for medical and surgical purposes. Braid offered to read a paper on the subject in 1842 to the British Medical Association which was meeting in Manchester. The offer was rejected and his claims branded as ridiculous.

Braid recognised the psychological character of the patient's condition and coined the words "hypnosis" and "hypnotism" (from the Greek word "hypnos" meaning sleep).

The importance of Braid's work lies in the fact that he was quick to realise that no mysterious magnetic fluids were involved in the production of the trance. To him goes the credit for establishing
the fact that suggestion was the principal factor in inducing hypnosis. In 1843 Braid published a book on his experiments and findings, entitled Neurypnology and the Rational of Nervous Sleep. In this book he sets forth the dynamic theory of suggestion and breaks once and for all with mesmerism and magnetism (Braid 1843).

In 1845 James Esdaile, a medical graduate of Edinburgh University, was employed by the East India Company in Calcutta, where the British government built him a hospital devoted to hypnotic practice. At this period, chloroform and ether had not been discovered as anaesthetic agents and it was customary to strap a surgical patient to the operating table and proceed with the surgery while the patient struggled and screamed. Esdaile used hypnotic anaesthesia and performed some three hundred major surgical operations, the patients being spared all pain (Milechnin 1967).

Dr. Liébeault (1823-1904) of Nancy, France, was in his thirties when he began to study hypnotism seriously. He was a student of Braid's work and accepted the latter's theory of suggestion as the
dynamic force in the induction and process of hypnosis. Liébeault ran a small country practice and treated many patients without fee. He was the first to demonstrate the curative value of hypnosis on a large scale, for he treated thousands of patients with outstanding success. He may well be considered the real father of modern hypnotism.

His work came to the notice of Professor Bernheim, a famous neurologist, when he succeeded in curing a chronic case of sciatica which had been under Bernheim's care. Bernheim was annoyed at the claims which were being made and decided to visit Liébeault and expose him as a "quack". However, he was so impressed with Liébeault's theories and practice that he became a student of the modest, country doctor. Bernheim, a conservative academican soon became an authority on hypnosis. The medical world was prepared to take notice of such a distinguished man of science. In 1884 he published his first book on hypnotism; he fully acknowledged Liébeault's work and gave accurate information and case histories. In 1886 the first edition of Suggestive Therapeutics was published. This book is a good treatise on the
nature and use of hypnosis and is still used today as a text by students of hypnosis.

In 1880 Professor Charcot, a neurologist of Salpêtrière Hospital in Paris, developed a school of hypnosis. Charcot had exceptional abilities as a clinician but seemed to have little understanding of the real nature of hypnosis. He did his utmost to devise scientific tests for it, and concluded that the hypnotic trance was a pathological phenomenon similar to hysteria and consequently the product of an abnormal nervous constitution. Charcot used only a limited number of trained subjects and his findings lacked scientific validity. A bitter struggle followed the findings of Charcot and those of Bernheim. The controversy between the Salpêtrière and the Nancy schools, as they came to be called, placed Charcot's interpretation of hypnosis as pathological and connected with hysteria. This point of view was against the Liébeault-Bernheim theory that the effect was strictly psychological, due to suggestion. According to the Nancy school, a neurotic personality was not required in order for hypnosis to be successful, and this is the position that
eventually triumphed. The conflicting opinions raised the level of discussion of hypnosis to that of differences in scientific interpretation and lifted it out of the fringe association with mysticism and charlatanism (Hilgard 1965).

During the latter part of the nineteenth century many extravagant claims were made for the curative powers of hypnosis. The permanency of the results was never checked, largely due to the lack of follow-up studies on patients presumed cured (Hartland 1966).

At this time little was known of the defensive value of symptoms, patients were simply hypnotised and told they would wake up cured. To suggest to the patient his nervous symptoms would disappear without an investigation of the primary cause of these symptoms was frequently futile.

In 1880 Dr. Breuer, a Viennese general practitioner, discovered by accident that a hypnotised patient, when allowed to speak freely, displayed a profound emotional reaction, and, when awakened, many of her symptoms had disappeared. Freud's attention was drawn to this and he worked with Breuer, and
more fully confirmed the results. The importance of the discovery was that elimination of the apparent cause of neurotic symptoms was recognised to be paramount, rather than direct removal of the symptoms themselves.

Freud eventually became disappointed with hypnosis as he was unable to obtain a satisfactory trance state in many of his patients. He ultimately rejected it altogether in favour of psycho-analysis, a discovery of his own (Freud 1957).

During this era there were numerous reports of hypnotic anaesthesia. In America in 1864, Dr. Albert Wheeler cut a polyp from the nose of a patient while Phineas Quimby produced the anaesthesia using hypnosis. In 1890 Carter and Turner, English dentists, demonstrated hypnotic anaesthesia for painless tooth extraction. Bonwill in America recorded the dental use of hypnosis in 1894 (Shaw 1958).

At the conclusion of World War I, Freud, who had discarded hypnosis as impractical, stated it might find a place in psychotherapy. He agreed it had some merit in the treatment of war neurosis, even though he himself had little faith in its use.
In 1935, Hull's scientific laboratory experiments, published in his book *Hypnosis and Suggestibility*, awakened an interest in the subject as a science. From 1939 to 1945, the need for extensive psychotherapy during and following World War II, increased the use of hypnosis.

Sampimon and Woodruff, two Australian physicians, reported the application of hypnotism for anaesthesia during World War II. They were held prisoners at a Japanese prison camp in Singapore. As physicians, there was a need for their services among the other prisoners, but there were practically no medical supplies available and absolutely no anaesthetic drugs. They described twenty-nine major operations performed without the use of any drug anaesthesia. All anaesthesia was hypnotically induced (Sampimon & Woodruff 1946).

Post-war years produced numerous writers in both clinical and experimental hypnosis. In 1949, the Society for Clinical and Experimental Hypnosis was founded in the United States. The British Journal of Medical Hypnotism, official organ of the British Society of Medical Hypnotists (founded 1948), was first published. The American Society of Psycho-
somatic Dentistry was organised and other such groups followed under various names, such as Hypnodontic and Applied Psychology Societies (Moss 1952).

In Britain, the Hypnotism Act (1952) strictly limited the conditions under which public demonstrations of hypnosis could be held. The British Medical Association appointed a sub-committee of its Psychological Group Committee, to inquire into the use of hypnotism in contemporary medicine in 1953. The committee found hypnosis could play an important role in certain psychosomatic and psychoneurotic illnesses; it warned against excessive and unjustified claims, and suggested that hypnosis could sometimes play a part in surgery, obstetrics and dentistry as an analgesic and anaesthetic agent. The committee further recommended that hypnotism could be included in the psychiatric courses at medical schools and possibly in those for obstetricians and anaesthetists.

Finally it recommended the need for more research in the neurophysiological and psychological aspects of hypnosis. The report has done much to raise the status of hypnosis and to take it from the hands of the stage performer and place it among the medical sciences where it rightly belongs (Hartland 1966).
In 1957, the Michigan State Board of Dentistry obtained a ruling from the State's Attorney General, declaring it legal for a dentist to use hypnosis in dental practice (Shaw 1958).

In 1958, the American Medical Association approved the report of the Council of Mental Health of the American Medical Association, which as a committee of the whole, made a two-year study of hypnosis. A significant conclusion stated in part that, "... there are definite and proper uses of hypnosis in medical and dental practice in the hands of those who are properly trained... The use of hypnosis to produce analgesia during childbirth or to facilitate a dental extraction is an anaesthetic rather than a psychiatric function of this technique and is properly as much within the field of a qualified obstetrician or dentist as is the use of nitrous oxide or novocaine" (American Medical Association Report, 1958).

In 1960, Dr. S. Irwin Shaw of Detroit, U.S.A., conducted several post-graduate courses in hypnodontics for dental surgeons throughout Australia. The author attended the course held in Sydney which was conducted in a precise, scientific and ethical manner.
It embraced not only the practical application of hypnosis in dentistry, but also the important psychological ramifications of its implementation.

"At the fourth annual scientific meeting of the American Society of Clinical Hypnosis, held October 28 (1961) in St. Louis, a resolution was unanimously adopted approving the hypnosis course at Tufts University School of Dental Medicine. The resolution also recognised the course as a pioneering endeavour and recommended that it be continued as it is the sole course offered on an ethical, professional level for training hypnosis in the New England states and surrounding areas." (Reported in J.A.D.A. 64;131 Jan. 1962).

Raginsky (1968) decries the lack of teaching hypnosis at university level but adds, "This problem may be resolved as more universities and hospitals provide post-graduate instruction in hypnosis. Eight American universities now give year round post-graduate courses in clinical hypnosis. Psychiatry and psychology must continue to provide leadership in exploring and controlling this useful tool. But a science whose ramifications extend into all the biological and
social sciences can never be the exclusive property of any single discipline."

The author first presented a paper entitled *Hypnosis in Modern Dental Practice* to the Western Suburbs Dental Group, Sydney in 1950. A demonstration of hypnoanaesthesia was given; on several patients and in one case a deeply-embedded, lower molar was removed. The extraction was painless with minimal bleeding and there was no post-operative complication. Since then, lectures and demonstrations have been given by the author at numerous dental conventions and society meetings including the 9th N.S.W. Dental Convention held at Wollongong in 1971.

In July 1971, the inaugural meeting of the Australian Society of Clinical and Experimental Hypnosis was held in Sydney. Membership was restricted to persons qualified in medicine, dentistry or psychology, with post-graduate training and experience in hypnosis. It is envisaged that the society will affiliate with similar international bodies, offer its members advanced training and research facilities and thus elevate the status of ethical hypnosis in Australia.
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THE NATURE OF HYPNOSIS

There are many different theories concerning the nature of the hypnotic state. Although its history extends back to the dawn of civilisation, hypnotism remains one of the outstanding unsolved mysteries of science.

Kennedy (1960) stated, "A great deal of descriptive knowledge is now available on its phenomena and on its application to the treatment of functional nervous disorders. Yet in spite of an enormous theoretical literature, no unifying hypothesis has yet emerged which satisfactorily explains how it works in terms of brain and mind ... That the study of hypnosis, like much of our present day psychology, is still in the stage of limited, tentative and even wild theorisation which precedes scientific clarification, does not mean that we must wait upon this to accept its benefits."

Animals other than man can be put into a condition resembling hypnosis and this fact has been used to support the belief that hypnosis is a physiological process. There have been many attempts
with little or no real evidence to postulate various neurological mechanisms responsible for the production of the hypnotic state (Mason 1960).

Other evidence put forward in support of a physiological basis for the hypnotic state, is its similarity to natural sleep, and to conditioned reflexes. Faria, Braid, Bernheim, Liébeault, Wundt, Pavlov and others have in one way or another related the hypnotic state to natural sleep (Milechnin 1967).

**SLEEP AND THE HYPNOTIC STATE**

To Pavlov both sleep and hypnosis were manifestations of the same process of inhibition spreading over the cortex and he felt the two states were clearly linked. Das (1965) after an extensive review of the literature concluded that, "On the whole, it is felt that there is enough evidence to make out a case for supporting Pavlov's view of hypnosis as a state of partial or selective inhibition".

Whilst sleep and the hypnotic state appear similar, many differences between the two may be demonstrated. Some of the differences enumerated are obvious while
others are not:

1. A person asleep will not respond to stimuli the way a hypnotised person will.

2. Consciousness is suspended in sleep, but present in hypnosis.

3. Reflexes, such as the knee jerk, which are diminished or abolished in sleep are present in hypnosis (LeCron and Bordeaux 1947).

4. Electrocardiographic and respiratory studies show that the hypnotic state is more like normal consciousness than sleep.

5. Brain potentials in the trance state are more characteristic of the waking state than the sleep state.

6. The psycho-galvanic reflex in a hypnotised person is the same as in the waking state (unless a sleep-like state has been suggested).

7. In sleep there is a fall in blood pressure and a slowing of the heart rate, but in hypnosis although the heart may go slower spontaneously, both heart rate and blood pressure are amenable to changes by direct suggestion which they are not when the patient is truly asleep.
8. The metabolic rate is lowered in sleep but remains unchanged in the hypnotic state (Points 4–8, Weitzenhoffer 1953).

Undoubtedly the confusion that has arisen between hypnosis and true sleep is because these two states are interchangeable and hypnotised patients may pass to a normal state of sleep for either physical or psychological reasons. When this does happen there is a lack of contact with, and response from, the patient, although he is apparently in a deep trance. Then abruptly his true state may be revealed by a sudden loud snore, or he may awaken completely with a visible start.

Normal sleep may be changed to the hypnotic state in susceptible people by quiet rhythmic suggestions spoken into the sleeping person's ear. Mason (1960) suggests that the subject should be asleep for at least half-an-hour before hypnotic induction is attempted. The usual words used to induce hypnosis are softly spoken and after a while some suggestion is made, such as levitation of an arm, and if this is obeyed it can be taken as an indication of successful
hypnosis. Certainly such a response can never be obtained during true sleep.

Gill and Brenman (1959) reviewed some of the major statements on the relationship between hypnosis and sleep and said, "The commonality between sleep and hypnosis has been said to reside in the withdrawal from the external environment. Freud (1921), for example, said: 'Now the command to sleep in hypnosis means nothing more nor less than an order to withdraw all interest from the world and to concentrate it on the person of the hypnotist. And it is so understood by the subject; for in this withdrawal of interest from the external world lies the psychological characteristic of sleep, and the kinship between sleep and the state of hypnosis is based on it'."

These authors conclude that in a general sense the induction of hypnosis is facilitated in natural sleep because the individual is already in a regressed state. There is a similar relationship of increased hypnotisability associated with regression in fugue states, the traumatic neuroses, multiple personality, and natural somnambulism.

Gill and Brenman argue that there is no necessary connection between hypnosis and sleep as states, though they may be subjectively closely connected,
even equated, for any particular person. It may actually be that the common psychological equivalence of the two states is to some extent responsible for their being so frequently related in psychological theory.

**THE CONDITIONED-REFLEX THEORY**

This theory is based on the work of Pavlov who adopted and developed reflex psychology. Andrew Salter (1949) postulates that hypnosis is a physiological state produced by a lifetime of conditioning which associates the state of sleep with such words as 'heavy, drowsy, relaxed and sleepy', and therefore when these words are used in hypnotic induction, the subject automatically responds to them because of previous conditioning. This theory assumes that normal sleep and the hypnotic state are similar, but as shown previously this is not so.

A further argument against hypnosis being solely a conditioned process lies in the fact that deconditioning of the latter always involves a slow, repetitive procedure, the length of time required depending largely
upon the time taken to achieve the original condition. In the hypnotic state, however, dehypnotising can be effected immediately upon word of command. Nevertheless, many of the phenomena characteristic of the hypnotic state may be adequately explained by this theory.

Furneaux (1957) demonstrated by means of conditioning to the eye blink reflex, that persons who establish conditioned reflexes easily and retain them well, are also markedly susceptible to hypnotic procedures.

Hartland (1966) stated, "There can be no doubt whatever that conditioning does play an important part in the induction of hypnosis, and it has been shown that people who are capable of establishing conditioned reflexes easily are usually good hypnotic subjects".

Weitzenhoffer (1953) said, "If we are to accept the consensus of opinion that habit formation is a conditioning process, we must include Hull's (1933) view that suggestions are habit phenomena. As a matter of fact, by virtue of Hull's interpretation of monoideism and of ideomotor action as habit phenomena, these two also come under the present heading; and
hence so does any theory of hypnosis based on either of them. But, even if Hull's proposition is rejected, the ideomotor theory of suggestibility finds a place here on the basis that ideomotor action is best understood in terms of conditioned reflexes. According to Young (1941) and to Eysenck (1947) suggestibility is the result of two forces: ideomotor action and inhibition.

"Finally, we should also consider Arnold's (1946) theory that suggestibility is merely an expression of imagining actualized through ideomotor action".

It is the author's opinion that conditioning is only one of many factors which play a positive part in the production of hypnosis, a process involving complex neuro- and psycho-physiological changes in the individual.

**HYPNOSIS AND SUGGESTIBILITY**

Most of the theories concerning the hypnotic state are psychological and it is most commonly postulated that hypnosis is a state of exaggerated suggestibility. Hartland (1966) supports this theory and believes it renders the whole process of hypnotic induction easier to understand. He says that the
first step is to try and make clear what is understood by suggestion and suggestibility, and he gives the following definitions of these terms. (He admits that such definitions have short-comings and are probably not complete).

Suggestion is the process whereby an individual accepts a proposition put to him by another, without having the slightest logical reason for doing so. In a different sense the term is also used to describe an idea which is presented to the individual for his uncritical acceptance.

Suggestibility is the degree to which an individual is inclined towards the uncritical acceptance of ideas and propositions. In other words, it is a measure of the extent to which an individual will react to what is said to him, without employing his critical faculties.

People are exposed to constant suggestion every day. Window displays of attractively-arranged merchandise, newspaper articles, radio and television all exert strong suggestive forces which influence the individual's thoughts and actions, for the most part unconsciously.
Hollander (1957) stated that suggestion plays a very important part in our mental development and in our intercourse with our fellows. Life is full of it, we cannot escape its influence. We are constantly receiving suggestions, or suggesting to others, though we are not always conscious of the power we are exercising. Even the most resolute characters are influenced by suggestion. It only requires the suggestion to be made artfully. The idea need only be introduced discreetly and gradually in order to succeed. By indirect suggestion the subject has no consciousness that his views are being modified.

Suggestion lies at the foundation of all forms of moral and religious teaching. It is, in fact, the basis of education. The art of advertising depends mainly on its power of suggestion. The advertiser may make a simple bold assertion, and repeat it daily, thus suggesting by its repetition that the statement is true. In politics as in daily life, people follow a leader sometimes against their real interests and convictions. It is feeling, not reason, that sways large gatherings of people. Mobs will commit acts that no member of them would think of perpetrating individually.
Children are almost purely subjective, and it is easy to observe how completely a suggestion, true or false will take control of their minds. Their good manners are easily destroyed by bad company, and their minds can be corrupted by what they see, hear and read.

Suggestion in its wider sense can be either direct or indirect, but direct persuasion is not usually regarded as suggestion.

Professor Bechterev (quoted by Hollander 1957) said, "Suggestion enters into the understanding by the back stairs, while logical persuasion knocks at the front door."

In everyday life, important mental procedures are carried out by the unconscious portion of the mind. The success of hypnosis depends not so much upon the hypnotist’s knowledge of academic psychology as upon his acquaintance with human nature and his experience of life. In no other branch of therapeutics is it so necessary to individualise, and to adapt one's methods to the idiosyncrasies of the patient, to his individual qualities, constitution, temper, disposition, and the mood he happens to be in at the time.
"The power of suggestion is tremendously enhanced when it acts upon the unconscious rather than the conscious mind" (Hartland 1966).

Van Pelt (1958) stated, "Most authorities favour the theory that hypnosis is a state of exaggerated suggestibility. Even in the waking state most people are suggestible. A single word or phrase can make a person feel happy, sad, angry or afraid, and often evoke the bodily symptoms which accompany these feelings. Yawning is notoriously infectious. One person faints in a crowd, and others do likewise.

"An idea implanted in the mind tends to realise itself unless definitely inhibited. Consider how a person will make motions with the hand in describing a spiral staircase.

"In ordinary waking suggestion the patient can use the inhibiting influence, but in hypnosis this is abolished. Once induced, the effects of hypnosis are mechanical, and operate whether the patient believes it or not.

"For all practical purposes it is easiest to regard hypnosis as a peculiar psychical state where the mind is particularly susceptible to suggestion."
To understand how the power of criticism is either fully or partially suppressed in the hypnotic state, it is necessary to accept the concept of the unconscious (or subconscious) mind. This concept postulates that in every person there is a portion of the mind (of which the individual is normally unaware,) which is constantly influencing thoughts and behaviour.

Hartland (1966) stated, "The conscious mind is that part of the mind which thinks, feels and acts in the present. It is the part of the mind which I am using in writing this page, and it is the part of the mind which you are using while reading it. The unconscious mind is a much greater part of the mind, and normally we are quite unaware of its existence. It is the seat of all our memories, all our past experiences, and indeed of all that we have learned."

In addition to unconscious motive powers (the instincts and emotions which humans share with the lower animals and which depend on peculiarities of brain structure), every individual has a store of experiences, accumulated from birth and registered
in the brain cells, so that they are never lost, though difficulty may be experienced in recalling them. This available material constitutes the person's stock of knowledge and background. It is also unconscious, but as recall is possible, it is termed 'subconscious'. A person can attend to only one thing at a time, all the rest is removed from consciousness, though it can be used whenever required. All latent memories, possible ideas, and materials of imagination are stored in the subconscious mind. Only an infinitesimal part of the mental possessions of an individual exist in his consciousness at any one time. Objects and events may be forgotten; that is to say, they may be dismissed from consciousness; but they are stored in the subconscious until death. An individual may be able to call them into consciousness by some association when he wishes to do so, or they flash into consciousness without any effort, but at other times the mind is unconscious of their existence.

There are some thoughts that never emerge into consciousness, and yet influence the personality and outlook on life. Thoughts instilled into the minds
of children can be long forgotten and yet have considerable effect on the psychical life. Erickson (1962) emphasised this point of view.

Hypnosis is one of the means of getting at the subconscious contents of the mind and teaching the subject how to use this store voluntarily to great effect.

Most thinking is done at the subconscious level. When an infant first learns to walk or to talk every slight action is done at the conscious level but with practice more and more of the necessary muscular coordination needed for movement is delegated to the subconscious until eventually no conscious effort whatsoever is required.

The more attention is concentrated on a particular subject, the less a person notices concurrent impressions and internal sensations. Hence in times of real danger, the body may feel no pain no matter how severe the injury. A soldier wounded in battle may feel no pain until the battle is over and all the excitement is gone.

The subconscious actions of the hypnotised subject may be compared to those of an absent-minded
person, who, though wide awake will yet do things with an apparent purpose while not really knowing what he is doing.

Absent-mindedness in a normal person is a spontaneous phenomenon; in hypnosis it is artificially produced. It is a temporary mental dissociation of a not uncommon kind and terminates suddenly, whether the individual wishes it or not; whereas hypnosis can be indefinitely protracted by the hypnotist until a suggestion is given to awaken. The effect of hypnotic influence depends on the fact that the subconscious store of ancestral and individual experience, and of individual instincts and emotions can be reached by certain procedures. The subconscious mind supplies the stimulus to thought and action, and keeps the extraordinarily complicated mechanism of the body in working order; this is accomplished largely through the autonomic nervous system.

Hartland (1966) has likened the subconscious to a giant filing cabinet to which the individual can refer in order to refresh a memory when the need arises. Under certain circumstances it can also
undertake most of the functions of the conscious mind, with one important exception: the power of criticism.

A filing cabinet can house masses of information for which the owner has no immediate use. When there is a call for particular knowledge, the necessary information can be quickly attained by selection of the appropriate drawer, and then file, from the cabinet. The information can be evaluated and brought into consciousness, but the filing cabinet itself cannot make use of the information stored in it. Someone has to go to it, extract the required information, and bring it into consciousness before it can be used.

A similar process takes place whenever one needs to make use of some previous knowledge or experience. For instance, if a proposition is put to a person that he may wish to criticise, he has to open the door of his subconscious mind and extract the necessary memories and information to bring them back to consciousness. Only then will he be able to criticise the proposition in the light of his previous knowledge or experience.
The following example frequently demonstrated by the author may illustrate the way in which this mechanism works.

Suppose a person were asked to hold a matchbox in his outstretched hand, and as he held it he was given a suggestion that it was becoming heavier and heavier, so heavy in fact that he could no longer hold it up. It is unlikely that he would perceive any increase in weight. In a fraction of a second, several thoughts would have flashed through his mind enabling it to exercise the function of conscious criticism. He would think to himself, "Nonsense! No matchbox could suddenly become heavy. There is nothing to make it heavy. Even the most dense element in the world wouldn't make it too heavy for me to support."

The person has drawn upon knowledge and experience in his subconscious mind in order to criticise the proposition that has been made, and as a result, has been able to reject it completely.

Now if the same proposition is put to a deeply-hypnotised person, the conscious mind and its power of criticism have been entirely suppressed. The information necessary to reject the proposition is
stored in his subconscious mind but he is unable to utilise it. He therefore accepts the proposition without reservation. He will believe implicitly that what he has been told is going to happen, will be bound to occur. He will thus begin to feel the suggested increased weight of the matchbox which he will be unable to support and he will either have to drop it or lower it to the floor.

The conclusions to be drawn from the foregoing test may be summarised in the following way:

1. The power of criticism is restricted largely to the conscious mind.

2. It is by virtue of this alone that the conscious mind possesses the ability to reject any suggestion that may be made.

3. When suggestions by-pass the conscious mind as they do under hypnosis, they penetrate directly to the subconscious mind, which, being able to exercise little or no power of criticism is quite unable to reject them, and the individual is bound to act upon them. Suggestions are therefore not only more readily acceptable, but are also realised to the fullest possible ex-
tent during the hypnotic state, since direct access is gained to the subconscious part of the mind. Using this assumption it is now possible to define certain further principles applicable to the hypnotic state.

A. The response to hypnosis will depend upon the extent to which the power of criticism is suppressed and the power of rejection normally exercised by the conscious mind is removed.

B. The depth of hypnosis in any given case will be directly related to the degree of suppression attained. Slight suppression will result in light hypnosis only, complete suppression will result in deep hypnosis or somnambulism.

C. The more the conscious mind is suppressed, the more the suggestibility of the individual will increase.

The following simple analogy is often used in an attempt to clarify the role of subconscious and conscious portions of the mind during hypnotic induction. The mind is likened to an iceberg, the small visible portion representing the conscious while the larger submerged segment represents the
subconscious. The iceberg floats with only one
ninth of its total bulk above the water; eight
ninths is hidden from sight. When hypnotic induction
is attempted it is the hypnotist's aim to invert the
iceberg so as the larger portion is revealed and the
visible part submerged. In other words the subconscious
mind rises to the surface, becomes more accessible,
and eventually assumes temporary control. Moreover,
the degree of displacement achieved will correspond
roughly with the various stages of hypnosis. If the
iceberg only topples over slightly the result will be
light hypnosis, and the power of criticism will be
impaired but not to any great extent. The more it
rolls over, the greater will be the degree of hypnosis,
total inversion corresponding with deep hypnosis.
The conscious mind will have submerged entirely and
will be completely inactive. The subconscious mind
will have temporarily assumed control and the power
of criticism will be removed altogether.

In trying to induce hypnosis the main problem is
to get the conscious mind out of the way so as to
make use of the increased degree of suggestibility
that will inevitably follow. Fortunately this is not
as formidable a task as it might seem, as the secret
lies in a very simple but universal fact. Even in everyday life, whenever concentration of attention occurs, it induces a tendency towards a splitting of consciousness which renders the subconscious mind more accessible.

A typical example of this is frequently observed where people deeply engrossed in watching television or reading, will answer questions addressed to them by another member of the household, but later deny any knowledge of such a conversation. This is because the conscious mind was wholly concentrated on the television or literature and the question was assimilated and answered at a subconscious level; hence the loss of memory.

Hartland (1966) likens the hypnotic state to that of absent-mindedness and concludes, "In its deeper stages, the hypnotic state is extremely similar to this. Indeed one might almost look upon it as a controlled state of absent-mindedness which can be brought on whenever one wishes, which can be prolonged as long as one needs to make use of it and which can be terminated the moment one has no further use for it."
THE ATAVISTIC THEORY OF HYPNOSIS

Meares (1962) believes that the basic factor in hypnosis is a regression to the primitive mode of mental functioning, in which ideas are accepted uncritically by the primitive process of suggestion. He refers to this as atavistic regression because it involves a return to a mode of activity of our remote ancestors, rather than a return to some activity of infancy or childhood.

Biologically, the process of reasoned logical thinking is a recently acquired capability; likewise is the function of critical evaluation. Before mankind achieved the ability of logical, critical thought processes, the mind must have functioned at some simpler level of integration. Atavistic regression is a return of this more primitive method of mental functioning.

Reflex activity and the various forms of conditioning can be considered as primitive functions when compared with rational, critical thinking. However, distinct from these functions there is the mechanism of suggestion. Meares considers "...
Suggestion as that process which determines the uncritical acceptance of ideas. In the evolutionary period prior to the development of logical critical thinking, it would seem that primitive man accepted simple ideas by the more primitive process of suggestion. This primitive mechanism has been largely superseded by the acquisition of the logical critical abilities."

Meares stresses there are many observations which would tend to confirm the concept of suggestion as a primitive process. "Suggestion is more active in primitive peoples than it is in sophisticated western peoples. In fact, much of the life of primitive communities would seem to be ordered by suggestion in the relative absence of logical critical evaluation. Another observation is that suggestion is very active in sub-human species. The behaviour of the individual members of flocks and herds can often be seen as the direct and apparently uncritical response to some idea communicated either by the behaviour of another animal, or by some event in the immediate environment."

As a child matures, the logical critical process becomes more and more important in ordering his behaviour at the expense of the more primitive process
of suggestion. When hypnosis is induced, the process of suggestion functions effectively because critical thinking is reduced or absent.

The basic factor in hypnosis is considered to be a regression to the primitive mode of biological functioning in which ideas are accepted uncritically by the primitive process of suggestion. Superimposed on this basic regression various psychological mechanisms operate. The most important of these are, identification, introjection, conditioning, dissociation, role playing, hysterical defences and communication by behaviour.

When these psychological mechanisms operate on a basis of atavistic regression they function rather differently from the way they do in the case of a normal waking individual. In general, they function in a grosser fashion, so that this overlay of psychological mechanisms comes to account for the more obvious clinical features of the hypnotic state.

Hypnosis can be induced by a truly bewildering number of apparently unrelated methods. However, as Meares points out, if these diverse procedures are considered from the point of view of the atavistic
theory, they are seen to fall into three groups:

1. Procedures which reduce the critical activity of the mind.

2. Procedures which activate the latent suggestive process.

3. Procedures which initiate general regression.

This theory is favourably received by many modern hypnotic authorities. Kline (1962) comments, "I think it is difficult but nevertheless important to distinguish between behaviour which results from the hypnotic experience and the essential nature or essence of the hypnotic state itself, both subjectively and objectively. In addition, I think in considering this proposed contribution to a unified theory, and it is to my way of thinking the most organized, concise approach to a unified theory, we have to take this element into account."

Raginsky (1962) says, "Any theory of hypnosis must of necessity be a biological one in which an explanation must be found for the way in which the hypnotised person moves in the direction of functioning which approaches the most primitive level of psycho-physiological existence where an awareness of
individual-environment differentiation diminishes towards infinity. To be meaningful, this should include sociological, anthropological, psychological and physiological concepts. While clarity and simplicity are the goal of any theory, this is more likely to be attained in the mathematical rather than the biological sciences. We must settle, for the time being at least, for a theory which by its mere title suggests its basic concept. This is a great advance in itself, since it gives us a direction of thinking and exploration...

"In summary, the Atavistic Theory is a very acceptable all-inclusive concept which, together with Schneck's theory of hypnosis, should be the basis for further examination and exploration."

Schneck (1962) says, "I am in essential agreement with Dr. Meares regarding the presence of phylogenetic features in hypnosis. In fact, I myself suggested the existence of the phylogenetic regression in connection with hypnosis when I discussed a 'biological' theory of hypnosis several years ago, (1953 and 1960).
"Dr. Meares places stress on the issue and concepts of 'suggestion', and his atavistic theory rests largely on the view of the archaic aspects of suggestion. It seems to me that the phylogenetic attributes of hypnosis probably go far beyond the issue of suggestion. Even so Dr. Meares' ideas and my own overlap and are not mutually exclusive.

"I conjecture that the basic element in the hypnotic state is a condition represented by the most primitive form of psycho-physiological awareness of individual-environmental differentiation attainable among living organisms. The capacity to move in this direction, toward the most primitive state, to the greatest degree possible, probably varies among different organisms. The retention of some degree of this capacity exists probably in all biological forms."

THE PSYCHO-ANALYTIC THEORY

This theory elaborated by Ferenczi (1909), postulates that one wish, which is universally present (unconsciously) in mankind, is a desire to
regress to infancy. This characteristic of the mind is known as 'infantile regression' and is continually manifested in our dreams and fantasies. No person is entirely free from this tendency or capacity. Ferenczi believed that when a person is hypnotised a 'parent-child' relationship develops between the hypnotist and his subject, accompanied by the desire for unconditional subjection. He declared that a hypnotised person accepts the hypnotist as occupying the place of one of his or her parents—the favoured parent. McDougall (1926) refuted this by saying that if it were true, a woman could then be expected to hypnotise only those who favoured their mother and a man only those partial to their father; whereas a good subject is hypnotisable by either a male or female operator.

**THE DISSOCIATION THEORY**

This theory was originally formulated by Pierre Janet (1919) who worked at the Salpêtrière Clinic in France made famous by Charcot. This school believed in a close association between hysteria and hypnosis. Janet concluded that hysteria was caused by a split-
ting of the mind into two parts and that hypnosis represented the same splitting process, artificially induced. This concept was supported by such prominent psychologists as Prince (1920), Sidis (1922) and McDougall (1926). It is accepted and approved by many today.

Normally, memories are recalled by the association of ideas. If there is a failure of power to recall events which normally should be remembered, this is termed 'dissociation'—an interruption or depression of the memory. Amnesia is therefore an essential element in this theory.

LeCron and Bordeaux (1947) are among those authorities who accept the concept of the subconscious mind. This part of the mind seems able to perform many of the acts of the conscious part, such as thinking, computing, etc., as well as serving to control the autonomic nervous system. These matters can be demonstrated through automatic writing or drawing.

A person capable of automatic writing is able to converse intelligently and at the same time, hold a pencil and write legibly on a totally unrelated subject and have no conscious idea what he is writing.
This ability of the mind to simultaneously carry out two unrelated tasks, is not uncommon in waking individuals and during hypnosis it can often be evoked in others.

From this fact it has been reasoned that the mind is dual or even multiple. Janet thought a dissociated memory, or group of memories, might develop into a kind of second personality.

Individuals who suffer severe emotional shock or physical trauma such as a blow on the head, sometimes develop amnesia and exhibit a dual personality. The new personality may not be capable of recalling a single event prior to the trauma. Adherents to the dissociation theory claim that hypnosis produces a similar splitting of personality, the subconscious part of the mind becoming the dominant one. Sidis (1922) contended that the two parts of the mind were dissociated, beginning with light hypnosis, gradually progressing as the trance state deepened, until in deep hypnosis the dissociation was complete. Trance depth was considered directly proportional to the extent of amnesia displayed; the greater the amnesia, the deeper the trance.
The whole dissociation theory depends largely on the development of amnesia following the trance and is greatly weakened by the fact that deep trances sometimes occur without any appreciable degree of amnesia. Even when present, this amnesia is rarely spontaneous and is more often produced by direct suggestion. Moreover post-hypnotic amnesia can be removed quite easily and the memory restored by suggestion.

LeCron and Bordeaux (1947) state, "The whole subject of dissociation is difficult of explanation and as a theory has many logical and satisfactory points. While it does not seem to us completely acceptable, it is difficult to refute.

"A clear definition of dissociation is almost impossible since conceptions of the term are seldom identical. Amnesia is one thing, dissociation is another, the first often influencing the second."

Sarbin (1965) completely refuted this theory and said, "Numerous experiments and sophisticated observations have led to the unmistakable conclusion that the hypnotised subject is not composed of various psycho-physiological systems that can be dissociated one from the other. White and Shevach (1937) have
written a thoroughgoing analysis of the concept of dissociation and have concluded that the natural cleavages in the nervous system, postulated by Janet, are non-existent.

THE ROLE-PLAYING THEORY

According to this theory, the subject is believed to respond in the manner in which he thinks a hypnotised person should behave.

White (1941) made an extensive study of the role of motivation in suggestibility. He found some indication that motivation does play a role in determining hypnotic susceptibility. He concluded that a pattern of needs, disposing the subject toward being hypnotised, favoured trance induction. Sarbin (1950), who developed White's hypothesis further, added that hypnosis is a form of general socio-psychological behaviour which he called 'role-taking'.

This theory fails to adequately account for many hypnotic phenomena. An example of this is the hypno-anaesthesia used in radical surgery, (such as the amputations performed by Esdaile in the last century and the many thousands of well-documented surgical cases carried out since that time). Erickson (1962)
pointed out the validity of this hypnoanaesthesia in the clinical situation which, he said, refuted the possibility that the patient was merely playing a role to please the hypnotist. Crasilneck (1962) concurred with this opinion.

Authorities agree that there is still much to learn about the nature of the hypnotic state. Le Cron (1952) stated that no entirely adequate theory has ever been advanced to explain it. The question, "what is a trance?", remains unanswered, nor do we know very much as to what actually can be accomplished in a practical way with hypnosis.

To review at length the very numerous and usually inadequate theories on the nature of the hypnotic state, is beyond the scope of this thesis. The theories elaborated are in the author's opinion among the most acceptable of the many contemporary concepts in the hypnotic literature. Hilgard (1965) said, "The suggestibility theory of hypnosis is so widely accepted that hypnosis and suggestibility come to be equated by some writers on hypnosis. Both Hull (1933) and Weitzenhoffer (1953) see the relationship between hypnosis and suggestibility to be so intimate
that they link terms in the title of their books ... It is often convenient to study hypnosis in terms of alterations in suggestibility, regardless of how these changes come about."

Milechnin (1967) is one author who does not believe that suggestion has a significant role in the production of hypnotic phenomena. He said that suggestion plays no more role in the hypnotic state than in any relationship between physician and patient, or any other important inter-human relationship.

Hollander (1957) stated that in hypnosis, suggestibility is greatly increased. All hypnotic phenomena however cannot be explained by suggestion, and certainly do not depend entirely on such a process but can be produced without its influence. Modern hypnotists rely too much on suggestion, and thereby frustrate their own experiments and fail to produce the extraordinary results achieved by early mesmerists. For suggestion, whether consciously or unconsciously exercised, is a most potent force and does not give the innate powers of the subject an opportunity to manifest themselves.

Eysenck (1957) established a deep hypnotic trance in a subject by quietly and soothingly saying
to him, Monday... Tuesday... Wednesday... Thursday... Friday... Saturday...", in endless repetition. He also reported a case of a French soldier who was suffering from shell shock and who spoke no English, being put in a deep trance by an Englishman who spoke poor French, who kept telling the subject, not that his eyes were closing but that his nostrils were. Eysenck said, "It does not seem, therefore, that the content of the suggestion is as important as one might have thought at first glance. " However, he then proceeded to give examples where subjects refused to enter the trance state until the content of the suggestion was changed, and he concluded that in many cases the content of the suggestion does appear to be relevant.

Knowledge and understanding of the complex nature of hypnosis remains controversial. Van Pelt (1967) said, "The nature of hypnosis has given rise to probably as many theories as there are hypnotists."

The author concurs with Wolberg (1962) who declared, "It is quite obvious that in hypnosis a subtle interplay of forces is constantly operative which cannot be approached by purely empirical methods,..."... The degree to which any discipline is
scientifically identified is proportionate to the extent to which its constituent elements are subjected to empirical scrutiny and measurement. Unfortunately, in hypnosis we deal with impalpable phenomena that are not always related to the immediately observable variables. A tremendous number of shifting elements present themselves in the form of psychological, physiological and sociological reactions and interactions."

The formulation of an acceptable theory of hypnosis, adequately supported by experimental evidence of high quality, is a matter of crucial importance for the further development of hypnotic procedures for use in therapy and would be of the greatest possible significance for the whole of psychology (Furneaux 1952).
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GENERAL PRINCIPLES UNDERLYING THE INDUCTION OF HYPNOSIS.

There are many different techniques commonly employed in the induction of hypnosis. According to Hartland (1966) the main clue to the successful induction of hypnosis lies in the fixation of the subject's attention. The moment the individual's attention is fixed intently upon something, his field of consciousness becomes narrowed and his subconscious mind becomes accessible. Suggestions can then slip past the conscious mind and enter the subconscious, where they are accepted and acted upon without criticism. Moreover, every suggestion that is accepted and acted upon greatly increases the suggestibility of the subject and facilitates the gradual deepening of the hypnosis.

Mason (1960) stated that the vast majority of hypnotic induction techniques make use of one or other, or both, of two processes known to produce an increase in the natural degree of the subject's suggestibility. These processes are:

1. The rhythmic, monotonous repetition of sensory stimulation, carried to a point where
fatigue of the sensory organ occurs. Concomitant with this state of sensory fatigue is a state of heightened suggestibility.

2. The application of carefully-worded suggestions calculated to enhance this suggestibility. The sensory fatigue is usually confined to the senses of sight, hearing or touch; most methods of induction combine the fatiguing of the subject's sight and hearing.

Kubie and Margolin (1944) pointed out, in the initial induction, through immobilisation (sitting quietly, often fixating the eyes) and through monotony (the simple repetitive and rhythmical words of the hypnotist) a kind of partial sleep is produced, in which most channels of communication with the outside world are cut off, and only the voice of the hypnotist continues to enter. This reduction in sensorimotor channels blurs the ego-boundaries of the subject, so that there is a psychological fusion between the subject and the hypnotist; as this stage is reached the hypnotist's words are confused with the subject's own thoughts. The subject's apparent suggestibility arises out of this confusion.
CONDITIONS NECESSARY FOR SUCCESSFUL HYPNOTIC INDUCTION are:

1. Motivation
2. Removal of doubts and fears.
3. Limitation of the field of consciousness.
4. Relaxation and limitation of voluntary movements.
5. Monotony.
6. Suppression of all ideas except those upon which attention is to be concentrated.

The first two points will be examined in some detail since they are often the determining factors between success and failure.

MOTIVATION. Before any hypnotic induction is attempted, it is important to motivate the subject towards the whole idea of being hypnotised, and to present him with the arguments in favour of this particular technique.

Many people being extremely apprehensive and afraid of dental treatment, seek therapy which will make dentistry more agreeable to them. When patients learn of the benefits of hypnosis, they eagerly request its use as an adjunct to orthodox dental procedures. These patients are therefore highly motiv-
ated to enter the trance state and it has been the author's experience that less than ten percent fail to benefit from their first hypnotic induction.

Harland (1966) stated, "It normally is quite impossible to hypnotise a person against his will, for in order to succeed, he must be neither unwilling nor afraid. He must either want to comply with the suggestions of the hypnotist or must feel that, regardless of his own will, he cannot resist. Indeed the more one can increase the desire of a person to be hypnotised, the more successful the induction is likely to be."

Shaw (1958) stated, "The mental attitude of the subject is related to previous associations or previous conditioning, and these fixed attitudes, likes and dislikes, phobias or habits, may have a negative or positive effect on the individual's approach to acceptance of the sleep state."

For hypnotic induction to be successful, the patient must be in the right frame of mind and be eager to co-operate. He should be aware of the very real advantages of hypnosis and be enlightened if he has any misconceptions.
When the patient has had any doubts or fears dispelled, has some knowledge of what to expect and is eager to participate in hypnotic induction, he is said to have a "positive mind-set".

The prestige of the hypnotist is of great importance in obtaining satisfactory hypnotic results. If he is held in high regard by the patient, a favourable attitude is already implanted in the patient's mind and this is a near essential foundation stone in hypnotic induction.

The combination of a "positive mind-set" and prestige will establish the "rapport" necessary for initial success. This assumption is diagrammatically illustrated in Fig. 1.

\[
\begin{align*}
P & \quad \text{Mind-set} \\
\text{Prestige} & \quad \text{Mind-set} \\
\text{Prestige} & \quad \text{M.}
\end{align*}
\]

Prestige + Mind-set = Rapport

(Diagram - S. Irwin Shaw)
A. Little prestige in a beginner requires greater effort by the dentist to build positive expectancy for rapport.

B. With some prestige already established in the patient's mind, less effort is needed to develop the receptive mind-set.

C. A strong prestige factor requires very little effort on the part of the dentist to build positive expectancy in the patient. This prestige in itself constitutes a strong positive attitude toward the patient-dentist relationship and rapport is easier to obtain under such conditions.

Children make good hypnotic subjects for the same prestige reason; they are much less critical and are usually much more amenable to persuasion and suggestion.

**THE REMOVAL OF DOUBTS AND FEARS.** Most people know very little about hypnosis; fiction writers, popular press, television and stage performers have created erroneous ideas of the subject. Consequently many are unwilling to submit to hypnosis because they fear its affiliations with the 'mysterious' and the 'uncanny'.
Before any induction, time should be taken in
discussion with the patient to ascertain what he
knows of hypnosis and what he expects of the experi-
ence. Some patients who have not previously been
hypnotised believe the experience is similar to
having a general anaesthetic, that once they enter
the 'trance' they will be oblivious to all sensation
but the hypnotist's voice, and when they awaken they
will remember nothing. Any such misconception should
now be dispelled.

The patient is told that although at first he
feels drowsy, his eyes feel heavy and tired and will
close just as in normal sleep, he will be far from
unconscious. Not only will he hear the hypnotist's
voice but he will be fully aware of background
noises, such as traffic, telephones and the presence
of other people. It is explained further that unlike
natural sleep, the mind remains alert and that it is
usually only in the deeper stages of hypnosis and
then only when specifically requested by the hypnotist,
that the patient will have complete amnesia. The fact
that the patient does not lose consciousness is a
safeguard that he will not do anything to endanger
his physical or moral welfare while hypnotised.

Many think hypnosis is a battle of will power between the hypnotist and the subject. LeCron (1952) stated, "Suggestibility and susceptibility to hypnosis are frequently confused with gullibility, and resistance to hypnosis may arise as a result, for the subject may believe he would show gullibility and be considered 'weak-minded' if he yielded to hypnosis."

One must be quick to explain that this supposition is totally wrong. A strong-willed person cannot be hypnotised without his full co-operation, whereas a feeble-minded person usually makes a poor hypnotic subject, because he is unable to concentrate intently on the instructions of the hypnotist.

The patient is assured that once hypnotised he does not surrender his will power and that he will not be dominated by the hypnotist. If he were asked to do anything to which he had a deep-rooted objection, the ensuing mental conflict would probably either spontaneously awaken him or he would exhibit severe emotional distress and anxiety and refuse to comply with the command. Once he has entered the deep trance state, he will feel impelled to carry out the instructions implicitly, but only in so far as he is
prepared to do so and yield authority temporarily to
the hypnotist. The patient is assured that the use
of hypnosis in the medical or dental field is
strictly ethical and that it will be used only for
his well being in such a situation. He should be
further reassured that unlike the stage performer,
the dental hypnotist will be particularly careful
not to cause him the slightest embarrassment.

Mason (1960) says, "The patient is anxious at
the idea of unconsciousness, of being out of control
of himself, or perhaps of being in the control of
another human being. The idea of 'really slipping
away' is something that worries him. Reassurances
here should take the line that he can always come out
of the trance if he wants to, however deeply he has
been put into it. This statement is not strictly
ture, but the patient is frightened of loss of control,
which is something we are all of us frightened of in
more or less degree, and if he is to be hypnotised at
all, this fear must be overcome. It is almost hopeless
to attempt hypnosis on a patient with this fear unless
he can be convinced that throughout he will retain
some measure of control and will be able to bring
himself out of the trance at will. But, as is obvious after the most limited of experience, anyone but the lightest trance subject could quite easily be kept in a trance so long as the therapist could allay all mounting anxiety. Thus the statement, 'You can always come out of the trance if you want to', is only half true because in effect the therapist controls what the patient wants."

Patients are often fearful of not awakening from a hypnotic trance; they may ask what would happen if the hypnotist was suddenly called away, or suddenly had a heart attack, without first awakening his patient. They are assured that if such a contingency did arise they would wake up themselves or drift into a natural sleep from which they could be easily aroused. The author concurs with LeCron and Bordeaux (1947) who point out that the difficulty is to get people into a 'hypnotic sleep' not to awaken them.

Many patients who are extremely apprehensive and nervous feel that hypnosis will offer them the psychological tranquility to enable them to tolerate dental treatment. Premedication and orthodox techniques may have previously failed to allay their apprehension and they become convinced that hypnosis will be the
answer to all their problems. Fear of failure appals them and they become over anxious to succeed. This fear of failure may be enough in itself to prevent hypnotic induction.

There are some people who are perpetually pessimistic and who have severe inferiority complexes. They are likely to feel that if their full co-operation and participation are required, they will be inadequate and they are convinced they will fail even before the induction has begun.

Patients in the above categories must be re-assured in the most positive manner. They should be told that many of the best hypnotic subjects had little success at their first induction, but gradually improved with practice and each small gain greatly increased their confidence. The author uses the analogy of learning to swim -- most people are at first afraid of the water but with practice and encouragement are soon able to take a few strokes, their confidence increases, their fears diminish and they master an art at first thought beyond their capacity.

Finally before hypnotic induction is attempted for the first time, the patient should be assured
The patient is made comfortable during preliminary discussion.
that the experience is enjoyable. The trance has been likened to a state of reverie or daydreaming which most people experience almost daily. Mason (1960) stated, "It is probable that a hypnoidal state precedes all sleep and is a transitional phase between consciousness and true sleep."

Milechnin (1967) believes that the deliberately induced hypnotic state, developed to the second phase of hypnotic depth, and the normal process of physiological sleep in the stage of oneiric activity, are to be considered identical. But when both processes develop further, the course of physiological sleep and of hypnotic deepening diverge, each of them following its own laws.

Other everyday examples of the hypnotic state which may be pointed out to the patient, are the weariness of train travel, the soporific effect of the rocking chair or the motion of ships at sea, the drowsiness produced by some clergy and after-dinner speakers, or the touch of the masseur or hairdresser. These examples serve well to illustrate the effect produced on most people by monotonous rhythmic stimuli.
Freud (1921) likened being in love to the hypnotic state and said, "From being in love to hypnosis is evidently only a short step. The respects in which the two agree are obvious. There is the same humble subjection, the same compliance, the same absence of criticism, towards the hypnotist just as towards the loved object. There is the same absorption of one's own initiative; no one can doubt that the hypnotist has stepped into the place of the ego ideal."

When the naturalness of hypnoidal or reverie states has been pointed out to the patient, much has been done to alleviate fear and anxiety. The discussion with the patient prior to hypnotic induction is of the utmost importance for the establishment of a 'positive mind-set'.

It is the author's opinion that it is very helpful to stress that the patient will not lose consciousness, and he is in complete agreement with Hartland (1966) who says to patients he is about to hypnotise, "You will not lose consciousness for a single moment. Even if you go into deepest possible trance, you will always hear everything I say, and
remain fully aware of everything that is going on."

When a patient is motivated to accept hypnosis, and has had doubts and misconceptions dispelled, the hypnotic induction can confidently be commenced. He is first asked to fix his attention intently on some object or idea presented by the hypnotist; he is encouraged to relax as completely as he can and to cease all voluntary movements. The dentist then presents to him carefully-worded suggestions, usually delivered in a monotonous repetitive manner. The hypnotist must start the induction confident that he will succeed for any lack of confidence is quickly detected by the patient and will be detrimental to success.

Although suggestions delivered in a flat, monotonous voice will often prove successful, there is no doubt that their effectiveness can be greatly increased by the proper use of vocal expression which can be varied in many ways. For example:

1. Variations in the volume of the voice.
2. Changes in the rate of the delivery.
3. Stressing of particular words.
4. Changes in the inflection and modulation of the voice.
5. The insertion of suitable pauses between successive ideas.

Generally speaking, loud tones are best avoided and it is best to speak quietly and monotonously but with definite emphasis. In most cases the practitioner will speak in a quiet, soothing voice and will give his instructions and suggestions in a tone which is in itself a form of monotonous, rhythmic stimulation.

As the patient concentrates, his field of consciousness becomes narrowed and the subconscious mind becomes more accessible. He is constantly told to suppress all ideas except those presented by the hypnotist.

When the conscious mind has been suppressed and suggestions enter the subconscious direct, a state of hypnosis is attained. The depth of the trance state is proportional to the degree of suppression of the conscious mind.
REFERENCES:


Witzenhoffer (1953) stated, "Just as waking suggestibility is found present in various degrees in different individuals, and can be increased progressively within limits, one also observes that hypnotic suggestibility behaves in a similar manner. ... the depth of hypnosis (or trance depth) of a subject is, by convention, the degree of suggestibility attained by this individual during hypnosis at the time the measurement is made and as determined on an accepted scale." Numerous scales have been proposed for this purpose, all are based on the same principle, that all suggestions do not require the same suggestibility in order to elicit a response, and hence some suggestions can differentiate between individuals of different suggestibility.

The author considers the LeCron-Bordeaux (1947) scoring system for indicating depth of hypnosis, very comprehensive and authorities (Hoss 1952, Magonet 1952) agree that this system is an extremely complete method of "scoring". It follows Hull's (1933) idea of a 100-points system, listing fifty symptoms or signs.
It offers a scoring chart separated into six divisions instead of five, the last being the addition of a deeper stage of hypnosis (plenary trance), not often classified since it is seldom invoked. It should be included however to make the score complete.

The system is reproduced in this thesis and is based on 2 points for each symptom exhibited, a total score would indicate the depth of trance reached. From 2 to 12 points would be hypnoidal; 14 to 36 would show a light trance; 38 to 54 would show a medium stage; 56 or more a deep or somnambulistic trance.

**LeCron-Bordeaux Scoring System for Indication of Hypnosis 1947**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Score</th>
<th>Symptoms and Phenomena Exhibited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insusceptible</td>
<td>0</td>
<td>Subject fails to react in any way</td>
</tr>
<tr>
<td>Hypnoidal</td>
<td>1</td>
<td>Physical relaxation</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Drowsiness apparent</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Fluttering of eyelids</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Closing of eyes</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Mental relaxation, partial lethargy of mind</td>
</tr>
</tbody>
</table>
Light trance

6 Heaviness of limbs
7 Catalepsy of eyes
8 Partial limb catalepsy
9 Inhibition of small muscle groups
10 Slower and deeper breathing, slower pulse
11 Strong lassitude (disinclination to move, speak, think or act)
12 Twitching of mouth or jaw during induction
13 Rapport between subject and operator
14 Simple posthypnotic suggestions heeded
15 Involuntary start or eye twitch on awakening
16 Personality changes
17 Feeling of heaviness throughout entire body
18 Partial feeling of detachment
Medium trance

19 Recognition of trance
(difficult to describe
but definitely felt)

20 Complete muscular inhib-
itions (kinaesthetic de-
lusions)

21 Partial amnesia

22 Glove anaesthesia

23 Tactile illusions

24 Gustatory illusions

25 Olfactory illusions

26 Hyperacuity to atmospheric
conditions

27 Complete catalepsy of limbs
or body

Deep or
Somnambulistic

Trance

28 Ability to open eyes without
affecting trance

29 Fixed stare when eyes are
open; pupillary dilation

30 Somnambulism

31 Complete amnesia

32 Systematized post-hypnotic
amnesia
33 Complete anaesthesia
34 Post-hypnotic anaesthesia
35 Bizarre post-hypnotic
   suggestions heeded
36 Uncontrolled movements of
   eyeballs, eye co-ordination
37 Sensation of lightness,
   floating, swinging, of be-
   ing bloated or swollen,
   detached feeling
38 Rigidity and lag in muscular
   movements and reactions
39 Fading and increase in
   cycles of the sound of oper-
   ator's voice (like radio
   station fading in and out)
40 Control of organic body
   functions (heartbeat, blood
   pressure, digestion)
41 Recall of lost memories
42 Age regression
43 Positive visual hallucin-
   ations; post-hypnotic
44 Negative visual hallucinations; post-hypnotic
45 Positive auditory hallucinations; post-hypnotic
46 Negative auditory hallucinations; post-hypnotic
47 Stimulations of dreams (in trance of post-hypnotic in natural sleep)
48 Hyperaesthesias
49 Colour sensations experienced

Plenary trance  50 Stuporous conditions in which all spontaneous activity is inhibited.

Weitzenhoffer (1953) considers the scale devised by Davis and Husband (1931), the most practical. In terms of this scale, subjects can be assigned to a net score ranging from 0 to 30 and placed in five main categories in respect to depth of hypnosis as follows:

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>NET SCORE RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insusceptible</td>
<td>0</td>
</tr>
<tr>
<td>Hypnoidal</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Light hypnosis</td>
<td>6 - 11</td>
</tr>
</tbody>
</table>
Medium trance  13 - 20
Deep trance  21 - 30

The phenomena that characterize these categories are as follows:
1. Insusceptible - Total lack of response to suggestion.
2. Hypnoidal - Relaxation, fluttering of the eyelids, closing of the eyes, complete physical relaxation.
3. Light trance - Catalepsy of the eyes, limb catalyses, rigid catalepsies, glove anaesthesia.
4. Medium trance - Partial amnesia, post-hypnotic anaesthesia, personality changes, simple post-hypnotic suggestions, kinesthetic delusions, complete amnesia.
5. Deep trance - Ability to open eyes without affecting the trance, bizarre post-hypnotic suggestions, complete somnambulism, positive visual hallucinations (post-hypnotic), positive auditory hallucinations (post-hypnotic), systematized post-hypnotic amnesia, negative auditory hallucinations, negative visual hallucinations, hyperaesthesias.

The results of various investigators as to the percentage of individuals that come under each of these classifications when hypnotised is summarised in the following table:
Classification: Hull, Davis and Barry Friedlander Van Pelt, Mean Husband, et al. and Sarbin. (1949)

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insusceptible</td>
<td>10.5</td>
<td>9</td>
<td>16</td>
<td>33</td>
<td>5</td>
<td>14.70</td>
</tr>
<tr>
<td>Hypnoidal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light trance</td>
<td>32.7</td>
<td>47</td>
<td>37</td>
<td>50</td>
<td>35</td>
<td>40.34</td>
</tr>
<tr>
<td>Medium trance</td>
<td>34.6</td>
<td>15</td>
<td>28</td>
<td>12</td>
<td>35</td>
<td>24.92</td>
</tr>
<tr>
<td>Deep trance</td>
<td>22.2</td>
<td>29</td>
<td>19</td>
<td>5</td>
<td>25</td>
<td>20.04</td>
</tr>
</tbody>
</table>

Weitzenhoffer points out that when the figures in the above table are examined, it should be kept in mind that, since each scale makes use of different units, the percentages reported by the different writers should not be expected to have too much in common. For this reason the final computed mean has only a relative meaning.

Burgess (1952) adopts a system of scoring hypnotic depth with nine arbitrary stages which the author considers adequate for practical application in clinical dentistry.

Burgess claims that through observing hundreds of instances with scores of different types of subjects, it has been possible to trace the probability curve of a composite subject as he enters hypnosis and proceeds into lower and lower stages. No two subjects necessarily reach the same depth upon first induction.
Some will go into only a light state, while others enter the deeper ones without the slightest hesitation, all within a few seconds. The accompanying chart serves as a guide in the use of hypnosis in dental practice.

**HYPNODONTIA: HYPOANESTHESIA AS APPLIED TO DENTISTRY**

(Designed by Thomas O. Burgess)

<table>
<thead>
<tr>
<th>DEPTH OF TRANCE</th>
<th>STAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
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<tr>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

TESTS OF DEPTH OF TRANCE STAGE

Hypnoidal

1. Flutter of eyelids. Heaviness of limbs.

2. Suggested catalepsy of limbs possible.

3. Consciousness remains almost complete. Automatic movements possible.


Light somnambulistic Trance

5. Complete catalepsy of limbs of body. Hyperacuity to atmospheric conditions.

6. Fixed stare when eyes are open. Ability to open eyes without affecting trance. Possible to effect amnesia on waking by suggestion.

Deep Somnambulistic Trance

8. Age regression. Positive auditory and visual hallucinations. All phenomena of post-hypnotic suggestion possible.

Plenary Trance 9. Stuporous condition in which all voluntary (that is, spontaneous) activity is inhibited.

Burgess (1952) reported a carefully-controlled research project, conducted by seven dentists whom he had trained in hypnotic techniques.

"Securing the co-operation of 250 patients drawn from their daily practices, it was found possible to place over 95 percent in the trance state.

"Of the number, only 11 failed to enter it at the first induction; 3 of the 11 entered the trance in subsequent sessions and responded normally; 3 others were later placed in a deep trance but were unable to produce anaesthesia. The remaining 5 were complete failures.

"To determine if hypnoanaesthesia could function in all dental situations without the use of supplementary chemical anaesthesia, every possible type of dental operation was performed, including preparation of deep
cavities and filling of teeth, extractions, removal of impacted teeth, removal of vital pulp and the endodontic treatment of a necrotic pulp, and maxillary surgery. Bleeding and salivation were controlled, gagging was prevented, the patient was accustomed to prosthetic or orthodontic appliances, and there was no pain or discomfort either during or after the dental operation.

"The ages of the patients treated ranged from 5½ to 71 years. It was discovered that elderly patients with well-established personality structures were not so responsive as younger subjects. The best response came from the teen-agers." This conclusion is well supported by the author's investigations.

**HYPNOTISABILITY INVESTIGATION OF DENTAL PATIENTS**

**BY THE AUTHOR**

The author has used hypnosis daily in dental practice for more than twenty-five years. During that time many hundreds of patients have entered the medium and deep trance states and have exhibited profound hypnoanalgesia. This has enabled all classes of dental treatment to be performed painlessly. Perusal of these records indicate that a much higher percentage of dental patients, in the environment of the author's
surgery, attain deeper trance levels than those quoted in the survey by Weitzenhoffer.

During 1969 an endeavour to obtain accurate statistics was undertaken and the results are recorded here. The aim of the investigation was to determine the percentage of dental patients who would respond to hypnotic induction and to record and classify the depth of trance attained. Burgess' scale was used to calculate the results.

A random selection of patients with no previous hypnotic experience, was asked if they would like to have their dentistry carried out while hypnotised.

One hundred patients who agreed to co-operate were each given a thirty minute appointment. The group consisted of fifty-eight females and forty-two males; their ages ranged from six to fifty-eight, the average age being twenty-one years. Their general health was good and none had a history of severe psychological illness.

During the first ten minutes of each appointment, the nature of hypnosis was briefly discussed, misconceptions were dispelled and an endeavour was made to answer any queries raised by the patients.

The method of induction was basically that of eye-
fixation and relaxation, as described in detail on page 164. The results were as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonsusceptible</td>
<td>4</td>
</tr>
<tr>
<td>Hypnoidal Light Trance</td>
<td>22</td>
</tr>
<tr>
<td>Medium Trance</td>
<td>33</td>
</tr>
<tr>
<td>Light Somnambulistic Trance</td>
<td>20</td>
</tr>
<tr>
<td>Deep Somnambulistic Trance</td>
<td>20</td>
</tr>
<tr>
<td>Plenary Trance</td>
<td>1</td>
</tr>
</tbody>
</table>

Hypnoanalgesia the gingival mucosa of the upper anterior teeth was suggested to each member of the experimental group. The dentist gently stroked the designated area and the patients were asked to signify the presence of numbness by raising their right hand. When an affirmative signal was received, the hypnoanalgesia was tested by piercing the gingival tissue to a depth of 3 mm, with a sharp, graduated probe.

The results of the hypnoanalgesia tests were as follows:

No analgesia was perceived by the four patients who were totally unsusceptible to hypnotic induction.

Of the twenty-two patients who entered the hypnoidal and light trance states, four indicated that
they did feel some numbness in the designated area. They were able to tolerate the insertion of the probe with little discomfort, while the remaining eighteen patients in this group exhibited little evidence of hypnoanalgesia.

In the medium trance group, ten of the thirty-three patients experienced profound hypnoanalgesia, a further nine were able to tolerate the probe but displayed signs of discomfort, while the remaining fourteen failed to achieve analgesia.

Profound hypnoanalgesia was attained in seventeen patients in the light somnambulistic state. The remaining three in this group said that although they did experience a tingling sensation in their gums, they had perceived a painful pin prick.

The twenty patients in the deep somnambulistic trance, plus the patient who entered the very deep plenary trance, all exhibited profound hypnoanalgesia.

Forty-eight percent of patients in this experimental group attained profound hypnoanalgesia in one hypnotic session not exceeding thirty minutes duration. A further thirteen percent showed moderate analgesia, while there was little evidence of hypnoanalgesia in the remaining thirty-nine percent of patients.
As the inherent constitutional characteristics and the pain threshold vary from person to person, a control group was necessary to test the validity of these results.

One hundred patients were again selected at random within the practice, and during normal operative procedures a probe was pressed onto the gingiva (in the same area as for the experimental group). The probe was immediately withdrawn at the first indication of pain. Care was taken not to warn the patient of the impending prick and thus as far as possible, eliminate analgesia by waking suggestion. No patient within the control group tolerated the deep insertion of the probe entirely without reaction.

The author has dispensed with formal scoring for ascertaining trance depth; for clinical purposes the hypnotic state can be most simply divided into three levels or planes. These are:

The Light Trance
The Medium Trance
The Deep Trance

Similar subjects may be classified as:

Unhypnotisable
Light Trance Subjects
Medium Trance Subjects

Deep Trance Subjects.

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TESTS FOR SUSCEPTIBILITY TO SUGGESTION

Many simple tests have been devised to test the susceptibility of the individual to suggestion.

Hull (1933) used a series of waking suggestions under very carefully controlled conditions, and accurately measured individual response. He found that those people who reacted positively to DIRECT-WAKING suggestion, made the best hypnotic subjects. Hull's findings are supported by most modern authorities (LeCron and Bordeaux 1947, Marcuse 1959, Furneaux 1962, Hartland 1966).

Tests to correlate suggestibility with hypnotisability, without the actual practice of hypnosis, are said by their protagonists to be of value as a routine preparation for trance induction, since they put the patient into a more suitable frame of mind for hypnosis. These tests demonstrate to patients their own ability to respond to suggestion and enhance their confidence in the hypnotist.

Many patients who are aware that hypnosis is available as an adjunct to their usual dental treatment, will ask their dentist, "Would I be a good hypnotic
subject?" Without undertaking tests for suggestibility, the dentist would have to reply that he did not know. The uncertainty of producing the 'trance state' is one of the greatest drawbacks in the routine use of hypnosis in dentistry.

Suggestibility tests are generally simple to perform and need little time to execute. When a test is positive, it can usually be assumed that the patient will be a good hypnotic subject. A patient with a negative result in a single test will not necessarily be a poor subject. If, however, he fails several such tests, his chances of achieving the 'trance state' are limited: (with a different hypnotist at another time and in a different environment, he may have a positive reaction to the same tests).

There are two schools of thought regarding the value of hypnotic susceptibility tests. Some hypnotists use the tests routinely and classify their patients accordingly, while others dispense with such tests and work on the principle that all patients are good hypnotic subjects until proven otherwise.

The adherents to the school who use the tests, claim that time is saved and that they are seldom
embarrassed by failure; those of the second school who proceed straight to the inductive process, feel they can obtain success to some degree in as many as ninety percent of cases, and consider preliminary testing unwarranted. The author has dispensed with routine suggestibility tests, and considers the most direct way of finding out a person's susceptibility to hypnosis, simply consists of trying to hypnotise him. Gill and Brenman (1959) concur and say, "So-called 'suggestibility' tests as instruments for predicting hypnotisability are highly successful in so far as they are actually small attempts to hypnotise the subjects. In short, such tests lead to the less than remarkable finding that if you can hypnotise a person, he is probably a good hypnotic subject."

Before suggestibility tests or hypnotic inductions are undertaken, the dentist should have a thorough knowledge of the principles and practical application of suggestion.

Suggestions given in the waking state should be logical, otherwise the reasoning power of the subject will probably negate them. A suggestion should be characterised by a firm belief or faith in the idea if it is to be accepted, and compliance is more likely
when the suggestion is logical and a sound reason is given for its adoption. The explanation tends to make it more acceptable and more powerful.

Coué's laws or principles of suggestion should be understood and applied when using suggestibility tests. These laws as quoted by Shaw (1958) are:

1. Law of Concentrated Attention. When a person concentrates his attention on an idea, it tends to realize itself.

2. Law of Reverse Effect. When a person thinks he cannot do something and then tries, the more he wishes to do it the less able he becomes.

3. Law of Dominant Effect. A suggestion linked with an emotion will surmount any other suggestion at that time. The dominating effect of this combination has a stronger influence on the mind.

Common susceptibility tests are:

1. The Postural Sway Test.

The patient is told to stand with his heels together, his eyes closed and his head tilted backwards. He is then told to imagine that his body is rigid as
a board. Standing behind him, the hypnotist firmly touches his shoulders, then moves back about one foot and invites him to fall backwards at the same time giving assurance that he will be caught and in no circumstances would he be allowed to injure himself. The patient still rigid falls backwards and is caught by the hypnotist. Thus assured the test proceeds.

The hypnotist then places his hands on the patient's shoulders, and repeats the following sentences over and over:

"When I remove my hands you will feel me drawing you backwards, backwards into my arms. I am right behind you and will not let you fall. Do not resist. You are falling backwards, falling, falling."

The hands are removed and the patient will begin to sway. If nothing happens the patient is told he is not mentally relaxing and the process is repeated several times. If there is still no positive reaction, another test is tried.

2. The Handclasp Test.

The patient is told to clasp his hands together by interlocking his fingers. His hands are then placed on top of his head with the palms facing upwards. He is then told to close his eyes and squeeze his fingers
tightly together. The hypnotist then suggests;

"I want you to imagine your fingers and hands are covered with a film of very sticky glue and as I count to ten, the glue will set harder and harder, and when I reach ten the glue will be set hard and your hands will be firmly stuck together.

"I will now count. One. You feel the glue between your fingers and palms. Two. Your fingers are pressing tighter and tighter together and the glue is oozing out between them. Three. The glue is beginning to set. Four. It now feels very, very, sticky. Five. Your hands feel stuck together. Six. Your hands are now fused together in a solid block. Seven. The glue is setting harder and harder. Eight. It is nearly set. Nine. Almost completely set. Ten. The glue has finally set, your hands are stuck together and it is impossible to separate them. The more you try the harder they will stick... The more you try the harder they will stick.

"Try to separate them. You will find it impossible. (Allow a trial period of several seconds and then say) All right. Stop trying.

"When I count to three, you may open your eyes and separate your hands."
The successful patient is congratulated on his ability to relax and concentrate, while the unsuccessful one is consoled by an explanation that he probably has a subconscious reason for non-co-operation and another type of test would probably be more suitable to his case.

3. Arm Levitation Test.

The patient is seated with one arm outstretched in front of him and his eyes closed. The arm is then stroked and he is told emphatically over and over that it is becoming lighter and lighter. He may be told to imagine his wrist is tied to a gas-filled balloon and that the arm is being drawn upward and upward – higher and higher. When the test is successful the patient's arm will rise in the air.

4. Eye Catalepsy Test.

The patient is seated and asked to close his eyes. He is then instructed to turn his eyes inward and upward toward the hairline and above the bridge of the nose. He is told to keep his eyes in that position and to press his eyelids firmly together. The suggestion that his eyelids are firmly stuck together is repeated several times in a firm commanding voice. He is now told it is impossible to open his eyes and the
harder he tries the more tightly they will stick. After several seconds he is instructed to stop trying, to relax and open his eyes.

This is a useful test, because it is almost physiologically impossible to open the eyes, if they are rolled upward and inward as directed. It is first necessary to bring the eyeballs back to normal in order to break the "muscle set". Patients who immediately open their eyes without difficulty, have not followed the instructions intensely and this is an indication they may be resistant to hypnosis.

Patients who have been unable to open their eyes or have had difficulty in doing so, are impressed with the test and usually make good hypnotic subjects.

5. The Pendulum Test. (Chevreul's Pendulum)

A circle with a diameter of approximately eight inches, and with perpendicular radii is drawn on a card (Figure 2). The patient is seated and the card placed on the table before him. In his outstretched hand he holds a piece of string about one foot in length, with a ring, key or like object attached to the lower end. This forms a simple pendulum which is held some inches above the circle. The patient is then
told to watch the circle intently and allow his eyes to travel around the circumference; he is to pay no attention to the object on the end of the string. His eyes travel at first in a clockwise fashion, round the circle and as he concentrates the pendulum begins to rotate in like manner. He is then told to concentrate up and down the vertical radius. The rotary movement of the pendulum will soon cease and be replaced by movement to and fro over the vertical radius; by then concentrating on the radius at right angles, so will the pendulum move in that direction.

This test requires very little skill and forcefulness of approach as do the other tests mentioned; it is therefore well-suited to the dental surgery.

The five examples described are among the most popular of many mentioned in hypnotic literature. Weitzenhoffer (1952) outlines twenty such tests. It is the author's opinion that routine suggestibility tests are unwarranted in clinical dentistry.

They have been included in this thesis as they are sometimes of value in explaining the power of suggestion to patients who are uninformed and hesitate to accept hypnosis as a helpful adjunct to more conventional methods of dental treatment.
Chevreul's Pendulum (Fig. 2)
REFERENCES:


TECHNIQUES OF HYPNOTIC INDUCTION.

1. Eye Fixation with Progressive Relaxation.

This is a most useful method of inducing hypnosis and is probably used, for dental purposes, more frequently than any other. It is the method that is adopted and taught by the Society for Medical and Dental Hypnosis in Britain and depends upon concentration of attention, since the subject listens intently throughout the induction, to what the hypnotist is saying.

The patient either lies on a couch or sits in a comfortable chair, and is told to select a spot on the ceiling, slightly to the rear so he is looking upward and backwards at it. He is instructed to stare at this spot, and must not allow his eyes to wander from it for a single instant. If they do his attention must immediately be called to the fact.

Mason (1960) stated, "The patient's eyes are fixed in such a way as to produce fatigue of his sensory apparatus, and also his ocular muscles. The sensory fatigue is thought to produce an ever-increasing area of cortical inhibition, but whether this occurs or not, it is certain that symptoms of ocular fatigue will
occur. These symptoms: tiredness of the ocular muscles; excessive blinking, blurring of vision and lacrimation are anticipated by the hypnotist and fed back to the subject before they occur. That they now do occur, apparently following the hypnotist's suggestion, obviously is a potent factor in increasing the subject's suggestibility and helps to bring about a mental state where he will now respond to further suggestions that the hypnotist makes and which would not occur spontaneously. These further suggestions are aimed at the production of a trance state.

**Method of Procedure**

The subject is told to allow himself to relax completely and to stare hard at the spot on the ceiling. He is told that it helps if he blinks as little as possible. Suggestions are then given in the following manner:

"Relax your whole body and feel its heaviness in the chair. Concentrate now on your feet and legs. Feel how they are getting heavier. A warm heavy feeling will pass down your legs and your feet and through your toes. Your legs are getting heavier and heavier - more and more relaxed - completely and utterly relaxed - this good feeling of relaxation is stealing over your whole body - as it does so your eyelids are becoming
very, very heavy and your eyes very, very tired -
they are beginning to water - and as you listen only
to my voice, the spot on the ceiling becomes more and
more blurred - the muscles in your neck - in your
shoulders - and in your arms are becoming more and
more relaxed - you are feeling drowsier and drowsier -
your arms are feeling heavier and heavier - and your
eyelids are becoming so very, very heavy that they
want to tumble down closed."

Constant, monotonous repetition of this type of
suggestion will soon result in the patient being in a
very relaxed state. The breathing should be observed
and the rhythm of the voice follows each inspiration
and expiration. Relaxation of different parts of the
body in turn - the muscles of the abdomen, the legs,
the shoulders, the neck and the face - continues until
it is noticed that the eyes are becoming tired and the
lids show signs of closing. Attention is now drawn to
this ocular fatigue and the hypnotist continues:

"Now your eyes are tired and your eyelids are
wanting to close. They feel heavy - as heavy as lead.
You are drowsy and tired, your eyes get heavier and
you want to sleep. Soon your eyes will close. Think
how pleasant it will be to sleep. Your eyelids get
heavier and heavier. It is difficult to keep them open. Don't be afraid to let yourself go. Your eyes are closing, closing, heavier and heavier. Let yourself go."

As soon as the eyes have closed, the hypnotist continues:

"You are now sinking into a very pleasant, deep, deep sleep and with every breath you take you will sleep deeper and deeper."

"The patient whose eyes have closed, being preceded by quicker and quicker blinking and a fluttering closure - the so-called 'cataleptic eyelid', is certainly hypnotised if only lightly, for the eye sign is the best and most constant indication of entering the hypnotic state. (Mason 1960)."

2. Eye Fixation with Distraction

This method of hypnotic induction depends upon the principle that while the conscious mind is fully occupied with a simple mental task, the subconscious is rendered more accessible to verbal suggestion. Hartland (1966) instructs his subjects to count backwards from three hundred in a slow rhythmical manner until he tells them to stop. They are not to count
aloud, they are just to continue counting to themselves, the important thing is to keep the count going regularly and monotonously, just like the beat of a metronome. (The starting point of three hundred and the reverse count is used as it requires much greater concentration than a forward count of say one to one hundred.)

The patient is seated in the dental chair with his head supported in the headrest and the hypnotist is seated slightly to the rear. A pencil is held about eight inches above the line of vision, in such a position that the patient has to stare upward and slightly backward to see it. The patient is told to stare at this pencil, not to shift his gaze from it for an instant and that as he stares he is to count to himself backwards from three hundred. He is to continue to count until told to stop.

While the patient's conscious mind is occupied with the count, the hypnotist gives suggestions of heaviness of the eyelids, drowsiness and sleep as follows:

"As you stare at the pencil your eyelids become heavy, your eyes become warm and moist, you feel very, very drowsy. You continue to count to yourself.
Your eyelids are now so heavy you can't keep them open any longer and soon they will tumble down closed. (The patient begins to blink.) Now you are beginning to blink - each blink will last longer and longer - you are getting more and more tired, your eyelids will tumble down closed and you will go to sleep."

The eyelids finally close and the hypnotist says, "Go to sleep." When the eyes remain closed the patient is in a light hypnotic trance.

On some occasions after several minutes the eyelids don't close and the patient gets a vacant expression and just continues to stare into space. The hypnotist gently closes his eyes for him as he is likely to be already in the trance state.

Once the light trance state has been attained it may be deepened by any of the techniques mentioned in the section on deepening the trance (see page 150).

3. The Direct Stare

This method of hypnotic induction is said to have been developed by Bernheim towards the end of the last century. It is a technique which relies on extreme domination of the patient and may occasionally be found useful in the dental surgery. It is effective with children.
The patient is seated and instructed to relax. He is then asked to gaze into the eyes of the hypnotist from a distance of about eighteen inches. The hypnotist at this stage focuses his own eyes on an imaginary point well beyond the patient, giving the impression of looking right through him. He never stares directly into the patient's eyes, although the latter is unaware of this. The patient is instructed not to shift his gaze for a single moment, and is given verbal suggestions of relaxation, drowsiness, heaviness of the eyelids and sleep. Eye-closure should then soon be achieved.

The patient is now in at least the hypnoidal stage; further suggestion of relaxation, drowsiness and sleep are given to effect a deep trance state.

The hypnotist should not blink until the patient's eyes are closed or confidence will be lost. The eyes can be trained for this technique by gazing fixedly at the tip of a pen or pencil held at a distance of about eighteen inches in front of the eyes. The period of time this gaze or stare can be maintained without blinking or undue fatigue, can be greatly increased with practice.
Some patients may try to out-stare the hypnotist and care must be taken not to let a staring contest develop. If the patient's eyes are not closed after two minutes, the hypnotist should gently close them with his fingers, and at the same time rest his own eyes. The patient is unaware that this is not an essential part of the technique.

If the hypnotist is himself susceptible to hypnosis, care must be taken that he doesn't enter the trance before the patient. There are instances recorded when this happened (Moss 1952).

This method of induction is one of the most rapid, but the author considers it not a method of choice. It relies on complete domination for its effectiveness and is interpreted by many patients as either a battle of will power between themselves and the hypnotist or submission to the 'evil eye', a conception of hypnosis still prevalent in many lay minds.

4. Erickson's Hand-Levitation Induction Technique.

This technique was first used by Erickson in the 1920's and is an excellent method of induction when used by an experienced hypnotist. A brief summary of the method is as follows:
The patient is seated and asked to relax and place his hands on his thighs. He is then told to concentrate all his attention on his right hand; he is to stare at it and to concentrate on the hand alone.

As he stares hard the hypnotist suggests the hand begins to tingle, that he feels a different sensation in this hand to the other one, that he is supersensitive in the right hand, and that he is conscious of the material in his trousers on which it rests. Soon he is told the fingers will begin to separate and twitch, the material in the trousers seems prickly. The hypnotist watches the hand very closely for the first signs of movement, and as soon as there is slight movement in the fingers, attention is drawn to this. The suggestions are being heeded and a link is established between the patient's reactions and the hypnotist's remarks, causing an association between the two to be formed in the patient's mind.

The patient is encouraged to concentrate still harder on the right hand, and as he concentrates the hypnotist suggests, "The fingers will move, move more and more ... and the whole hand will feel light, light as a feather, the whole arm feels light and without
effort wants to rise up in the air ... the right hand and arm feel ever so light ... so light that it wants to rise in the air ... just as if it's being raised to ask a question." The hand twitches and very slowly begins to rise from the patient's thigh.

The suggestions of lightness are continually given as the hand rises, "... and as the hand rises, you begin to feel drowsy, ever so drowsy, your eyelids are heavy, very heavy. You are going to sleep."

When the arm has risen to about eye level, suggestion is given that the elbow will bend and the hand will gently touch the cheek.

"Your hand will approach your face and when it touches your cheek your eyes will tumble down closed and you will go to sleep."

The hypnotist watches closely and as soon as the cheek is touched a firm command of "go to sleep" is given. Hypnosis is now attained.

This method has the advantage that the patient is able to set his own pace to enter the trance state. He must be allowed to take his time and when his hand does touch his face, he will feel himself asleep to his own satisfaction.

5. Picture Visualization.
This method of hypnotic induction is useful in the dental surgery particularly for children.

The patient is instructed to close his eyes and imagine a picture and to concentrate his entire attention on that image. The type of picture he imagines is unimportant – it may be a vase of flowers, a farm yard or his favourite movie picture or television show.

He is told to concentrate harder and harder on that picture until it becomes clear in his mind's eye, at which stage he will communicate its presence by raising his finger. When an affirmative signal is obtained, the patient is then given relaxing and sleeping suggestions. "As you continue to watch the picture, you become more and more sleepy, more and more sleepy, you see the picture clearly now and as you watch it, you drift off into a very pleasant sleep – very pleasant sleep – . You see the picture clearly before you, other sounds don't worry you and all this time you drift into a deeper and deeper sleep."

The susceptible patient is in a light trance which can now be deepened and a post-hypnotic instruction given for rapid trance induction at a future session.
There are many modifications of this technique. Dr. S. Samet, Newark, New Jersey (quoted by Moss 1952), uses soothing recorded music combined with visualization of moving pictures and claims success in excess of ninety percent among his patients. Dr. Samet doesn't use the word hypnosis and claims his patients don't realise they have been hypnotised.

Moss points out that Dr. Samet's patients know what is expected of them in advance; the state of expectancy is present in their minds. They have found out or learned of this through other patients' recommendation.

Bernheim (1902) said, "No one has ever been hypnotised unless he knew that he was going to be."


Whitlow (1952) described this technique for rapid induction of hypnosis: it has been the method of choice for many years at the Whitlow Clinic, California and is known as Whitlow's Carotid Artery Pressure Method.

As a prelude to induction the patient is told the method will bring hypnosis almost instantly, and in clinical use one or two cases similar to this, are described, with statements as to the favourable and
beneficial results obtained. This places the patient in a receptive frame of mind so that acceptance of suggestion will follow. To allay possible anxiety, some description is made of what to expect. It is, of course, necessary for the hypnotist to have the confidence and trust of the patient.

The patient is seated upright on the dental chair, the backrest having first been lowered to supine position, and the headrest adjusted so that when the patient is lowered back, his head will comfortably nestle into it. Thus seated, he is instructed to clasp his hands lightly behind his back, relax and look upward at a spot on the ceiling. The patient is then asked to breathe deeply a few times, holding his breath for a moment with each inhalation. Hyperventilation will increase the susceptibility to hypnosis (Weitzenhoffer 1953). Then he is told to make his mind as blank as possible, and that in a few seconds, his eyes will close and he will soon be sleeping deeply.

The hypnotist's left hand is now placed behind the patient's head at the top of the neck, in order to support the head and to prevent muscular 'kinking', for any pain or discomfort will interfere with the
induction process. The right hand gently pushes the patient's head back until he is gazing almost directly upwards, but not to such an extent as to cause strain. Then the hypnotist presses the right thumb and index finger against the vagus nerve and carotid artery on each side of the larynx at about the level of the cricoid cartilage, leaving the airway free from pressure so that breathing is not mechanically obstructed. The pressure is firm but should not be too strong.

At the same time as pressure is applied to the throat, the left thumb and second finger may be pressed firmly against the neck, just below the mastoid process behind each ear. There is a small spot just at the back of the lobe of the ear, which when pressed will produce a slight dazed feeling which the hypnotist aims to utilize.

As pressure is applied with both hands at the same time, the hypnotist gives the following quiet suggestions:

"Close your eyes and sleep ... Breathe deeply, deeply and relax ... let your whole body relax, relax ... you are sinking into a deep, deep sleep ... with every breath you sleep deeper and deeper, and in ten
seconds you will be soundly asleep."

The exact wording is of no great consequence, but the sleep suggestions should be delivered with great rapidity, in a quiet but emphatic voice, 'pouring on' the suggestions and not allowing the patient time to think.

The pressure of the hands is released as soon as the patient relaxes. Usually it will be found that he goes limp rather suddenly, which is anticipated by the hypnotist. He is then lowered backwards gently into the supine position. The right hand is kept in position but without pressure for a few seconds thereafter, more as a psychic stimulant than for any other reason.

As soon as the patient is reclining he is given further rapid sleeping suggestions and told he will not awaken until told to do so. Whitlow recommends that post-hypnotic suggestions for further trance induction should be given immediately following induction by this method as suggestions seem particularly effective at this time, probably because the patient is dazed and confused.

This procedure will usually bring hypnosis within ten seconds, the degree varying, depending on factors such as susceptibility, previous and past hypnotic
experience. Involuntary resistances to hypnosis are often overcome with this technique, at least temporarily; some patients enter a deep state but, on finding themselves in such a condition, partially bring themselves out. Usually further training and suggestions will enhance the depth of the hypnotic state obtained.

Tilting the head backward changes the angle of the semicircular canals affecting the equilibrium and helps to produce a state of mental confusion. The pressure on the vagus nerve tends to inhibit the heart beat, and shutting off the carotid arteries produces rapid cerebral anaemia and a fainting feeling which further 'befogs' the mind and adds to the mental confusion. Strongly given suggestions then strike with full force into the subconscious which takes over as consciousness fades.

It is the purpose of the hypnotist to bring the patient to the point of losing consciousness, but to release the pressure just before this happens. If lost, consciousness returns within a few seconds.

Stage hypnotists using this technique will sometimes allow their subjects to slump to the floor to obtain a spectacular result.
Patients with whom this technique is used, describe their sensations as a feeling of confusion, faintness and being dazed. Undoubtedly at this time, they become extremely suggestible. When barbiturates are given intravenously to obtain a state of narcosis, it is found that the patient must be maintained at a level where he has almost but not quite, lost consciousness (Weitzenhoffer 1953). In this condition as in hypnosis, he is suggestible. It is probable that the cerebral anaemia produced by carotid pressure creates the same or similar state, and that the subject then is caused by rapid suggestion, to pass into hypnosis.

At first thought, it might seem that this technique is one which the patient might find unpleasant. However, it is not the case, and patients report no such reaction and are invariably willing to experience repeated inductions. This method has obvious dangers and should be used by dentists with extreme care. Brain damage from lack of blood and even death may result if pressure is maintained too long on the vagi and carotids. Fifteen seconds of pressure is the very maximum which is safe. Care should also be taken in selecting patients for this method of induction. They
should be patients considered to be good surgical risks, and not be suffering from severe emotional disorders. If anxiety or hysterical reactions should develop, firm, authoritative reassurance or an attention-distracting slap on the cheek is usually sufficient to correct the condition, or if necessary the patient may be awakened and reassured.

A sound explanation to the patient of what he is to expect before induction will usually prevent such reactions even in highly nervous people.

This method has been successfully used in the Whitlow Clinic on patients ranging from two and a half to seventy years.

The trance state was obtained in approximately ninety percent of patients using this method of induction, and was often successful where slower methods failed entirely.

Whitlow claims it is a technique which should find much use in busy dental practice. The very real danger of the method should be kept in mind by the practitioners who use it. Mason (1960) strongly condemns this method and Hartland (1966) states it has never received professional approval or support in Britain because of the serious risks and dangers
that could be involved.

Kaim (1963) also strongly objects to Whitlow's method. He firstly points out the dangers of excessive hyperventilation and then discusses the sequela of strong compression of the carotid sinuses. He says, "It has long been established that intense vagal stimulation is sufficient to diminish the heart's activity. With vagal stimulation, a reflexive lowering of arterial pressure is produced resulting in the cerebral circulation diminishing and thus in the cerebral inhibition which in some way facilitates the hypnotic state. When the aortic or carotid bodies are stimulated and when the combined oculocarotid reflex is produced, bradycardia is induced as a consequence of the reflex stimulation of the vagus trunk, which causes a lowering of arterial pressure due to a diminishing of the volume and to inhibition of the normal tonic unloading of the vasomotor center."

It is the author's opinion that while the hazards of this technique should not be underestimated, it could have merit when used by competent hypnotists in selected, refractory patients unresponsive to more orthodox methods of hypnotic treatment.
7. Placebo.

The curative value of the placebo has been known and used by healers of every culture from time immemorial. It can be a useful adjunct to more orthodox methods of hypnotic induction.

Weitzenhoffer, Gough and Landes (1959), conducted experiments concerned with the influence of visual fixation unaccompanied by suggestions, and used one condition in which the subjects expected hypnosis and another in which no expectation of hypnosis was involved. Although treated just alike in other respects, the group expecting hypnosis became hypnotised by the eye-fixation technique, while the other did not; the amount of hypnosis demonstrated was the same as that following a more usual induction procedure. Thus the formal induction was not necessary if eye-fixation plus expectation were present.

The results of extensive experiments by Barber and his associates indicated that a placebo, which the subject believed to have hypnotic powers succeeded in producing equivalent responses to those following standard induction (Glass & Barber, 1961).

Dr. Carlos Giro, a New York dental surgeon, has
made frequent use of the placebo-induction technique; it is a disguised approach and no mention of hypnosis is made. Giro, (quoted by Moss 1952) described his method as follows:

"After the patient is completely relaxed and comfortable, I hand him a capsule containing an inert substance, either sodium bicarbonate or sugar. I instruct the patient to swallow it, then say,

'In a moment or two you will feel extremely sleepy and tired, you will close your eyes and go to sleep.'

'I then walk out of the room and in about two minutes, I return to see the patient in a deep hypnotic trance. Sometimes I watch the patient and can see his head drop as he goes off to sleep. If the patient asks what's in the capsule, whether it is dope or such, I inform him that it is a small quantity of a powerful drug which is completely harmless. After the patient is in a hypnotic trance I usually give a post-hypnotic suggestion that in future he will go to sleep without any further resorting to the placebo."

There is no record of the percentage of success of this method. Moss doubts very much whether twenty-five percent of patients would respond as described
above. He further points out that such a capsule would not alone put a patient in a hypnotic trance, were it not for the 'state of expectancy' that is created by Dr. Giro's manner, reputation and attitude.

Hoss suggested a variation of the technique which has considerable merit. The patient is asked to relax and is given an injection of local anaesthetic as in usual dental procedure; as the drug is being injected the patient is told it has relaxing and sleep-producing properties and soon he will become drowsy and go to sleep. The author has had some success with this technique, especially with children, but feels that deliberate delusionary methods of treatment are seldom warranted. To induce hypnosis without the patient's permission could lead to an unhappy relationship. If it is the dentist's intention to place the patient in a hypnotic trance, a frank discussion beforehand should be mandatory. Once the patient agrees to this type of treatment some form of placebo may be instigated, the truth may be embroidered; the end justifying the means. It must always be kept in mind that only a small percentage of people (thirty percent at the most) are susceptible to the placebo effect alone (Barber 1960). The wise operator will therefore
always make provisions for failure of the method in order to maintain the patient's confidence and his own prestige.

"The placebo technique is a simple and effective device which is rapidly active and efficient in a certain group of highly susceptible individuals. This mechanism of producing hypnotic trance is further evidence of the fact that all hypnosis is auto-hypnosis. In other words, regardless of what technique is used, in the last analysis, it is the patient who brings on the trance himself (Moss 1952)."

**HYPNOTIC INDUCTION AIDED BY DRUGS.**

In an effort to facilitate hypnotic induction in refractory subjects, various authors have recommended the use of different drugs. Milechnin (1967) lists some of the different drugs which have been used for this purpose. They are: chloroform, sulphonal, hashish, ethyl bromide, chloral hydrate, scopolamine hydrochloride, alcohol, paraldehyde, and principally, different substances of the barbiturate group, such as hexobarbitone, amylobarbitone, pentobarbitone, and in particular thiopentone. Lately, use has been
made of azacyclonal hydrochloride, promethazine hydrochloride, chlorpromazine, meprobamates.

The use of drugs in hypnotic induction remains controversial. Hartland (1966) stated that the results are unpredictable and usually disappointing. Certainly, drugs alone will not produce a hypnotic trance, but when used in conjunction with usual trance inducing methods, their usefulness cannot be completely discounted.

Gill and Brenman (1959) stated that they had done some unreported work with intravenous thiopentone and concluded that it facilitated hypnosis only where it would probably have occurred anyway without the drug. There is, however, fairly widespread agreement among those who have employed such drugs that they do facilitate the induction of hypnosis.

LeCron (1952) reported that prior to an article by Horsley (1943) there has been a total lack of laboratory investigation of narcosis or any comparative study of narcosis and hypnosis.

Mason (1960) said, "Whenever higher cortical function is lessened a patient will be easier to hypnotise and probably will proceed to deeper trance states more rapidly. It has not been satisfactorily demonstrated that a greater percentage of patients
will respond, but it seems certain that those who are going to respond at some time or other can be hastened by one of these methods which probably diminish resistances, both conscious and unconscious."

Horsley (1952) reported that in 1932 he (in Great Britain) and Hauptman (in Germany), working quite independently, simultaneously demonstrated that the then new barbiturate hexobarbitone (Evipan) injected intravenously could be used to induce a state indistinguishable from verbally induced hypnosis.

Hull (1933) tested the effect of alcohol on suggestibility. Unfortunately he never concluded this investigation. He believed, however, that, although definite physiological effects were obtained, there was little if any influence on postural sway.

In 1936 intravenous thiopentone in subanaesthetic dosage, was used by Horsley and was shown to be the most effective of the barbiturates for use as an aid to hypnosis. Grinker and Spiegel (1945) claimed that all the phenomena of hypnosis could be secured by narcosing with thiopentone without inducing hypnosis. Horsley contended that the psychosomatic state which occurs during seminarcosis is not simply a chemical
reaction but is probably dependent in part on the personality of the operator injecting the drug. In other words, there is a possibility of the experimenter overlooking himself as a hypnotist, if his conscious intention is to do no more than inject a soothing or exciting drug.

Weitzenhoffer (1953) said, "The use of the term 'drug hypnosis' has been an unfortunate choice and is rather misleading, since it implies something it does not do, for all evidence points to the fact that narcosis, even when light, is not the same as hypnosis. Drugs create neither hypnosis nor suggestibility. As Horsley (1952) has remarked, if hypnosis is present when certain narcotic drugs are used, it is 'super-imposed' upon the state of narcosis and is brought about through interaction between the experimenter (or practitioner) and the patient, and not by the drug itself."

Mlechnin (1967) believes it is more adequate not to speak of hypnotic induction under a seminarcosis, but of a passage from the seminarcotic state in which the patient finds himself into a special interpersonal relationship with the person who is administering the drug.
It is probable that narcosis produced by drugs and hypnosis are not identical. If, as seems probable, the state of hypnosis and narcosis are only similar, then it may be useful to postulate three distinct states:

1. Simple narcosis
2. Drug hypnosis
3. Ordinary hypnosis

To the above may be added a fourth state, narcosis induced on an already hypnotised patient. Simple narcosis is achieved when the drug is given to the patient without suggestion or additional effect by the operator, who must be careful not to give conscious or unconscious indications to the patient of expected reactions. The patient becomes sleepy with varying degrees of drowsiness, confusion, disorientation, and incoherence dependent on dosage and personal idiosyncrasies.

In drug hypnosis, suggestion is superimposed on seminarcosis with the result that the patient becomes responsive to the comments of the operator; he exhibits hypnotic phenomena such as post-hypnotic suggestion and alterations of memory including both hypermnnesia and amnesia.
The administration of narcotic drugs in moderate doses to patients already in the hypnotic state induced by natural means, appear to 'lock' and potentialize that state. This method of reinforcement is useful where prolonged sleep is required and extensive surgery is to be performed.

Narcosis and hypnosis complement each other. The main advantage of the intravenous method of inducing hypnosis, is its speed. In a matter of minutes the hypnotist obtains results in susceptible individuals which may have taken several lengthy sessions with a verbal method of hypnosis. Post-hypnotic suggestions are given for rapid 'hypnotic sleep' on subsequent appointments without the necessity for drugs. This method of induction has the further advantage that intravenous anaesthetics are becoming increasingly popular with patients throughout the world, while many people still regard verbally-induced hypnosis with suspicion.

Patients who have been previously hypnotised, require extraordinarily small amounts of anaesthetic preparations to achieve depth of anaesthesia, sufficient for surgery. This holds true whether local or general anaesthesia is to be used.
Bingham (1964) reports that in his experience many patients respond to suggestions when partially anaesthetised with nitrous oxide in almost the same way as they respond under hypnosis. For years he has used nitrous oxide analgesia and hypnosis on about ten patients a day and says, "It is important, before the patient awakes, to give him repeated suggestions to be wide awake and alert before leaving the office, to use suggestions against nausea, and to suggest that the patient will feel good when the nitrous oxide mask is removed.... Nitrous oxide with the correct use of suggestions makes it possible to relax almost 100% of dental patients with little time loss. Patients can safely drive their car twenty minutes later."

In co-operative patients as little as 150 mg. of thiopentone injected intravenously is usually enough to greatly facilitate the initial trance induction. When patients refuse injections, or where proper facilities for intravenous induction are lacking, 200 mg. of pentobarbitone sodium (Nembutal) by mouth half an hour before treatment is to begin, will often be of value for initial trance induction.
The increasing popularity of intravenous anaesthesia in dentistry employing the oxybarbiturate methohexitone sodium (Brietal) when merged with suggestion and hypnosis, should offer the most frightened apprehensive patient, dentistry without fear.

Horsley (1952) stated, "There is a good deal of experimental evidence to support the view that the barbiturates, in small doses, have a selective subcortical action. It seems probable that this action is primarily on the thalamus and corpus striatum, and it is a fact that doses insufficient to produce measurable effects on cortical efficiency will nevertheless facilitate the induction of hypnosis."

Gill and Brenman (1959) conclude, "The facilitation of hypnosis by various means may mean simply its facilitation in instances in which it would have been obtainable in any case. On the other hand it could mean that a shift of forces is brought about by the adjuvant, whether sleep, drugs, or whatever, which makes the difference between whether hypnosis can be induced or not.

"It must be made clear that the altered state which is regarded as facilitating hypnosis should not be confused with the hypnotic state itself. The inducibility
of hypnosis in a state of light sleep does not mean that sleep is a necessary part of hypnosis. And if it were demonstrable, for example, that the administration of certain drugs facilitate hypnosis, this would not mean that the state produced by the drug itself is hypnosis........ Contrariwise, it may be possible to produce an altered state in hypnosis which is not to be confused with hypnosis but which is superimposed upon — and may sometimes replace — the hypnotic state. This may be the explanation of the production by suggestion of apparently genuine sleep in hypnosis."

Discussing the psychophysiology of hypnosis, West (1960) stated, "The mechanisms mediated by the ascending reticular activating system probably involve the thalamocortical projection system, corticofugal systems both excitatory and inhibitory, and other integrated regulatory systems known to function in connection with the ascending reticular activating system.

"The frame of reference provided by this theory permits a better understanding of the relationship between the actions of various drugs and the induction and maintenance of the hypnotic state. No drug can be evaluated for its adjunctive value in the induction
of hypnosis without first considering the psychophysiologic state of the subject at the time.

"The patient who is chronically anxious may be rendered distinctly more accessible to hypnosis by the use of a drug which decreases central autonomic reactivity while maintaining a good cortical arousal pattern. The author has observed that phenothiazine derivatives can be helpful in such instance, whereas phenobarbital (which depresses arousal) usually is not. On the other hand, in a patient in whom tension is prominent, with manifestations chiefly in the musculoskeletal system, a barbiturate or meprobamate may be helpful. Although such stimulants as amphetamine and methylphenidate have seemed to make hypnosis more difficult to induce in certain patients, they may help, when combined with barbiturates, to ease the induction of hypnosis in tense, depressed patients."

Rothman (1957) recommended the use of intravenous amylobarbitone to facilitate hypnotic induction in selected resistant patients. Dosage ranges from 100 mg. to 1 gram.

According to Meares (1963) certain sedative drugs increase suggestibility by reducing critical activity. He says that practitioners who lack skill in bringing
the patient to an uncritical state of mind by the ordinary techniques of interviewing, sometimes give 200 mg. of amylobarbitone prior to the interview in order to increase suggestibility. The acceptance of suggestions is further enhanced by intravenous amylobarbitone, as given in narcoanalysis. The use of drugs in this fashion should be considered merely as an expedient for the young physician who is learning the art of suggestion.

Hilgard (1965) stated that the drugs Lescaline and LSD-25 produce about the same increase in suggestibility that the induction of hypnosis does.

The foregoing review of the literature indicates fairly widespread agreement that hypnotic induction is facilitated by the employment of numerous drugs, while at the same time there is a clear indication that no single drug or combination of drugs will themselves alone produce the hypnotic state. If the patient under narcosis is left quietly alone, he is likely to sleep without exhibiting any of the manifestations of hypnosis.

The author has had limited experience with hypnotic induction aided by drugs. Several patients resistant to hypnosis at previous appointments
attained medium trance depth within five minutes of being given an adjuvant of 10 mgs. of intravenous diazepam. It does appear that the reduction of critical awareness and the euphoria brought about by the administration of diazepam is an excellent prerequisite to hypnotic induction.

DEEPENING THE HYPNOTIC TRANCE.

Using any induction method with which he is familiar, the experienced dental hypnotist is able to obtain a light or hypnoidal trance in approximately ninety percent of his co-operative patients. While a light trance is helpful in allaying fear and apprehension in nervous patients, a much deeper trance is necessary for the maximum utilization of the various hypnotic phenomena useful in clinical dentistry.

Once the patient has entered a light hypnotic state, the next objective is to deepen the trance as much as possible. There are many methods by which this may be accomplished; some useful in dental practice are:

1. Repetitive Direct Suggestion.

Throughout the induction the patient is continually
told he is sinking deeper and deeper into sleep; it is suggested that the experience is pleasant and that he has a feeling of well being. Other techniques for deepening are now superimposed on direct suggestion.

2. Controlled Breathing and Counting.

The patient is told to breathe deeply as the dentist counts from one to seven and at the count of seven he will take a large breath and go deeply to sleep. The technique is as follows:

The dentist says, "I will now count from one to seven and with every count you will take a big breath and become more and more drowsy, and on the count of seven, you will go deeply to sleep.

One ... a deep, deep breath.
Two ... another deep, deep breath.
Three ... breathing deeply.
Four ... more and more drowsy.
Five ... with every breath you sink into a deeper, still deeper sleep.
Six ... you are nearly asleep.
Seven ... a big breath and go deeply to sleep.
And now you are sleeping deeply and with every breath you will continue to sleep deeper and deeper ...
you won't wake up until I tell you ... you will listen only to my voice, other sounds will not disturb you ... sleep deeply."

3. Deepening by the Relation of Depth to Performance.

The patient is told his right arm is light, that it will rise in the air without effort, and when risen it will begin to revolve and with each revolution he will become more and more drowsy, and as he sinks into a very, very deep sleep, his hand will stop revolving and gradually will settle back to his side. The hypnotist gives the following suggestions:

"Your right arm is light; as I stroke it, your right arm becomes 'light as a feather'; it is lighter than air; it will rise upward without effort. As I continue to stroke it, it becomes lighter and lighter and is rising into the air. (The fingers begin to twitch and the arm gradually rises.) That's good; the arm is rising up; rising without effort and as it reaches the level of your shoulder, it will begin to rotate in a clockwise direction. (The hypnotist may take the arm and start it on several small rotations.) Your arm will continue to rotate and like a paddle wheel will drive you deeper and deeper to sleep,
and when you are deeply asleep, the movement in your arm will cease and it will gently come down to rest on the chair."

As the arm comes to rest, the patient is given a firm suggestion.

"Go to sleep."

The hypnotist strokes the arm and says,

"Your arm now feels perfectly normal."

This is but one example of how the patient is able to set his own pace and couple his entry into a deeper trance with something that is actually happening to him.

4. Challenges.

When a patient in a trance state fails a challenge to perform a simple task, he realises that something has happened to him. His susceptibility consequently increases and he is more likely to accept suggestions for deepening the trance.

Eyelid catalepsy is frequently used as an early challenge. The patient is told that his eyelids are stuck together, that all the power has been taken from the muscles and that he is unable to open his eyes. The more he tries the harder they will stick. He is
then challenged to try. As he tries further suggestion is given that the eyes are tightly locked together; he can't open them and the harder he tries the more they will stick.

Coué's Law of Reverse Effect states, "When an idea imposes itself on the mind to such an extent as to give rise to a suggestion, all conscious efforts which the subject makes in order to counteract this suggestion are not merely without the desired effect, but they actually run counter to the subject's conscious wishes and tend to intensify the suggestion."

This law works to the advantage of induction. Evidence that the patient is trying hard to meet the challenge will be seen by the strained expression and wrinkled eyebrows.

After a few seconds trying, he is told to stop and relax and is immediately reminded that, although he tried as hard as he could he was not able to succeed.

Some patients make no effort to open their eyes and later will explain that they would have been able to meet the challenge but didn't feel inclined to try. This rationalisation is often encountered in a hypnotised person.
There are countless challenges the patient may be given, such as inability to rise from the chair, to bend an arm, to speak his name or to lift a light weight such as a match box.

When unable to be met, the challenge does much to impress the patient and can be used to deepen the trance state, but when unsuccessful the chances of induction are greatly jeopardized. Brenman and Gill (1959) say, "It is difficult to know when one should first challenge the patient, by way of testing his hypnotisability. The general rule is never to challenge unless you are sure that the suggestion will be successful. Naturally, hypnotists vary much in their own temperaments so that one will challenge early and peremptorily, while others will advance cautiously by small steps."

The hypnotist who uses the challenge test must be very vigilant and at the first sign of the challenge being met should be ready to terminate it immediately by saying, "Stop trying!", and he then should give further sleep suggestions.

Should the challenge fail, the operator must be ready to point out, that although the patient was able
to meet it he had difficulty in doing so and that similar results are often encountered with this particular test even with the very best hypnotic subjects. Another method of trance deepening is then immediately instigated.

Irrespective of what explanation is given after the failure of a challenge, there is usually some loss of confidence by both operator and patient and this is likely to impede the induction of a deeper trance. This grave disadvantage makes it unsuitable as routine practice in this author's opinion.

5. Leaving the Room.

The patient is informed that the hypnotist will leave the room for several minutes, and while he is away the patient will breathe deeply and relax, with every breath he will sleep deeper and deeper, and that on the hypnotist's return he will be in a deep hypnotic trance. This method of trance deepening described by Shaw (1958) has proved to be only rarely successful in the author's experience.

6. Fractionation.

In this method the patient is hypnotised and told that at the next induction he will sleep more deeply and much more quickly. He is then roused and
hypnotised again. This procedure is repeated several times during the one session until the deep trance state has been attained.

Hartland (1966) stated, "The theory is that each hypnotisation renders the subject more suggestible, and thus favours the induction of a deeper state at each successive attempt."

Weitzenhoffer (1953) advised the use of eyelid catalepsy and limb rigidity techniques, but avoided the use of challenges by offering the following suggestions:

"Your eyes are now so tightly closed ... that they feel as if the eyelids are glued together ... so tightly glued together ... that it will be impossible for you to open your eyes. Even if you tried ... you would find it quite impossible to open them. But you will have no wish to try. You are just relaxing more and more completely ... and sinking into a deeper, deeper sleep."

Before the patient is awakened at the end of a session, he is given a post-hypnotic suggestion that he will go quickly to sleep on his next visit when given a signal to do so by the hypnotist. When he is
awakened between inductions he is asked his impressions and how he felt, what he liked and disliked about the experience and this information is used in the next induction. He may complain that the hypnotist spoke too loudly, or too quickly, that he enjoyed having his forehead stroked, that he was physically uncomfortable or that he was distracted by extraneous noise.

The hypnotist does what he can to correct these deficiencies and proceeds with the next induction. This is known as the 'feed-back' technique and is extremely useful as it not only removes irritations which may be preventing successful induction of a deeper trance but convinces the patient that his welfare is the operator's paramount consideration. His wishes are being respected and this gives him a sense of security.

"Acceptance of such help is an expression neither of ignorance nor incompetence, rather it is an honest recognition that deep hypnosis is a joint endeavour in which the subject does the work and the hypnotist tries to stimulate the subject to make the necessary effort." (Erickson 1952).

This author uses fractionation routinely in clinical practice and considers the method among the best
of the available techniques.

7. Confusion Technique.

This technique is sometimes useful when other methods of induction have failed. It consists of giving a series of suggestions all at variance with each other and requiring a constant shift of orientation by the patient. He is asked to perform one task and as soon as he begins he is given further suggestions of a contradictory nature, for example, while producing levitation of the left hand, suggestions are given that the right hand is heavy and immobile. While the patient concentrates a second suggestion is given that the right hand is light while the left hand is immobile. The patient thinks the hypnotist has made a mistake and while he ponders the last suggestion a further one is given that the hands are both immobile, then one becomes light and one becomes heavy. The original suggestion is again offered, and simultaneously movement of one foot and then the other is suggested.

The patient tries hard to comply with each suggestion and if they are many and varied he can't adequately cope with them all. He becomes confused and welcomes the relief of a simple direct suggestion
which will allow him to retreat from a situation which is so confusing and unsatisfactory.

This method of induction is best suited to the experienced, confident hypnotist who gives the suggestions with such rapidity that the patient, hard as he may try, is unable to sort out any semblance of order and is likely to comply with the direct suggestion of "Go to sleep."

8. Deepening by Hallucinations.

The patient in the light trance is told to imagine he is on a cruise, or some other pleasant situation. If a cruise is suggested he may be told he is lying on the deck of a yacht, he is perfectly comfortable on a soft mattress, delightfully warm with just the slightest breeze. The yacht surges through the water and its lolling motion sends him into a pleasant daydream. He is so pleasantly tired that he is going into a nice deep, deep sleep. He is asked to indicate by raising one finger when he clearly visualises the yacht and its setting, and to indicate his sleep by lowering the finger. A positive finger response usually indicates at least a medium trance. The patient is able to set his own pace for the hypnotic
reaction and the hypnotist can take the opportunity
to point out the likeness of a daydream to the 'trance'
state.

This method is very effective with children. A child attending for dental treatment can simply be put into a light trance and then told to visualise his favourite television or movie program. It is then suggested that as the program progresses, he will go deeper and deeper to sleep. From experience the author finds the vivid imagination of a child readily involves him in the suggested program and he is often reluctant to have trance terminated.

A dentist who wishes to include hypnosis in his armamentarium should realise that no 'hard and fast' induction procedure will be equally applicable or effective with all his patients. The importance of interpersonal relationship between the dentist and patient and the fact that this interpersonal relationship is both contingent and dependent upon the intrapsychic or intrapersonal relationship of the subject, should never be overlooked.

Erickson (1952) said, "When thought is given to the difficulty of 'standardizing' such intangibles as
inter- and intrapersonal relationships, the futility of a rigid, hypnotic technique to secure controlled results is apparent. An awareness of the variability of human behaviour and the need to meet it should be the basis of all hypnotic techniques."

Erickson has little use for technical devices such as crystal balls and metronomes as aids to hypnotic induction. He stated, "At best, apparatus is only an incidental aid to be discarded at the earliest possible moment in favour of the utilization of the subject's behaviour which may be initiated but not developed by the apparatus."

He found that patients who had learned to enter the 'trance state' by gazing at a crystal ball, held at a distance of six inches and slightly above their eye level, become difficult to hypnotise without it. However the same subjects were quickly and more deeply hypnotised when told to imagine that they were looking at the crystal ball. Return to actual crystal-gazing resulted in the original slower and less profound trances characterised by a greater dependency upon external factors than upon intrapsychic processes.

Duplication of this experiment by the author has produced similar results.
With the patient relaxed and comfortable, the hypnotist seated at the eleven o'clock position and the chaperone present, hypnotic induction is about to commence.
TRANCE INDUCTION AND DEEPENING TECHNIQUE

As Practised By The Author

The patient is seated in the dental chair and a general case history is taken. This is followed by a discussion about hypnosis during which the sensations likely to be experienced are explained and any erroneous notions and fears the patient has in regard to hypnosis are dispelled.

The medical history and the preliminary discussion are of the utmost importance. Contra-indications for hypnotic therapy can be assessed and something can be learned of the patient's personality. A confident and professional manner will further enhance the dentist's prestige. The patient's mind becomes conditioned for the acceptance of hypnosis, his fear of dental procedures gives him a strong motivation; he is impressed with the interest already shown in his welfare and any apprehension is diminished.

Care is taken that the patient is not in a draught and is not allowed to get cold. Optimum room temperature is between $21^\circ - 27^\circ$ C. If it is not possible to warm the room the patient should be covered with a rug, as a fully relaxed person with minimal muscular movement generates little body heat.
The noise level in the surgery should be kept as low as possible and the room should be free from bright lights and excessive glare.

The dentist sits on a stool in the eleven o'clock position in relation to the dental chair, while the assistant sits quietly, removed from the patient's vision. The dental chair is now adjusted to a semi-horizontal position and the patient made comfortable.

The unlit operating light is now placed above the patient's head about two feet higher than his eyes, in such a position that he has to turn his eyes upward and slightly backward in order to gaze into its centre.

The patient is now instructed to relax and stare at the light. Some patients have great difficulty in relaxing and in these cases the dentist takes hold of the patient's wrist and lifts the arm. If the arm feels rigid and unrelaxed, he is instructed to let it go limp so that it will just flop back to the chair like that of a rag doll. Several minutes will have to be spent teaching him how to completely relax his arm. Eventually when picked up by the wrist and gently shaken, the hand will flop to and fro and the arm will drop limply back to the chair when released. He is
To produce fatigue in the ocular muscles and to relate suggestion to his physical condition, the patient stares upwards and backwards producing feelings accurately described by the hypnotist.
then asked to endeavour to relax all the muscles in
his body in a like manner.

The patient is then instructed to stare at the
light and is given suggestions in the following order...

"I want you to relax completely and stare at the
light ... stare hard at the light and don't shift
your gaze for a single moment ... Listen only to my
voice ... take no notice of other sounds ... and as you
stare at the light your eyes become warm and moist ... 
your eyelids are heavy ... so heavy it is hard to keep
them open ... you want to blink. You may blink if you
wish."

(At this stage the patient's eyes will begin to
water and he will start to blink.)

"As you stare at the light and your eyelids be-
come heavy, you will blink more and more often ... 
your eyelids are becoming very, very heavy ... the
blinks are becoming longer and longer ... you feel
very, very drowsy, more and more drowsy ... it is very,
very difficult to keep your eyes open. Soon they will
tumble down and close and you will go to sleep ... 
soon they will tumble down closed, and stay closed and
you will go to sleep."
(The eyelids will soon close and fail to reopen. As this happens a firm suggestion is given, "Go to sleep.")

The patient is now in a very light or hypnoidal stage of hypnosis; the eyelids may continue to flutter for some time. (Throughout the induction the hypnotist generally uses an unmodulated and monotonous voice.)

Once the eyes are closed, the sensory intake of the patient is greatly reduced and, as he is lying in a relaxed position, his motor output is also reduced to a minimum. At this stage light physical contact with the patient will give reassurance and help overcome feelings of detachment and disassociation which may hinder hypnotic induction.

The induction continues and the trance is deepened by progressive relaxation. The hypnotist strokes the patient's forehead and says, "As I stroke your forehead, the muscles in your scalp relax, the muscles in your face relax, the muscles in your neck, your arms and your body relax... your legs and even your toes relax... every muscle in your body is relaxed... you feel marvellous and as you relax you go deeper and deeper to sleep."
"You are taking big even breaths, and with every breath you take you will sleep deeper, and deeper ... other sounds are fading away and you listen only to my voice. I will count to five and when I reach five, you will take a big breath and go deeply to sleep ... one ... two, you are going deeply to sleep ... three, you are drifting into a deep, deep sleep ... four, almost asleep now. Five, sleep deeply."

"Now, sleeping deeply, you won't wake up until I tell you ... you feel so pleasant ... and with every breath you take, you will sleep deeper and deeper."

The hypnotist softly repeats, "sleep deeply", and pauses for some twenty seconds to allow the patient to orientate to the new state.

The trance is now still further deepened.

"I want you to concentrate on your right hand ... concentrate hard ... think of nothing but your right hand. Soon you will feel the fingers begin to tingle ... the whole arm and hand feel light. As I stroke your arm and the back of your hand, you can feel a light tingling feeling from your fingertips to your shoulder. Your right arm feels very, very different to your left arm."
"The fingers begin to tingle and soon they begin to twitch. The fingers begin to move up and down and as I stroke your arm, it becomes so light that it will rise in the air. Your right arm feels as light as a feather and without effort it begins to rise in the air."

In many cases, the arm will rise in less than two minutes. If there is no movement the suggestions should be continued. The hypnotist will notice slight movements in the fingers and this fact is mentioned to the patient, who realises the suggestion has had an effect and that something is actually happening to his arm. This small beginning is enlarged on by the hypnotist, who continues,

"The movement is small at first, but will gradually get bigger and bigger; your arm is as light as a feather; lighter than air and will rise up, right up as if you wish to ask a question."

(The arm rises just a fraction and the hypnotist persists.)

"Your arm is rising in the air. It feels as if a hydrogen balloon is attached to your wrist, and is drawing the arm up into the air."
The hypnotist aims to involve the patient in a series of muscular movements and here a suggestion has been made that his arm will slowly rotate.
When physical signs indicate to the hypnotist that light hypnosis is already attained, further suggestions are made to the patient. Here weightlessness of the right arm has been suggested.
The arm gradually rises. When it is at shoulder level the hypnotist takes the hand and says,

"Good. That is excellent. Your right hand will now begin to revolve in a clockwise fashion."

The hand is given a small rotary movement.

"Your arm goes round and round... round and round... and as it revolves, you drift deeper and deeper to sleep. The right arm goes round and round... round and round... like a propeller driving you deeper and deeper to sleep... and as you go deeper to sleep, the movement will slow down and eventually stop... and when the arm slowly settles down back to the chair, you will be in a deep hypnotic sleep."

As the hand sinks back and touches the chair, the hypnotist again emphatically says, "Go to sleep."

The patient who has responded so far will now be in at least a medium trance. The hypnotist continues,

"As I rub the top of your head you will sleep deeper and deeper." The top of the patient's head is now stroked in a small circular movement.

Christenson (1952) said, "If the operator says that something may happen, he is on safer ground than if he says that it will happen, and it is much better to say something will soon begin to happen or must
The patient responds readily to suggestion as trance depth increases.
happen, and finally has happened rather than make a flat statement that something is happening."

The hand levitation technique gives the patient continuous awareness of the progress he is making. He is able to set his own pace to enter the deeper trance state and this usually brings about a better result.

The trance is still further deepened by the process of limb rigidity. After a slight pause of approximately thirty seconds during which time the patient's forehead is gently stroked, the hypnotist continues with the deepening technique. The patient's right arm is taken by the hypnotist and stretched out straight from the shoulder...

"As I stretch your arm, it will soon become as rigid as a steel bar. From your shoulder to the tips of your fingers, your arm is becoming as rigid as a steel bar. As I stroke your arm it will become more and more rigid... more and more rigid... like a steel bar... it is becoming so stiff that I would be unable to bend it."

The arm is continuously stroked and the hypnotist will perceive that it will stiffen to a degree, usually not possible in the waking state.
"Now you feel your arm is as stiff as a steel bar
... I could not bend it ... you could not bend it, but
on the count of three, it will feel stiff no longer.
It will feel perfectly normal, and as it relaxes you
drift into a deeper, still deeper sleep."

As the arm gradually comes back to rest on the
chair, another emphatic suggestion of, "Go to sleep
more deeply!", is given.

..."Sleeping deeply you feel relaxed and marvellous,
and you will remember that when you are awakened
you will feel refreshed and alert but you will quickly
re-enter the trance state with my help whenever you
wish to do so, and each time you are hypnotised, you
will sleep more quickly and more profoundly. I repeat,
when you wake up you will feel refreshed and perfectly
normal. Next time you request hypnosis, you will
sleep immediately and more deeply, when instructed to
do so. Remembering what I have said, I will now awaken
you. I will do this by reciting the letters of the
alphabet to E. When I reach E, you will open your eyes
and be wide awake.

"I am now going to wake you up. A... B ... C...
D... You are nearly awake ... E ... Wake up!"
The patient is now asked how he feels and is encouraged to discuss his thoughts on the induction and trance. The dentist should answer any queries he can and endeavour to correct any deficiencies that may have irritated the patient. When this has been done he is settled back in the chair and asked once again to stare at the light and the dentist says in a convincing tone,

"As you stare at the light and relax, you are immediately drowsy, and when I count to three you will go deeply to sleep. One ... Two ... Three ... Go deeply to sleep."

The patient's eyes close and he goes immediately to sleep.

"On this occasion you will sleep still more deeply than you have ever done before and with every breath you will sleep deeper and deeper."

The patient may now be tested for analgesia. The area of skin or mucous membrane to be tested is stroked with the finger and the patient is told that the area tingles as if there had been an injection of local anaesthetic. (Care must be taken to ensure that the patient has at some time previously had an injection
of local anaesthetic and knows what the sensation feels like, otherwise he may not be able to conceive the feeling.)

The patient is assured that the area is numb ... "As stiff as a board, and the more pressure put on it the more numb it will become." ... A probe is first pressed on the area and if there is no reaction, the depth of analgesia may be tested by piercing the skin or mucous membrane with it. When the analgesia is profound, the necessary dental treatment may be commenced.

The production of hypnoanalgesia involves complex neuro- and psycho-physiological changes and sufficient time must be allowed for the patient to reorientate himself, so these changes can be effected. As patients vary from person to person in their response to chemical anaesthetics, so do they vary in their response to hypnosis. The time factor therefore is important and the individual must be allowed to progress at a pace acceptable to his capacity.

Before being finally aroused the patient is told he will awaken with a feeling of well-being and that he will sleep quickly and profoundly at his next appointment.
After he is awakened he should be allowed to remain in the surgery or waiting room for ten minutes to make sure he is thoroughly reorientated.

It has been the author's experience on several occasions that the patients have awakened in a sluggish state and have relapsed back into the 'trance state'. In such cases the patients are rehypnotised and told to awaken feeling refreshed as if they had just had a cold shower.

This induction technique has been described at length and there is of necessity a great deal of repetition. It is the technique the author has used with success for many years. However it must be remembered that no one technique will be suitable for all individuals and keeping in mind the nature of the delicate relationship between hypnotist and patient, all techniques need at least minor modifications to suit the personalities involved.

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WEITZENHOFFER, A.M.

GOUGH, P.B. and


1. Rapport.

Weitzenhoffer (1953) defines rapport as:

(i) a special heightening of susceptibility to suggestions emanating from the hypnotist that is transferable to others by simple suggestion of this.

(ii) an apparent pseudo-insensibility to all stimuli that emanate from persons other than the hypnotist or persons designated by the latter.

In essence, rapport seems to be a kind of mental sympathy which gradually develops through repetition into a state of exaggerated belief and trust on the part of the patient which often leads to a form of emotional attachment between patient and hypnotist.

Rapport starts to develop before the actual induction of hypnosis has begun; for the induction to be successful the patient generally needs to have confidence and trust in the operator, and an introductory discussion with the patient to allay fears and anxieties will do much to the establishment of a very close interpersonal relationship.

Rapport can be shared with or transferred to another person, and this is important clinically. A
dentist may hypnotise a patient and suggest that he will readily go back into trance state at the suggestion of his own particular dentist and follow his instructions implicitly.

Hartland (1966) stated, rapport is of such a nature that it tends to prevent the patient from responding to any stimuli other than those arising from the hypnotist himself, unless he instructs the patient otherwise. Even when it is not as strong as this, it will still cause the patient to respond more effectively to suggestions from the hypnotist himself, than those from other people. It was once thought that a hypnotised person would respond only to the original hypnotist and only awaken on his command. This complete type of rapport rarely exists; it is usually present to a lesser degree. He added that it is a mistake to consider rapport as being merely the product of suggestion. It is very much more than that. He quoted Erickson as saying that no one can ever be sure what it actually includes, and feels that it expresses the attitude of the patient towards his surroundings and is very definitely a phenomenon of hypnosis.

Marcuse (1959) supported a similar point of view and said, "... Rapport refers to a close relationship"
between the subject or patient and the experimenter or therapist. Rapport is thought to be important, but again it is not clear just how it works or how important it is."

In the literature on hypnosis there is frequent mention of 'rapport' as a highly significant and essential factor. Christenson (1952) stated, "It does not seem desirable to abandon this term in favour of 'transference', since the observed dynamics of subject-agent interaction suggest that rapport is present regardless of whether transference is positive or negative, and may thus be considered a more comprehensive construct. Rapport is ordinarily described in terms of strength. Its absence is assumed to be sufficient to prevent any inductive process.

The inseparability of rapport and hypnosis is most evident in cases where the rapport has assumed such dependency - fostering functions that the subject will awaken spontaneously the moment the hypnotist ceases paying attention to him; the transference demands in such behaviour are obvious. Here, as always, the hypnosis serves some specific purpose of the subject, who may even trick the inexperienced hypnotist
into believing that he cannot be awakened as a means for prolonging contact with or controlling the hypnotist on a dependent basis.”

Eysenck (1957) stated that the Freudian concept of transference, that is the existence of a special relation between patient and therapist, is in many ways a watered-down version of the notion of rapport. It is quite likely, in fact, that the underlying rationale of these two phenomena, when carefully examined, will be found to be somewhat similar. Although psychoanalysts have always protested against this notion, there seems to be little doubt that suggestion, although not necessarily of a hypnotic kind, plays a very important part in their treatment.

Meares (1965) described rapport as an emotional adjustment between doctor and patient. It doesn't necessarily involve hypnosis nor is it entirely brought about by suggestion. He said, "Some authorities have believed that the therapeutic effect of forming rapport is always brought about by suggestion, but it seems unlikely that this is so. For instance, a patient who is dying, and who knows that he is dying, may still feel very much better by being visited by a
doctor with whom he has rapport. Emotional support and satisfaction of dependent needs are mediated through rapport, and play their part in such a case; but it is probable that the actual experience of this relationship itself has some therapeutic effect."

Experiments by Fisher (1965) suggest that rapport between subject and operator continues to exist in some degree after the termination of the trance state. This is evidenced when the subject is carrying out repetitive post-hypnotic suggestions over an extended period of time and shows unceasing concern over the hypnotist's expectations in regard to the previously-suggested post-hypnotic behaviour.

2. Post Hypnotic Suggestion

LeCron and Bordeaux (1947) stated, "Most important of all hypnotic phenomena is post-hypnotic suggestion whereby we are able to transfer all the conditions of the trance to the waking state." If, under hypnosis, the patient is given a suggestion to be carried out at a given time, or after receiving a certain signal, he will carry out this suggestion, although he may at the time not be in a hypnotic trance at all, but may have returned to the waking state.
Van Pelt (1958) said, "The suggestion will usually be carried out with remarkable accuracy. If the trance has been deep enough and the amnesia is complete, the patient will carry out the suggestion without even knowing why he is going it. Having performed the act, the patient will often rationalise to explain his seemingly absurd action." What is more the patient apparently believes his own rationalisation implicitly. For example, the hypnotised person may be told that after awakening he will remove his shoes when the hypnotist blows his nose. He is then aroused. He is asked his impressions of the 'trance state' and joins in the general discussion for some twenty minutes. The hypnotist blows his nose, and the subject sits down and removes his shoes. When questioned as to the reasons for his action, he cannot, of course, give the true reason because he is unconscious of it. Instead he will make up as good a reason as he can. Thus, for example, he may say he was recently reading a magazine about Japan and thought what a good idea it was to remove one's shoes when inside the house.

Intelligent people will usually produce the most ingenious rationalisations for their conduct and will give some plausible yet entirely false explanation for
their actions which completely satisfies themselves.

The suggestion can sometimes be resisted, but only at considerable trouble and the patient feels vaguely unhappy until he has carried out the suggestion.

Estabrooks (1943) cited an interesting case relating to the work of the late Professor William McDougall who was doing graduate work at Harvard. McDougall gave a post-hypnotic suggestion to a subject in a somnambulistic trance, (this subject, incidentally was a graduate student in hypnosis), that when he, McDougall, lit a cigarette, the subject would take an ace of spades from a pack of playing cards on the table and hand it to him. McDougall then awakened the subject. It happened that the subject was familiar with hypnosis and, therefore, as he started carrying out the post-hypnotic suggestion and reaching for the pack of cards, he stopped and told Professor McDougall that he was about to hand him the ace of spades but he felt it was a compulsive and meaningless act and therefore that it must be a post-hypnotic suggestion. He said that he intended to try to resist the compulsion. Professor McDougall replied, "I will bet you fifty cents you cannot resist."
"Taken", replied the subject.

Then came a very neat demonstration of this compulsive power of suggestion. The subject was obviously in difficulties. Extremely restless, he would keep drifting towards the deck of cards, and sit down only to be on his feet again in a minute's time, then be wandering around the room again in an unhappy fashion. But he did resist; at the end of an hour and a half he collected his fifty cents, wiped his brow and left the room.

But his trouble had only started. McDougall had purposely omitted removing the suggestion. The subject had a great deal of work at home, but simply could not settle down. He was haunted by the ace of spades. Finally, about midnight he gave up the struggle, returned to the building, had the janitor let him into the office, got the ace of spades, looked up the Professor at his home and handed it over, plus a one dollar bill.

The author has had many similar experiences. On one occasion, when demonstrating the effect of post-hypnotic suggestion to a dental group, it was suggested to a subject in a deep trance that after being awakened
his right arm would rise and remain in the air, as soon as the author resumed his seat. The patient was aroused and after several minutes, the author sat down. Immediately the subject's arm began to rise and he perceived by the audience reaction that he was responding to a post-hypnotic suggestion. He determined not to fulfill the suggestion.

At first he sat on his hands, then he became very agitated and began to fidget continuously and after several minutes clasping both hands together, hurriedly left for the washroom. He was left unattended for half an hour, after which time in response to requests from several of his friends, the author went to the washroom and found him standing there with his right arm fully extended. The subject sheepishly admitted that he could not (try as he may) resist the suggestion. The suggestion was then countermanded.

Eysenck (1957) considers what apparently happens is that "the post suggestion sets up an encapsulated action tendency in the mind which is relatively independent of the voluntary control and powerfully demands action before it can be reintegrated with the remainder of the subject's mind. In this it very much resembles
in miniature the kind of complex so often found in neurotic and otherwise emotionally unstable patients." The cause of this action tendency is unknown to the subject, and even where it is guessed, as in the case of Professor McDougall's patient, this knowledge does not seem capable of counteracting the determining influence of this small 'complex'.

Eysenck continues, "When it is remembered that in the particular case just mentioned this single suggestion triumphed over the strength and will-power of a well integrated, strong-willed, competent person, who, in fact, had guessed what was happening, it will be realised that hypnosis and hypnotic suggestions are no playthings, but carry with them an almost frightening degree of strength and importance."

Post-hypnotic suggestion is used consistently by the stage performer. He places several well-trained somnambulistic subjects in the audience and when called to the stage, they immediately enter a deep trance at a given signal. This looks very spectacular, impresses the audience and greatly enhances the performer's prestige.

After waking his subjects he may suggest they will immediately go to sleep again, or carry out
certain acts on a given signal - (such as when a particular tune is played by the orchestra, when he strokes his beard, snaps his fingers and so forth).

The tremendous power of post-hypnotic suggestion has been illustrated. The suggestions must be given clearly leaving no doubt in the patient's mind as to what is expected and even if they appear to have no apparent effect, should be removed before the subject is dismissed. A stage performer forgetting to remove suggestions from his subjects before they leave a performance could cause severe psychological confusion and trauma.

The length of time a post-hypnotic suggestion will maintain its effectiveness varies from person to person, the nature of the suggestion, the amount of conditioning and the depth of trance. It gradually diminishes with time.

Hull (1933) stated that it corresponds in general with the normal psychological curve of forgetting in the waking state, that is, it follows the memory curve of waking psychology.

Estabrooks (1943) reported a case where during World War I, he had conditioned a patient in a deep trance state to say, "Call out the guards, here comes
Paul Revere", every time he, Estabrooks, would say, "Watch the front". One day twenty years later Estabrooks met this subject by coincidence in the street and in the course of conversation, suddenly said, "Watch the front", and the patient looked puzzled, then said, "Call out the guards, here comes Paul Revere". Then he looked even more puzzled and added, "I wonder why I said that? Somehow something you said recalls the last war and all the muck in the trenches."

The author was recently invited to demonstrate hypnotic phenomena to a small group of people. It was agreed to demonstrate eyelid catalepsy; several subjects were seated and the author said, "Relax and stare at the light". The words had no sooner been spoken when there was a heavy thump on the floor behind the author. On turning around there was a person slumped to the floor some twenty feet away.

This person was a subject who had been hypnotised by the author sixteen years previously and had had no further hypnotic experience. The original induction had been accomplished by the 'eye fixation' method. It is significant to note that apparently out of earshot of the operator, and while being
engaged in a conversation with a third party, the mere words "relax and stare at the light", were enough to induce immediate somnambulism in this very susceptible subject.

Shaw (1958) listed twelve ways in which post-hypnotic suggestion may be helpful in clinical dentistry.

Suggestions may be given that:

1. The patient will be relieved of all anxiety and apprehension for all dental operations at all times.

2. The patient will immediately enter the deep trance state on his next dental appointment when instructed to do so by the operator.

3. The patient will awaken feeling alert and refreshed after a comfortable and enjoyable session in the dental chair, the time having passed very quickly.

4. The patient will look forward to the next appointment, and will return on time in order to allow the dentist to devote the full appointment time to him.

5. There will be no discomfort in the area of
operation, that healing will be uneventful with no pain, and that there will be a minimum of swelling where surgery has been performed.

6. The denture patient will find his new dentures comfortable.

7. The patient having orthodontia will find his appliance agreeable to him.

8. The patient will sleep well at night as a result of his pleasant experience in the dental chair.

9. For the protection of the patient, and to prevent any possibility of his being exploited or embarrassed by a stage or parlour performer, it is advisable to suggest to the patient that in the future he will only accept hypnosis for medical or dental purposes, and then only at the hands of a professional practitioner qualified to do so.

10. The patient will enjoy using the toothbrush regularly.

11. Rather than suppress thumb-sucking and the possibility of developing another symptom, suggest that the patient will make a conscious effort to suck his 'little finger' instead.
12. Post-hypnotic suggestions can be given for any other dental requirement deemed necessary for the benefit of the patient. The post-operative suggestions of greatest importance should be given last, just prior to awakening the patient. Many of these points raised by Shaw will be further exemplified in the section dealing with dental applications of hypnosis.

3. Amnesia

According to Van Pelt (1958) amnesia is a characteristic of the deep somnambulistic trance, although it may not be complete. There may be partial amnesia after even a medium trance. Experiments with conditioned reflexes would seem to show that it is not real. Nevertheless after a deep trance, patients usually have no memory for events during hypnosis. This is especially so if amnesia is suggested by the hypnotist. In the trance, events during the previous session, for which there was no memory on waking, can be recalled and the amnesia can be broken down by persistent questioning and association of ideas, even in the waking state. It was Freud's observation of Bernheim's experiments in this direction which led to psychoanalysis.
Marcuse (1959) stated that it is believed by some that the presence of amnesia after hypnosis is not as often a result of inherent spontaneity as it is a function of indirect (though not necessarily witting) suggestion by the experimenter or therapist.

Post-hypnotic amnesia is a frequent concomitant of the hypnotic trance. It was reported by the Marquis de Puységur in 1784 when a young shepherd boy named Victor, whom he had 'hypnotised', was awakened with no recollection of anything that had happened during the trance state. There is a continuity between the last moment before the subject sinks into the hypnotic trance and the first moment when the subject is awakened, with a complete amnesia for everything that has happened in between. Eysenck (1957) illustrated this by an experiment carried out on a rather boastful and arrogant young man who came to the laboratory loudly protesting that he didn't believe in hypnosis, that he knew nobody could hypnotise him, and that he would soon show the experimenting psychologists up as a bunch of incompetent fools. He kept talking in this fashion while the hypnotic suggestions were repeated to him, which were to the effect that he would fall into a deep sleep.
when the experimenter knocked on the table with a reflex hammer. The young man was just saying ... "and furthermore, I don't believe for a minute that anybody with a strong will-power ...", when the experimenter rapped on the table. The subject stopped talking, his eyes closed and he fell into a reasonably deep trance. He remained in the trance for a period in excess of two hours during which time a series of experiments were conducted on him, which proved him to be a very good subject. At the end of that period the suggestion was made to him that he would wake without remembering anything about the hypnotic period. The moment the experimenter again rapped on the table with a reflex hammer he continued saying ... "as I, can possibly be hypnotised." He was quite incredulous when told of what had happened and only an agitated reference to his watch led him finally to believe that he had actually been hypnotised.

The author has encountered similar situations on several occasions, and in one case had the subject write out a statement that he was in fact in a deep hypnotic trance as one method of convincing him that he was hypnotised. Amnesia of the trance state can be removed by simply suggesting to the hypnotised patient that he will recall the entire trance when awakened.
On some occasions, amnesia does not develop even in deeply hypnotised subjects who have been specifically told they will remember nothing of the trance state. Hartland (1966) reported several cases where patients who were deeply hypnotised and who could open their eyes and produce negative hallucinations were incapable of developing amnesia even after slow and painstaking attempts at training.

It is usual to suggest amnesia to patients who have their dental treatment while in the trance state; prolonged, painful and arduous dental sessions are thus forgotten.

According to Meares (1962), "Spontaneous amnesia which occurs in hypnosis is a simple psychological defence mechanism. The evidence for this is seen in the patchy amnesia of a session of hypnoanalysis when the areas of amnesia always coincide with the more traumatic incidents of the session. A spontaneous amnesia in the absence of the expression of traumatic material is due to the subject interpreting the experience of hypnosis itself as humiliating. Suggested amnesia occurs in response to the increased suggestibility."

Paranomias.

Paranomias differ from amnesias in that the subject
has an inability to remember past events correctly, he may be told to forget his birthday or even his name. They can be readily induced in deep hypnosis. Aphasias can also be produced. The subject may be deprived of the power to speak, or simply rendered unable to pronounce a particular word. False memories can also be induced. If the subject is told in deep hypnosis that a number of entirely imaginary events have occurred when he awakens he will remember them as actual facts.

The stage performer utilises these phenomena to the very great mirth and hilarity of the audience but to the confusion and embarrassment of the unfortunate subject.

Hypermnnesia.

It is a well-known fact that memories which have been entirely forgotten, and consequently inaccessible in the waking state, can be recalled during hypnosis. This remarkable phenomenon is termed hypermnnesia and is the opposite to amnesia (Hartland 1966).

Marcuse (1959) cited the case of a girl dancer who wished to recall the movement of a dance she had performed twelve months previously and had now completely forgotten. In hypnosis the dance concert and her performance of the previous year were both vividly
suggested. She was told to visualise herself performing the dance and when she was awakened she would recall the movements. In this way the lost material was recovered.

The ability to recall past events can be used to enable the apprehensive dental patient to remember the original unpleasant experience connected with the mouth. In recalling this situation the patient is asked to consider it from the point of view of a 'grown up' person in whom no disturbing importance is attached to the past event. When this is agreeable to the patient, and he recognises that the recalled incident no longer disturbs him, he is told to signal with an index finger. Suggestions are then given to the effect that since the past experience no longer disturbs him, his apprehensions for dentistry will diminish, and he can relax in the chair and find the necessary dental work agreeable.

4. **Age Regression**

Age regression, as in vivid recall or seeming reliving of earlier experience, is a familiar hypnotic phenomenon.

A hypnotised subject who is in a deep trance can be told he is being taken back in time, and that he
will be able to relive and remember vividly, experiences that he underwent at that particular age. An adult can be regressed to childhood and he will speak, write or generally react as would a child whose particular age has been suggested. He can remember names, dates and places that have long since vanished from his conscious memory.

Age regression is an important phenomenon of hypnosis but generally has little application in practical dentistry. Some dentists have regressed edentulous patients to an age when they had their natural dentition for the purpose of recording correct 'bite relationships'. The author has used this practice on several occasions and found it very satisfactory.

There is considerable controversy regarding the 'authenticity' of this phenomenon as it is usually difficult to arrange scientific controls for behaviour that may have happened many years previously.

Some authorities consider that hypnotic regression is an artefact and that the subject is merely playing a role. Erickson and Kubie (1941) recognise two distinct types of age regression.

1. In the first case, the subject strives very hard
to please the operator who has requested him to carry out this 'regression' and behaves as he remembers, understands or imagines a child will behave. Here there is a definite dramatic activity, a simulation motivated by the hypnotic interpersonal relationship, without making use of the special capacities conferred by the hypnotic state.

2. In the second case, the subject does actually return to an earlier stage of development, with a total amnesia for all events subsequent to that period. When regressed to the age of say, seven, he will remember that age very clearly but will have completely forgotten subsequent events. As he has not met the hypnotist at this age he will fail to recognise him, and the hypnotist will be identified as someone he knew at that age (his father or school teacher). This type of regression is referred to as revivification.

Weitzenhoffer (1953) made the distinction of a third type of age regression. He argues that pure cases of type (2) regression are rarely found; what is more likely is a mixture of type (1) and type (2) and this combination he labels type (3) regression.

Gidro-Frank and Bowerbuch (1943) tested the Babinski reflex in regressed individuals. In a normal adult, stroking the sole of the foot causes the great
toe to turn down. In infants up to approximately seven months of age, however, the reflex response to stroking the sole of the foot is dorsiflexion, or turning up the toe. If regression were a real phenomenon, then it would be expected that, on regressing adults to the age of five or six months, the Babinski reflex, that is dorsiflexion, should occur. This has actually been found to be so in subjects who could not be expected to have known these rather esoteric details of neurophysiological development.

These findings have been confirmed by LeCron (1952). He also found at the regressed age of five months, the sucking reflex of infancy revived. When the lips were stroked with the end of a fountain pen, the subject seized it avidly between the lips with facial expressions of anticipatory enjoyment. The prehensile movement of the lips was most pronounced.

Erickson (1962) reported the case of a man in his eighties, paralysed and bedridden for fifteen years. He was suffering from pneumonia and was delirious; he had little time left to live. His history was as follows: from the age of four he had been forced by his mother to listen to daily Bible readings. When he was
ten years old, his mother died and he was placed in a foster home. His reaction to her death and the Bible reading had been one of utter bitterness and resentment. He was placed in an irreligious foster home, grew to manhood, married, never allowed his family to attend church and declared the Bible and religion to be unacceptable.

As he lay in a delirium seventy years after his mother had read him the Bible, he recited from it, chapter after chapter, hour after hour. Erickson carefully checked his recitation and found it to be correct.

This case illustrates that all experiences in life are stored somewhere in the mind and under special circumstances may be recalled. Erickson concluded, "If that aged, sick, delirious, brain-damaged man could recover childhood memories, is it not reasonable to assume that comparable behaviour can be achieved by the young and healthy."

He added, "I encounter people in the psychology laboratory and in the field of psychiatry and medicine who say in all seriousness, hypermnnesia and those regressive phenomena attributed to hypnotic subjects are dubious, questionable or open to question." They
work out all manner of experiments to prove that hypermnnesia and regressive phenomena are impossibilities and what is more they believe their inadequate findings.

Experiments designed to test the authenticity of age regression do remain, however, a controversial issue among research workers in the hypnotic field.

True (1949) conducted a series of what appeared to be, carefully controlled experiments and his results indicated positive existence of the age regression phenomenon. Fisher (1962) on the other hand, was unable to duplicate these results and concluded that True's experiments did lack the essential control necessary for the unequivocal acceptance of his findings.

Hilgard (1965) succinctly summed up the hypnotic age regression phenomenon when he said, "Age-regression is related to hypermnnesia in that the regression technique is often used as an aid to the recovery of memories. Many subjects experience very vivid age-regressions, although for most of them an observing ego is maintained so that the regressed state represents a partial rather than a full dissociation from present awareness. The notion that regression is a complete revivification of earlier experience, and
shows an 'ablation' of all subsequent memories, is too extreme to be supported by acceptable studies."

5. Hypnoanalgesia.

Analgesia produced while the subject is in a trance state is one of the most convincing phenomena to demonstrate the validity of hypnosis. There are literally thousands of well-documented case histories of patients undergoing successful major surgery with the aid of hypnoanalgesia. During the last century Esdaile (1845-50) in India reported over three hundred major surgical operations, including amputations, accomplished with the aid of hypnosis. There was no pain, little shock, and the absence of other traumatic physiological indices.

Hypnoanalgesia can be used to great advantage in dentistry. The author has consistently utilized this phenomenon over a period of twenty-five years in general practice. During this time it has proved beneficial in many thousands of cases covering every facet of dental treatment.

The main disadvantage of hypnoanalgesia is that the patient generally has to enter the deep trance state in order to achieve the profound analgesia necessary for painless surgery. Varying degrees of analgesia
can be obtained in the medium and sometimes even in the light stages of hypnosis.

The majority of people are susceptible to some degree of hypnosis, and when orthodox analgesic procedures are used in conjunction with hypnoanalgesia, an unsurpassed analgesic result is achieved. This combination is readily applicable to the dental situation. The profound analgesia necessary for involved surgical or painful operative procedures can be achieved by hypnosis alone in only a relatively small percentage of people. The induction of the deep trance state can also be time consuming, therefore analgesia achieved by hypnosis alone, finds limited application where extremely painful operative procedures are involved. However relaxation and light hypnosis are readily and quickly obtained with the vast majority of dental patients. This relaxation raises the pain threshold and makes the use of chemical analgesia unnecessary in many cases where moderate pain in encountered. Where infiltration of analgesic solution is indicated, a very much smaller quantity of the drug is required.

There is some controversy as to the nature of hypnoanalgesia. Suppose an operation has been apparently performed painlessly under deep hypnosis. The patient when awakened declares he felt no pain at all. Two
very significant questions may be asked. Firstly, did he actually feel no pain or is he merely obliging the hypnotist by saying that he didn't? Secondly, has there been a complete loss of memory for the pain rather than an actual loss of pain itself? In the first case the analgesia would be a simulated one, and in the second case an amnesia for pain rather than a true absence of sensation. In neither instance would the analgesia be a true one.

Laboratory investigations into hypnotic analgesia have demonstrated that no pain is felt, and electroencephalograms show that the pain threshold is raised during hypnosis. Estabrooks (1943) tested hypnotic analgesia by electric shocks and found that hypnotised subjects could stand without discomfort, currents nearly ten times as strong as those that could be tolerated in the waking state. This directly refutes the theory that the patient is merely 'role-playing' in an endeavour to please the hypnotist, as no one could voluntarily suppress pain reaction to such a powerful stimulus.

When pain is experienced by a person in the waking state there is usually an increase in pulse rate and a fall in blood pressure, but when a painful stimulus
is applied to a person under hypnoanalgesia there is no variation in pulse rate or blood pressure, thus proving the analgesia is a true one (Hartland 1966).

Shor (1962) reviewed the results of five experiments that had been reported since 1932 concerning the physiological effects of painful stimulation during hypnotic analgesia - Dynes 1932, Sears 1932, Brown and Vogel 1938, Doupe, Miller and Keller 1939, and West, Neill and Hardy 1952.

These studies appear to demonstrate that there is less physiological reaction to painful stimulus when hypnotic analgesia is employed than when the same intensity of painful stimulation is received in the usual waking state. These conclusions are accepted by the great majority of authorities (Young 1941, Gorton 1949, Raginsky 1951, Weitzenhoffer 1953, Heron 1954–55, Milechnin 1967, Barber 1960, Mason 1960, Green and Reyher 1972). The only dissent appears in the report by Sutcliff (1960).

Shor was critical of the methods used and the conclusions drawn from the experiments, while being aware of the difficulties and the intangibles that are encountered in experimentation where physiological and psychological responses are concerned. He summarised
the evidence with the following three generalisations:

1. In some experimental studies it does appear that physiological responses to pain are less during hypnotic analgesia conditions than during waking control conditions.

2. The evidence on which this first generalisation is based, is far less rigorously derived - both in terms of experimental design and in terms of statistical analysis - than is generally recognised.

3. In spite of some attempts to control for alternative explanations, it has never been adequately demonstrated that the effect is more than can be attributed to voluntary suppression of physiological reactions. Nor has it been shown that the effect is not largely due to hyper-reaction to the pain during the waking control condition, nor as a result of hypnosis alone irrespective of hypnotic analgesia.

Shor then designed a series of experiments in which he endeavoured to eliminate the deficiencies of the earlier experimenters. The central issue being tested was the effect of voluntary inhibition of physiological response to painful stimuli. One feature of the design of the experiments was that an extremely painful electric shock was utilised, well beyond the intensity usually employed in psychological studies.
The results of Shor's investigations showed that there was little difference in physiological response between those patients in the waking state and those having hypnoanalgesia. It is very significant to add however that in order to use the high pain intensities it was found necessary to add ego-protective procedures so that although the shock would feel very painful in the control conditions, the subject hopefully would not become unduly anxious and over-react to it. Since incidental anxiety was artificially kept low, physiological responses to pain were tiny. Therefore, hypnotic analgesia could show no further, special effects on physiological reactivity. This interpretation is not definite proof, and further experimentation is clearly needed. But even so, the results are intriguing because they make plausible three clear-cut hypotheses for use in further investigations:

1. When the incidental anxiety component of the total pain experience is high, physiological responses to pain are large. Hypnotic analgesia is a means of reducing these responses.

2. When the incidental anxiety component of the total pain experience is low, physiological responses
to even fairly intense pain are tiny and hypnotic analgesia can effect no further measurable reduction in them.

3. Hypnotic analgesia is one means of eliminating the incidental anxiety component of the total pain experienced.

Shor adds further that these hypotheses suggest that since the experience of pain is eliminated during hypnotic analgesia, physiological reactions resulting from stressful or threatening qualities, which the pain might otherwise have, do not occur. But anything else that minimises the incidental anxiety component of the total pain experience—such as the ego-protective procedures in the waking state—can have an effect on the physiological response similar to that of hypnotic analgesia.

Weitzenhoffer (1953) after an extensive review of the literature stated that, "... although unquestionably the perception of pain and the physiological concomitants of this experience are intimately related, they nevertheless constitute two separate aspects of the problem of pain. Further elucidation of the matter must be left to the future."

The author is in complete agreement with Shor's
views which find daily application in clinical dentistry. In so much that if the patient can be relaxed and put in to a proper frame of mind, the pain threshold can be raised to an amazing degree. Meares (1967) has personally developed the capacity of complete mental and physical relaxation to such an extent that he is able to have difficult teeth surgically removed without pain and without the necessity for any analgesic whatsoever.

The Distribution of Hypnotic Analgesia.

Hypnotic analgesia never corresponds to any anatomical distribution. It always coincides with the subject's notion of function, and follows his own ideas as to where the loss of pain should occur (Hartland 1966). Consequently, whenever hypnotic analgesia is to be utilised, the exact area to be sent numb must be clearly indicated to the patient. It is wise wherever possible to stroke the area where the analgesia is required with the finger, so as to leave no doubt in the patient's mind. It must never be forgotten to remove the analgesia when its usefulness is no longer needed.

Reyher (1964) has put forward a comprehensive theoretical analysis of the mechanism involved in this
type of alteration in perception. Hypnotic phenomena are conceptualized in this theory as being mediated by the phylogenetically older and lower level integrating fields of the brain. Reyher has suggested that the cingulate gyrus may be one of the key structures in mediating hypnotic behaviour.

The cingulate region and other structures of the limbic system do not mediate sensory stimuli; this is performed by the specific projection system. These structures respond associatively, via collaterals, from the reticular formation, with intrapsychic stimuli which provide the meaning to perception ... Under hypnosis, the intimate connections that the cingulate region has with the structures associated with memory recording mechanisms can be instrumental in either de-priving or enhancing associations to sensory stimulus and in producing marked alterations in recall and perception. These alterations in perception are also responsible for hyperesthesias, analgesias, anaesthesias, and hallucinations.

6. Hallucinations.

An hallucination is the apparent perception of external objects not actually present (Concise Oxford Dictionary).
Generally hallucinations are only perceived by subjects in the deep trance state although the phenomena may sometimes be evoked in medium depth hypnosis. Hallucinations can be produced in connection with any of five senses (sight, smell, hearing, touch and taste). When something is perceived by the subject that is not present, the hallucination is said to be positive, and when something that is actually present is not perceived the hallucination is said to be negative.

**Positive Hallucinations.**

A subject in a deep trance can be told to remain asleep and to open his eyes. He may be told that several empty chairs in the room are occupied by various people and he can be taken around the room and introduced to these nonexistent persons. He can be told a pencil he is asked to pick up is hot and he will quickly drop it and nurse his burnt hand. The presence of a large orchestra playing his favourite music may be suggested and he will waltz to its rhythm, or he may smell and taste a glass of water as his favourite liqueur if this is said to be so by the hypnotist.
It is not necessary to have the subject open his eyes to perceive hallucinations and only in the deep stage can the eyes be opened without terminating the trance state.

**Negative Hallucinations**

A subject in deep hypnosis can be told to remain asleep and open his eyes and when he does so the hypnotist will be invisible. He will look around the room and enquire as to where the latter has gone. If the hypnotist speaks he will look puzzled and suggest that he can hear his voice but that as he can't be seen he must be hiding. A jar of very pungent smelling salts can be held under the subject's nose. The hypnotist may suggest that it is a perfume of mild fragrance, and the subject will inhale deeply and agree that it is a delightful perfume indeed. Hallucinations are extensively used by therapists and unfortunately for entertainment purposes by lay hypnotists.

7. **Catalepsy.**

Catalepsy, an interesting phenomenon of hypnosis, is characterised by a peculiar involuntary tonicity of the muscles. The limbs remain in almost any position in which they are placed; the waxy moulding of the fingers and the extremities is known as flexibilitas
Wax-like moulding of the fingers (flexibilitas cerea) indicates muscular catalepsy.
cerea. During eyeball catalepsy the eyes do not move when the head is turned slowly - they remain 'frozen' or 'fixed' when the head moves. At nonhypnotic levels, there generally is a quick darting of the eyes, which is associated with a time lag on an economy of motion (Kroger 1963).

Catalepsy usually denotes that a light or medium stage of hypnosis has been achieved, and its presence enables the operator to determine the depth at which he is working. Very few psychophysiological investigations have been made of this common hypnotic phenomenon.

Erickson (1952) said, "... catalepsy is a fairly standard form of hypnotic behaviour, appearing usually in the light trance and persisting in the deep trance states." However, extensive experience will disclose that some subjects may never spontaneously develop catalepsy as a single phenomenon either in the light or deep trance. Others may manifest it only in the lighter stages of hypnosis, some only in the profound trances, and there are those who manifest it only in the transition from the light to the deeper levels of hypnosis. Even more confusing are those subjects who manifest it only in relation to other types of hypnotic
behaviour, such as amnesia. In other words, however good an indicator of trance states catalepsy may be on the average, its presence or absence for any one subject must be interpreted entirely in terms of that subject's total hypnotic behaviour."

8. **Ideomotor Activities.**

Ideomotor activity is one of the phenomena used to facilitate suggestibility. It refers to the involuntary capacity of muscles to respond instantaneously to thoughts, feelings and ideas. These built-in responses are necessary for survival. An example of ideomotor activity is seen when a mother puts a spoonful of food up to a baby's mouth and her own mouth opens; or when a passenger in a car 'applies the brakes' automatically whenever the driver does.

All induction techniques depend on the subjects being unaware that he has made such physical responses to suggestion. He does not realise that they are the results of his own thoughts. The section on induction technique, shows how ideomotor activities are utilised to evoke the subject's belief and thus lead to the expectation of hypnosis.

Weitzenhoffer (1953) states, "The most satisfactory explanation at present seems to be that ideomotor action is a complex conditioned response, or habit phenomenon."
Fig. (3) How Suggested Ideas Produce Motor Responses.

Suggested idea

Facilitation

Focusing
Muscular tone
Relaxation
Removal or inhibition of interfering impulses

Conditioning
Perseveration of thought impulses

IDEOMOTOR ACTION

Repetition
(summation, recruitment, etc.)

Focusing.
Muscular tone
Relaxation
Removal or inhibition of interfering impulses

Facilitation

Conditioning
Perseveration of thought impulses

Response
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SECTION 2

HYPNOSIS IN DENTISTRY.
ADVANTAGES OF HYPNOSIS IN DENTISTRY

1. Removal of fear and apprehension.
2. Relaxation.
3. Patient co-operation.
4. Analgesia.
5. Prevention of fainting.
6. Amnesia.
7. Premedication for anaesthesia.
10. Diminution of salivation.
11. Diminution of haemorrhage.
14. The time factor.
15. The patient wakes refreshed.
17. Safety factor.
18. Assistance in accurate "bite registration".
20. Improvement to the dentist's health.
Continued hypnosis is ensured by suggestions that instrumentation and engine noise will deepen the patient's 'trance state'.
1. The Removal of Fear and Apprehension.

The most useful application of hypnosis in dentistry is the diminution of fear and apprehension. In spite of modern advances in anaesthesia, equipment and technique, for most people dental treatment is still an ordeal of varying intensity. More than ninety percent of dental patients are susceptible to some degree of hypnosis (Burgess 1952, Seater 1965, Wickham 1960). In the majority of cases positive suggestion given in the lightest stage of hypnosis will substantially alleviate fear and apprehension. This light stage can usually be attained in less than five minutes. The patient is asked to make himself comfortable in the dental chair, close his eyes and relax. Suggestions of relaxation and reassurance are given in a soothing, confident manner, while at the same time his forehead or arm is gently stroked. No special dialogue need be learned, the dentist simply repeats several times that there is no longer need to fear dental procedures. Suggestions during treatment should be aimed at deepening the 'trance state'; for example, if caries is to be removed with a burr, it is suggested that the noise of the dental engine will deepen the 'sleep'. If extraction is necessary, suggestions that the pressure
from the forceps will deepen the hypnosis are given.

Jacoby (1967) stated that the hysterical, apprehensive, agitated patient may be closer to relaxation and trance than any other. A series of direct commands to this type of patient usually produces the 'quiet trance state' quickly.

Hypnosis used as an adjunct to existing therapies is, in this author's opinion, the most effective method for the removal of fear and apprehension encountered so frequently in dentistry. When such fear has been removed there is an improvement in the dentist-patient relationship and even the most arduous dental procedures can then be carried out with minimum psychological trauma.

2. Relaxation.

Many patients are unable to voluntarily relax while receiving dental treatment and their fear is manifest in many ways; they sit with muscles tensed, back arched and clench their fists or cling to the arms of the chair; their heart rate quickens, their faces pale and their eyes follow every slight movement in the surgery. Treatment is extremely difficult on such tense patients, and frequently sedation is necessary before dentistry can be commenced.
Even with deep cavity excavation the patient shows no sign of distress, and yet remains fully co-operative.
Hypnosis is a quick and effective method of obtaining relaxation and overcoming nervousness. When the patient is relaxed, dental procedures are easier for both patient and dentist. Relaxed oral muscles allow better access and unlike a patient who has had general anaesthesia, full co-operation can be given.

The kindly and gentle manner of the dentist is of paramount importance in helping the patient to settle down and relax. Waking positive suggestion and a good chairside manner are frequently all that is required. When however, a formal hypnotic induction is indicated, relaxation adequate for dental treatment is easily attained in a very light trance, a procedure accomplished in several minutes.

Relaxation alone produces a diminution in the flow of saliva (Watts 1960) and a relaxed patient has a raised pain threshold and a lowered pain reaction. Shor (1962) stated, "When the incidental anxiety component of the total pain experience is low, physiological responses to even fairly intense pain are tiny, ... "Once the 'trance state' has been attained and the patient is relaxed, suggestions may be given that he make himself comfortable by slight changes of his body
position if he so desires. It is unnecessary for a hypnotised person to sit completely motionless throughout long dental appointments.

3. Patient Co-operation.

The relaxed patient in a hypnotic trance is able to co-operate with the dental team throughout long appointments. Valuable time is saved as the patient does not talk (unless specifically requested to do so by the dentist), fidget or request frequent rinses.

Many patients set up defense mechanisms to postpone the actual dental treatment. These are behaviour manifestations whose purpose is, consciously or unconsciously, to defer, delay or actually prevent the treatment. Some of these behaviour patterns are as follows: Delay and reluctance to be seated in the dental chair; slowness in removing cosmetics; changing head position; garrulousness; nose scratching; and requests to go to the toilet.

In the hypnotic state the patient does not initiate movement spontaneously or unnecessarily. He sits quietly and co-operatively. The dentist is thus able to be more productive. He accomplishes more in a given amount of time, or requires less time for a given unit of performance.
This deeply hypnotised patient is completely relaxed and is able to tolerate long periods of operative dentistry without fatigue.
The patient is instructed that he will have no difficulty in sitting still during treatment and that his mouth will remain open without discomfort. Although a hypnotised patient is able to sit for long periods with his mouth open to maximum capacity, the dentist must not ignore the normal physiological effects of fatigue. The patient should be allowed to close his mouth for short rest periods at approximately fifteen minute intervals.

As the appointment progresses the patient should be congratulated for his excellent behaviour and cooperation. He is also given suggestions that he will co-operate in a similar manner at future appointments. Patients like to be complimented and when awakened are likely to bestow praise on the dentist for his kindness and consideration. This congeniality considerably enhances dentist-patient relationship.

4. The Production of Analgesia.

Authorities are generally agreed that patients who enter the deeper stages of hypnosis will develop analgesia of sufficient depth for all classes of dental treatment; while those in the lighter stages will develop analgesia in varying degrees.

It is this author's opinion that hypnotic analgesia
developed in the lighter stages, plus use of the usual chemical anaesthetics (local or general) give the optimum results for dental treatment.

Hypnoanalgesia in dental tissues may be attained using the following procedure. Once the patient has entered the trance state and the dentist is satisfied that in the time available the trance can be no further deepened, suggestions to produce analgesia of oral tissues may be given in the following manner:

"You are fully relaxed and sleeping deeply... and as I proceed with your dental treatment you will feel no pain or discomfort... you will be relaxed and happy throughout the whole procedure... I now want you to open your mouth... remaining in a deep, deep, sleep...

The teeth and tissues to be worked on are now rubbed with the dentist's finger or the back of the mouth mirror; the teeth may be grasped firmly in the fingers and rocked. The dentist continues:

"... and now as I massage these tissues you feel a numbness developing in them;... the gums are beginning to tingle, ... your lips and cheek on this side feel stiff and frozen and the teeth feel numb, ... you feel as if you have had a large injection of local anaesthetic and the area that I am stroking is getting more and more numb..."
Patients who have never had an injection of local anaesthetic previously may not be able to comprehend the sensation. It is therefore good practice in such cases to inject a small amount of anaesthetic solution to enable them to experience the feeling.

The patient is asked to raise his right index finger when he begins to feel the tingling sensation in the tissues indicated. The time taken to produce analgesia will vary from patient to patient and from appointment to appointment with the same patient.

The dentist continues to stroke the tissues and repeats: "As I continue stroking, the numb, frozen feeling penetrates deeper and deeper and includes the gums, teeth, bone, and cheek on this side... the other side of your mouth feels perfectly normal... please indicate by raising your finger when this portion of your mouth is completely numb..."

When an indication is received from the patient that analgesia has been obtained, suggestions are continued:

"Good, that is excellent... you will feel no pain whatsoever during your treatment..."

The tissues can now be tested for analgesia with a probe. The back of the probe is first pressed on
the gingiva in the designated area.

"You feel no pain, only pressure... the harder I press the more numb your tissues will get, ... feel how different the other side of your mouth is ..."

The other side of the mouth is tested with the sharp point of the probe with just sufficient pressure to get a painful reaction. The anaesthetised area is again tested, this time passing the probe into the ginviva.

"... the harder I press the more numb the tissue becomes..."

The probe is advanced several millimetres into the tissue as in testing for local chemical analgesia.

"You feel no pain; the whole area around these teeth is numb; you will feel no pain when I operate on them."

Appropriate suggestions are given in accord with the treatment to be done; for example, if the tooth is to be extracted the dentist suggests that only pressure will be felt and that the harder the pressure the more numb the tissue will be. If operative dentistry is involved it should be suggested that the noise of the drill will cause no alarm, and in fact the sound will help deepen the sleep.
Testing the gingival tissue with a probe demonstrates complete hypno-analgesia.
An alternative method of producing hypnoanalgesia in the mouth is to first suggest analgesia on the back of the patient's hand then transfer the numb feeling to the mouth. Many apprehensive patients prefer this approach and are more convinced of the dentist's ability to do the operative procedures painlessly (Shaw 1958).

The back of the patient's right hand is stroked and suggestions given that the hand will become numb and insensitive to pain. ... "As I stroke the back of your hand it begins to feel numb, ... it feels as if you have had an injection of local anaesthetic in it ... it is tingling and very, very numb and as I count up to five, it will be so numb it will be completely non-sensitive to pain... One... two... and it is becoming more and more numb ... three... very, very numb ... four... five... it is completely numb."

The back of the hand is carefully tested with a probe, followed by a test of the unaffected left hand and the great difference in sensation is pointed out to the patient, who is readily convinced that the analgesia has worked.
Analgesia of the hand has been demonstrated to the patient and she responds to a suggestion to transfer this analgesia to the mouth.
The patient is then instructed to hold the anaesthetised portion of the right hand against the cheek or lips over the dental quadrant to be worked on.

"... As you press your hand against your cheek, the numbness passes from your hand into the cheek, and as you press hard the numbness goes deeper and deeper right through your cheek into your teeth and gums and right through into the bone... as I talk to you the tingling sensation and numbness passes from your hand into your cheek, gums and teeth... when you feel your teeth are numb please indicate by raising the index finger on your left hand..."

When the signal is received, the dentist continues: "... Now all the numbness has transferred from your hand, it feels perfectly normal and now can be lowered into your lap." The hands are again tested for analgesia and the fact that the numbness has gone from the right one, is pointed out to the patient. The patient is then tested as previously mentioned and further suggestions for deepening the analgesia are given.

The first induction of hypnoanalgesia may be time consuming but the dentist must remember that the production of this analgesia requires complex physiological
and psychological reorientation by the patient, a process which cannot be hurried. Erickson (1952) condemns those writers who claim two to five minutes is sufficient time to effect these complicated changes. He says, "The expectation of practically instantaneous results from the spoken word indicates, at the least, an uncritical attitude and practice which militates against scientifically valid results."

Hartland (1966) states that a light trance will produce only the slightest degree of anaesthesia, but is of great help in alleviating fear and anxiety. In a medium trance anaesthesia may be produced in thirty to forty percent of patients. Fifteen to twenty percent of people can reach the deep or somnambulistic trance state with accompanying hypnoanaesthesia suitable for major operative and surgical dental procedures.

Tinkler (1966) says that some degree of anaesthesia, partial or complete, is obtainable in no more than thirty percent of patients, but complete anaesthesia will be obtainable in some ten percent, and even then will often require several visits to achieve. Thus complete anaesthesia whilst being delightful to work with when it can be secured, must be regarded as
the exception rather than the rule, whereas varying
degrees of partial anaesthesia can often be obtained.

Moss (1952) says that fifty to seventy-five percent
of people are susceptible to hypnotic anaesthesia
to some degree or other and it is possible to substan-
tially raise the pain threshold in most people.

Marcuse (1959) states that ten percent will reach
sufficient depth of the trance state for complete
hypnoanaesthesia, but fifty to seventy-five percent of
patients, however, benefit when it is used along with
and in order to reduce the amount of chemical anaes-
thetic required.

Burgess (1952) reported a carefully-controlled
study in which ninety-five percent of patients achieved
sufficient hypnoanalgesia to allow all classes of dent-
istry to be performed without discomfort.

It may be seen from the results of the authorities
quoted that there is a significant difference in the
percentage of dental patients who achieve adequate
hypnoanalgesia.

Most dentists now prefer to induce hypnosis and
then use a small supplemental injection of chemical
anaesthetic solution. The author routinely uses this
technique and has found it completely satisfactory in the great majority of cases. In excess of seventy percent of patients claim they are unaware that they have been given an injection and declare their dentistry is totally without pain.

The 'light trance state' is easily and quickly induced; no longer than five minutes induction time is necessary. For all types of dental treatment which may cause the slightest pain the patient is given a small injection of local anaesthetic solution. No more than 1.5 ml. of anaesthetic solution (lignocaine hydrochloride 2%, noradrenaline .0015%, adrenaline .0005%) is used for an inferior dental nerve block and no long buccal injection is given. One ml. of solution deposited in the vicinity of the root apex of the buccal or labial sulcus proves adequate for all maxillary teeth and lower central and lateral incisors. No lingual injection is necessary.

5. The Control of Syncope.

Syncope, or fainting, is the most frequent complication associated with local anaesthesia and general instrumentation in the dental surgery. The fainting attack most usually has a psychological origin and has
rarely to do with the anaesthetic solution or severe pain caused by dental procedures. Monheim (1961) stated, "This is a form of neurogenic shock and is caused by cerebral anaemia secondary to a vasodilation or increase in vascular bed with a corresponding drop in blood pressure. When the patient is sitting up in the dental chair the brain is placed in a superior position and is most susceptible to the reduced blood volume flow." Dental practitioners who operate with their patients in the supine position will find a very significant decrease in the number who suffer syncope.

When this complication does occur it is distressing to both patient and dentist and authorities agree that it can be controlled in the majority of cases with treatment by hypnotic methods (Tinkler 1966, Frost 1959 Mason & Watts 1959).

The patient is hypnotised and told that fainting is directly due to fear, and that in future he will no longer be afraid. He will be able to relax and have his dental treatment without apprehension and he will not faint again. This suggestion should be repeated several times.

Tinkler (1966) said that a deep trance is not necessary to overcome fainting; good results can be ob-
tained in a trance of medium depth. The author concurs, having for twenty-five years used hypnosis with patients who were prone to faint during dental treatment.

Several patients who had a long history of fainting had to be recalled for two additional sessions before dental treatment could be undertaken. Many patients achieved results in very light trance states and no failures have been encountered.

6. The Production of Amnesia.

Many patients who have dental procedures carried out in the trance state have no recollection of the treatment when awakened. The deeper the trance, the more complete the amnesia is likely to be. This is of benefit to the patient if the operation has been protracted or particularly unpleasant. Amnesia is a very variable phenomena and as in dreaming, some patients who have attained a certain depth of hypnosis, forget their experiences either partially or completely.

Hypnotised patients undergoing painful dentistry will sometimes moan and move as if feeling every phase of the operation, but on awakening will declare they felt nothing.

The author routinely tells patients they will have
no recollection of any unpleasantness upon awakening, and experience would indicate the majority of patients have at least partial amnesia; this is particularly evident with children even though they seldom enter the somnambulistic stage of hypnosis. If there is total amnesia of the whole appointment it is wise to make the patient aware of the particular dental service performed. He might otherwise be confused.

Patients who fear treatment because of earlier traumatic dental experiences are able to have the unpleasant associations erased and their confidence in dentistry restored.

7. Premedication for Anaesthesia.

This is one of the most useful applications of hypnosis in dentistry. Most people dislike anaesthetics and many are terrified of 'needles'. Some will endure extremely painful operative procedures rather than have an injection of local anaesthetic solution. Others request general anaesthesia because of their fear of injections in the mouth. The great majority of apprehensive patients will enter the light trance after several minutes hypnotic induction. This is usually sufficient to relax them and raise their pain threshold to such an extent that they are able to
tolerate injections without discomfort.

When general anaesthesia is to be used, the patient is first made comfortable in the dental chair and is spoken to in a soothing and sympathetic manner. The anaesthetist says: "I want you to close your eyes and relax... relax every muscle in your body... the muscles in your scalp... the muscles in your face, your neck, your chest... your arms to the tips of your fingers... relax all the muscles in your body down through your legs to your toes... relax... relax... take big deep breaths... you feel marvellous and as I apply the anaesthetic you will go smoothly off to sleep."

When the patient has attained this relaxed condition the orthodox anaesthetic procedures (inhalation or intravenous) are initiated. In many cases the patients may already be in a deep hypnotic trance, but even in the lightest stages of hypnosis the induction of anaesthesia will be smoother, more rapid and will require less of the anaesthetic drug.

During recovery the patient should be allowed to awaken slowly and the anaesthetist should use the same soothing tone. The hypnotic state is an ideal one in which to receive a general anaesthetic. When the patient has come out of the anaesthetic, rapport can
be re-established and he may be kept in the trance state until bleeding has diminished and he has completely recovered from the effects of the drug. He may then be awakened feeling refreshed.

Regular bi-monthly general anaesthetic sessions have been held at the author's surgery for a period of ten years. In not one case has drug premedication been used.

Holland (1969) stated that except in exceptional circumstances he has dispensed with premedication for hospitalised children prior to the administration of general anaesthesia. He makes a practice of talking to the child the day before surgery and offers friendship and understanding. Once he has gained the child's confidence and enlisted his co-operation, anaesthesia is induced with minimal emotional trauma.

There is a large area of overlap between 'hypnotic' and 'waking' suggestibility (Weitzenhoffer 1953). Barnett (1950) stated, "... the nervous tension present in the majority of patients demands something more than the adjustment of the nose piece and the terse instruction to breathe through the nose." The anaesthetist should greet the patient with a quiet, soothing and confident manner. His statements should
be positive; for example, if the patient is obviously nervous he may say, "You are feeling nervous, aren't you?" This statement indicates to the patient that the anaesthetist understands his feelings and thus confidence is established. The patient can then be encouraged to discuss his nervousness and give vent to his feelings, this allows tension to escape which might otherwise manifest itself during the induction.

Blatchley (1971) stated, "The best premedication is the quiet and considerate approach to the patient which inspires confidence. For the normal healthy person, drugs are seldom required."

8. Gag Reflex Control.

Hypnosis is particularly effective in the control of the gag reflex. Some patients are unable to tolerate dental procedures especially maxillary impressions without a violent gagging reaction. Patients who have had a previous bad experience in this regard, dread the thought of further impressions, and worry that they will "vomit as soon as the impression material touches their palate". This fear aggravates the situation and when they finally do decide to have new dentures, their fear increases their gag reaction. The simple task of
impression taking thus becomes a difficult problem. These patients, especially females, are extremely embarrassed, and the impressions may have to be repeated several times.

Gagging is not confined to impression taking. The reflex may occur while the dentist attempts to give inferior dental nerve block injections or place intraoral xray films; with some patients even a mouth mirror is not tolerated.

Hypnotic therapy to control gagging is instigated in the following manner. The patient is hypnotised and the trance deepened, preferably to the somnambulistic stage. Suggestions are then given that the sensitivity of the mouth and throat will disappear as the patient relaxes and the palate is massaged with the dentist's finger. The following instructions are then given:

"I want you to open your mouth widely and as I rub your palate with my finger; all the previous sensitivity goes away... and as I massage your soft palate your throat relaxes... you are completely relaxed and will not want to be sick."

The finger is gradually advanced to the soft palate; a mouth mirror is then taken and pressed firmly
on that region.

"When you awake you will be no longer afraid and in future you will be able to tolerate impressions and all other classes of dental treatment without gagging."

This statement is emphatically repeated several times and the patient aroused. A mirror may then again be pressed well back on the palate to test the reflex; if there is no reaction, dental procedures may then be commenced. If unsuccessful however, the patient should be immediately rehypnotised and the suggestions repeated.

A colleague referred to the author, Mr. W., a man aged thirty-five who was unable to tolerate dental procedures of any kind. A mouth mirror in the vicinity of the anterior teeth was sufficient to initiate a violent gag reaction, making dental treatment impossible.

The patient was hypnotised, and it was suggested that his mouth and palate were no longer hypersensitive and in future he would be able to tolerate all types of dental treatment with ease. Whilst still in a trance a mouth mirror was advanced to all areas of the oral cavity without the slightest abnormal reaction.
The fact that while under hypnosis there was no evidence of gagging, was impressed on the patient. He was given further assurance by way of post hypnotic suggestion that he would be able to react in a like manner when awakened and would no longer be troubled with this reflex when he returned to his own dentist.

The patient, thus assured, was aroused. He was asked to open his mouth and a mirror was pressed firmly well back on his soft palate; there was no reaction. He was amazed at his improvement and after further waking suggestions that his gagging problem was cured he was dismissed. A communiqué several days later from the dentist who had referred Mr. W., expressed delight at the result. He reported that the patient's restorative dental programme was now well advanced. Mr. W. had attended for three protracted operative appointments and had not exhibited the slightest sign of the gag reaction.

Moss (1952) reported that he had excellent results (eighty percent success) using waking suggestion to control gagging. He suggested to the patient that this problem may be controlled by a respiratory exercise. The patient is to stare hard into the dentist's eyes, take a big breath and hold it while the dentist counts slowly to five. If the patient shifts his gaze for a
moment or breathes during the count, he is asked to repeat the exercise. After the dentist is satisfied that the suggestion has been properly carried out, he says very convincingly,

"Now I have eliminated your gag reflex. You will not gag. You may try but you cannot gag."

The reflex is now tested again assuring the patient that he has no need to fear— he will not gag.

The breathing exercise is a placebo, which in combination with a powerful waking suggestion is effective in the control of this reflex.

Shaw (1958) reported an almost identical waking technique but he gave no indication of what percentage of patients he was able to cure. He simply states, "It is possible to remove the gag reflex in exceptionally susceptible subjects in the waking state."

The author considers the waking technique has merit and routinely uses emphatic positive suggestions to help patients overcome their gag reflex. Only when this therapy fails is a hypnotic trance induced.

9. **Tolerance of Orthodontic and Prosthetic Appliances.**

Post hypnotic suggestion may be used to encourage a patient who has been issued with new dentures. The patient is told to persevere, that the dentures will
feel comfortable and that he will manage them well. If suggestion of this type is used, it is important to recall the patient after several days to relieve pressure spots and make any other desirable adjustments. Some patients will tolerate very large ulcers caused by new dentures, even if the suggestion that they must be prepared to persevere and expect some discomfort is given in the waking state. Suggestions given to this type of person in the hypnotic state could lead to severe trauma and the recall after several days should never be omitted. In like manner children may be encouraged to co-operate with orthodontic appliances. When suggesting that these appliances should be worn continually, it is wise to point out to the patient the cosmetic benefits that will accrue as a result. The child is told to imagine his improved good looks when his teeth have been straightened; he will be able to chew much better; he will have less cavities and therefore less visits to the dentist.

The author has used hypnosis with considerable success to help patients with fractured mandibles tolerate splints and other appliances used to immobilise the fragments. Improved co-operation helped ensure
rapid and uneventful healing.

10. Diminution of Salivation.

Authorities generally agree that salivation can be controlled in the hypnotised individual (Shaw 1958, Moss 1952, Marcuse 1959, Tinkler 1966, Milechnin 1967, Burgess 1952).

These writers believe that the autonomic nervous system via the subconscious, responds to suggestion under hypnosis, and suggestions that the mouth will become dry, repeated several times, will reduce the flow of saliva. No special technique is required, and the dentist is able to operate in a "dry field". Fortunately the patient need not be in a very deep stage of hypnosis for the control of salivation.

Weitzenhoffer (1953) reviewed the pertinent literature and concluded that involuntary and semi-voluntary motor functions such as salivation can be influenced by suggestion. They appear to be most susceptible to indirect influence arising from the direct evocation of emotional states and of hallucinations. Direct evocation of the changes themselves is least effective.

The author suggests to hypnotised patients that
their mouths will become dry as they have had nothing to drink for many hours and this simple suggestion of thirst is usually all that is required to dramatically reduce the flow of saliva.

The dentist must remember to restore the natural flow of saliva before arousing the patient. Failure to do this can lead to considerable discomfort and embarrassment. The usual suggestion that the patient feels well and normal in every respect should never be omitted before he is aroused from the trance state.

11. Diminution of Haemorrhage.

The author considers that the control of capillary haemorrhage following dental surgery is feasible in hypnotised patients. This observation has been recorded for many years by dentists using hypnosis and today there is general agreement among authorities that this is so. However, there is little evidence in the literature of well-controlled scientific investigation to support the observation.

Solovey and Milechnin (1958) reported the following experiment on a patient who had just had a tooth extracted while hypnotised. The hypnotic state had reached sufficient depth to cause an excellent spontaneous analgesia, and the patient had practically no loss
of blood, although no suggestion had been given in this respect:

"Maintaining the same tranquil tone of voice we had just used for the direct induction of the positive hypnotic state, we told the patient that it was desirable that he should let some blood flow out, to drain the cavity well and to prevent possible infections. This could be done by loosening up his body ... he should be very calm ... very relaxed ... and make no effort to detain the loss of blood ... But, in spite of 'such suggestions', not a single drop of blood appeared.

"We then exclaimed with some vehemence: 'It is enough ... you have already lost more blood than necessary ... you must make an effort to detain a haemorrhage which is becoming excessive ... otherwise it may harm your health!' The patient was requested to make all his muscles tense, in an effort to detain the loss of blood. Precisely, when he became tense, we found that his breathing was faster and that the cavity was bleeding."

These authors concluded that it is not suggestion that controls capillary haemorrhage in the hypnotised individual, but it is his emotional condition. In a
tranquil and relaxed state the bleeding is minimal, whereas in a state of tension it increases considerably.

The mechanism of the haemostatic effect is of a vasomotor nature, appearing exclusively in the living organism. The investigations of Crasilneck and Fogelman (1957) demonstrated that the induction of the hypnotic state does not cause any change in the coagulation properties of the blood in the test tube.

Watts (1959) stated, "Diminution of haemorrhage operatively and post operatively is often a marked feature in the use of hypnosis and is probably due to the tranquilizing effect on the blood pressure in contrast to the anxiety or anoxia, or both, present in conventional methods."

Moss (1952) stated that bleeding can be hypnotically controlled and said it is possible in the experimental laboratory, to bring about through suggestion, vasoconstriction or vasodilation of the peripheral blood vessels and to produce blushing and even blanching of the hands and face. He decried the lack of laboratory experiments with scientific controls to prove that bleeding can be controlled hypnotically. His practical experience corroborated statements by numerous
authors of almost bloodless surgery under hypnosis. He quoted a demonstration by Dr. Samuel Samet of Newark, New Jersey. In October 1949 before a group of about seventy-five dentists at a meeting of the "American Society for the Advancement of Hypnodontics," Dr. Samet surgically removed two upper right premolars and one lower right premolar from a patient in a deep trance. There was not the slightest indication of pain and there was minimal bleeding. Suggestion produced the anaesthesia and inhibited the flow of blood.

Yanovski (1962) stated circulatory reactions can be modified by hypnotic techniques.

Shaw (1958), Burgess (1952) and Tinkler (1966) stated that capillary haemorrhage can be controlled by hypnotic suggestion. Gorton (1962) said that control of haemorrhage in dental work is entirely feasible and warrants extensive research and academic sponsorship.

It has been the author's experience that bleeding is readily controllable in the trance state, and following some hundreds of extractions performed while the patients were hypnotised, post operative haemorrhage has never been a problem. It is never suggested to the patients that there will be absolutely no blood, but
that bleeding will be just sufficient to allow adequate healing of the sockets.

Lucas (1965) working at Jefferson Hospital, reported nonhaemorrhagic dental extractions from patients suffering from haemophilia. These patients were hypnotised and the teeth extracted. The sockets were packed with haemostatic gauze and the wounds protected with acrylic splints. One hundred and fourteen teeth were extracted from twenty-four patients with haemophilia; post operative bleeding was no problem in any case. No patients required transfusions.

Lucas stressed the important part emotional factors play in triggering spontaneous bleeding in haemophiliacs and he pointed out that the emotional factor is still more important when the haemophiliac is scheduled for a surgical procedure such as a dental extraction. During the pre-extraction period the haemophiliac is very much afraid, emotionally distressed, and fearful of the haemorrhage that follows the extraction. This preoperative period of anxiety in a haemophiliac may frequently be the cause of failure to produce haemostasis following the extraction of teeth, even after the best performed surgical technique and the correction of the clotting defect by
transfusions of whole blood or plasma.

Hypnosis was used to reduce anxiety both pre-operatively and post-operatively. During the surgery hypnoanaesthesia was used, in some cases it was bolstered by small quantities of chemical anaesthetic solution infiltrated into the extraction site.

Lucas contends that the emotional tranquility occasioned by hypnosis was the major factor in the prevention of haemorrhage in these cases. Fredericks (1967) concurs with this point of view and has reported two cases where hypnosis was successfully used to control haemorrhage following the extraction of teeth from haemophiliacs.

The author has used this method of treatment with eight cases, all of whom had a history of severe haemorrhage following dental extractions; twenty teeth were extracted with no post operative complications.


Clinical observation has convinced the author that appropriate suggestions given to patients in the trance state, result in more rapid healing and a diminution of post-operative discomfort and other adverse sequelae. This observation is well supported in the literature (Moss 1952, Mason & Watts 1959, Wickham

There are no properly controlled investigations which confirm these beliefs but certainly no harm can come from making these suggestions since the patient may well benefit from them.

Barber (1960) stated that although the precise physiological and psychological mechanism of hypnotic analgesia is still unexplained, sufficient data has been compiled to delineate two factors which are responsible for the effectiveness of hypnotic methods in minimizing pain. One of these factors is similar to a placebo effect; the other resembles the mode of action of morphine. In general, research studies of the placebo effect suggests the person reacting to a placebo is responding to a "drug" which he believes has curative properties. In like manner hypnotic analgesia is partly a function of the patient's conviction that the hypnotist will relieve his pain.

The relief of pain effected by the administration of morphine has generally been assumed to have little, if anything, in common with hypnotic analgesia. These seemingly diverse analgesic procedures however do possess common characteristics. Barber added, "in both, pain as a sensation is not necessarily altered; in
both, discomfort and suffering are minimized or eliminated; in both, the relief of suffering appears to be secondary to an alteration in the patient's concern with, attention to, or anxiety about the nociceptive stimulation.

"Narcotics and hypnotic procedures do not necessarily affect the sensation of pain per se: however, by mitigating anxiety and by inducing contentment and a 'bemused state', discomfort and suffering are alleviated and the pain sensation may appear to be suppressed."

Anxious and neurotic patients not infrequently lick or suck their sockets. The resultant disruption of the clot may lead to further bleeding or 'dry socket' or both.

It is unwise to suggest total lack of pain indefinitely following dental surgery as pathology may be masked. However lack of discomfort (pain) is implied by the suggestion that the socket will be numb until the following day and that healing will be uneventful. Mason & Watts (1959) say that the suggestion of "trouble free healing" is interpreted by most people as "lacking in pain" and will not usually mask the severe pain of an infected socket. A good night's sleep never did
anyone any harm and patients will often remark at the next visit how fit they felt after the extraction. There is no doubt that "well being" is a strong factor in normal healing.

Thompson (1963) reported a case where hypnosis was employed for relief of post operative pain and increased healing rate following dental surgery. This case is quoted at length as the author is in agreement with the rationale of the suggestions offered.

The patient, a female, had had all the upper teeth extracted posterior to the right and left cuspid under local analgesia. The extractions on the right side were uneventful and healing progressed normally. On the left side, however, there was a sinus perforation in the area of the first molar, and two alveolalgias (dry sockets) developed.

Five days after the extractions, during which time the patient had not rested nor eaten properly, with no relief from the severe pain despite all treatment, hypnosis was suggested. There was of course, excellent motivation. The patient accepted a deep trance in two minutes, and the entire elapsed time for the hypnotic session was twenty minutes. Three factors were stressed to the patient and these were repeated in as many ways
as possible during the time:

1. Pain, per se, is a danger or warning signal given to us by our body. Since we already knew what was wrong and were already treating the cause, there was really no longer any need for the patient to experience pain.

2. In order for relief of pain and normal healing, she should realize, and certainly understand, that it was essential that she get rest and nourishment to help the body to overcome this discomfort.

3. It is the circulatory system which promotes most of our healing (carrying away infection, absorbing bruises, etc.) and due to the increased aggravation, the circulation of these parts would certainly have been increased. As a direct result of the complete relief from pain, the rest and nourishment, and the increased circulation, healing would be much faster than it could have normally taken place if it had not been "stirred up".

After these points had been stressed repeatedly, the patient was aroused with the usual termination commentary on comfort and a feeling of well-being and self-confidence. There was immediate and complete
pain relief and she found she could eat and sleep. The following day, upon examination, an obvious, unmistakable improvement had occurred in the tissues, and the right and left sides of her mouth looked equally healed. The patient commented that everything she had been told in hypnosis seemed reasonable and hence she could accept and respond to it. Progress from that time continued in the normal fashion.

In order to obtain optimum results following dental surgery, there must be strict adherence to the principles of medicine and surgery, however psychological factors have been shown to play an important role as an adjunct to good operative procedures.

"As dentists we need to recognise and understand those emotional and stressful components which will, and do play such a vital role in the diagnosis, treatment and final outcome of our therapy (Land 1963).

13. Elimination of Thumb-sucking

Thumb-sucking, cheek-biting and tongue-thrusting are habits which may have deleterious effects on dental structures. Hypnotic suggestion is usually an effective therapy for the elimination of these habits.

Thumb-sucking is a childish habit which seems to provide comfort through oral gratification in much the
same way as nail-biting. If it persists into adolescent it frequently will cause deformity of the palate, and malocclusion of the teeth. In most cases it seems to continue simply as a habit which no longer has any great psychodynamic significance and meaning to the child as it did when he was an infant. By the time the child has reached the age of eight or nine, the original meaning of this habit has been lost over the years; it has changed direction and purpose and by now may have become a conditioned reflex (Marcus 1959).

A child can be instructed under hypnosis that if he must suck something, he will suck a finger rather than a thumb. This has the advantage of considerably reducing the size of the object that is sucked (Shaw 1958). Tinkler (1966) suggests the matter can be taken further and the patient can be told that any part of either hand which is placed in the mouth will taste so unpleasant that it will have to be removed. This has been known to occur after only one session of hypnosis.

The author disagrees with such writers as Wickham (1960) who considers hypnosis should not be used by dentists for controlling such habits as thumb-sucking. Whereas the dentist using hypnosis should not endeavour to correct psychiatric problems, it is well within his
province to undertake correction of simple bad habits such as thumb-sucking which involve the oral cavity. These habits can have disastrous aesthetic and functional consequences. A dentist wishing to offer a "complete service" to his patients, must be prepared to attain some knowledge of psychology and treat the patient as a "whole being" and not just a dental apparatus. This opinion is supported by Secter (1965) and Wolberg (1948).

Wolberg states, "Success in reconditioning is possible only when the symptom or habit does not serve a vitally dynamic purpose in the adjustment of the individual. Where a symptom has a deep symbolic value, particularly as a defense against anxiety, reconditioning suggestions will usually be unsuccessful until the patient has achieved emotional insight."

Symptoms or behaviour patterns which persist on the basis of habit alone and no longer serve as defences against anxiety frequently yield to treatment during hypnosis. The likelihood is that if the symptom or habit is vital to the life adjustment of the individual, the patient will resist the induction of hypnosis or, if he enters the hypnotic state, he will resist treatment. No harm will come to the patient
who is encouraged, but not badgered, into yielding his symptoms, and with whom a permissive approach is used. The willingness of the patient to accept hypnosis and therapy on this basis would indicate that the symptoms did not require psychiatric intervention. Conversely, reluctance by the patient to accept hypnosis and therapy could be regarded as indicative of the need for psychiatric treatment.

The author has found that in many cases the thumb-sucking habit may be broken by direct-waking suggestion. The child is interviewed alone, the parents having been removed from the surgery. He is flattered, his confidence is won and he is told in simple terms of the bad effects thumb-sucking is having on his teeth. Suggestions are given along these lines: now that he is bigger he does not really need to suck his thumb... big children who have been going to school for some years don't really need to suck their thumbs... He is then asked to promise to try very hard to stop the habit.

This simple treatment is frequently all that is needed, and succeeds where constant nagging by parents has failed. To a child, the dentist, an adult usually not well known to him who works in a specialised
environment and who is consulted as an authority on dental matters, has great prestige. This prestige, plus tactful suggestion, produces the necessary "rapport" to effect a positive result.

Stolzenberg (1950) stated, "The habit of thumb-sucking is easily broken by sane reasoning and conscious suggestions. Unfortunately, the parents of our patients have been advised by their medical men not to attempt to break the child of this habit. Consequently the deformities as we see them, many times are extreme. During the past twenty-five years, in breaking numerous children of the thumb-sucking habit, I have yet to note one who has diverted to another habit as a substitute for the one which we broke."

Stolzenberg gave no indication as to whether he worked in conjunction with a trained psychotherapist and did not mention specifically what post operative investigations were made on these children. He simply stated that this observation was not hearsay but was based upon clinical findings.

Scientific evidence indicates that the elimination of the thumb-sucking habit by dentists adequately trained in psychodynamics and hypnotic procedure, is unlikely to have adverse psychological effects on the
patients. However patients who are unresponsive should be referred to a specialist psychotherapist.

14. **The Time Factor.**

Initially it may take several sessions of approximately twenty minutes duration to induce the trance state. However, once a trance of sufficient depth has been attained to allow the implementation of post hypnotic suggestion, future inductions will take several minutes only. A conditioned patient can walk into the surgery, be seated, go to sleep immediately on a signal from the dentist and be ready for any type of dental treatment without delay. Time lost during the initial induction process is soon recouped, as once the patient is conditioned he can usually be readily rehypnotised at all future dental appointments.

15. **The Patient Wakes Refreshed.**

After a long and arduous appointment the patient is told he will awaken feeling refreshed and will look forward to his next dental appointment as a further period of complete relaxation. He is given a post hypnotic suggestion that he will always be fully cooperative and will endeavour to be punctual always.

Tinkler (1966) stated punctuality is no direct benefit to the patient but is extremely helpful to the
After termination of extensive operative procedures, the patient is aroused, happy and refreshed.
dentist. While hypnotised, the patient is told firmly and authoritatively that he will make an extra effort to be on time for his next appointment. He is rarely late.

16. **Dental Health Education.**

Suggestions can be given to encourage better dental health, as for example: the importance of diet, toothbrushing and home care. These suggestions are particularly effective with children.

17. **Safety Factor.**

The use of hypnosis in dentistry is perfectly safe, providing the dentist has a sound knowledge of its application and its limitations and some understanding of human psychology.

The ever-present hazards of the administration of chemical anaesthetics are eliminated. Monheim (1965) stated that the anaesthetic which enabled the operation to be performed without pain could not be given without paying some price in physical reaction. Even an aspirin tablet, while curing a headache, had some measurable toxic effect on the taker. This toxicity varied greatly between patients and for this reason one could not predict what drug or dose would be better for any patient, because that which may not even visibly affect
one may put another into a deep state of unconsciousness.

When hypnoanalgesia is used there is no possibility of anaesthetic accidents such as broken needles, injection of the wrong solution, haematoma, inhalation of foreign material or toxic reaction. The patient does not have to fast before the appointment, can be aroused feeling refreshed and relaxed and can safely leave the surgery unaccompanied.

Hypnoanaesthesia is of special significance in the case of haemophiliacs where injections of local anaesthetic solutions may prove hazardous. Archer et al. (1954) have reported a case of a haemophiliac who died of respiratory obstruction caused by a cervical haematoma following two inferior alveolar nerve injections given for cavity preparation. Parnell (1964) reported a patient who died several days after having been given an inferior alveolar nerve block in spite of extensive medical treatment and tracheotomy.

Haemophiliacs may develop large haematomas at the site of local injections as late as forty-eight hours after transfusions are stopped. This occurs when the blood level of the antihaemophilic factor falls to its original level following transfusions.
18. **Assistance in Accurate "Bite Registration".**

The relaxed, hypnotised patient is extremely co-operative and this can be of great advantage when bite recordings are being taken to enable the construction of dentures. Accurate centric occlusion and vertical dimension can be established and recorded by regressing the patient to an age when the natural dentition was present and recording the measurement in that former relation.

19. **Psychosomatic Oral Problems.**

Occasionally patients will consult the dental surgeon with symptoms that appear to have no organic basis. These individuals will probably have a history of having seen many professional people, and of having undergone a variety of treatments with no lasting alterations to their complaint. The recognition and management of patients with functional disease is a very difficult problem. Dentists trained in hypnotic procedures are sometimes enlisted by their medical colleagues in a team effort to eradicate psychosomatic disturbances which involve oral structures.

Among such complaints are: burning mouth, temporomandibular joint dysfunction, trismus, the control of excessive salivation.
Brodie and Nesbitt (1967) describe the case history of a patient suffering with trismus.

A thirty-nine year old male had a chief complaint of an inability to open his mouth wide enough to eat. There was considerable pain involved in this limited opening. The problem began after a routine extraction of a lower posterior molar and had been getting progressively worse. The following treatments by various physicians and dentists were not successful: local application of heat, use of sedatives, physiotherapy, rest, exercise, injection of local anaesthetics, injection of steroids, long term antibiotic therapy, and removal of another tooth. Finally under general anaesthetic the patient's mandible was forced open. However the trismus soon returned and being unable to masticate properly the patient lost twenty pounds.

At the first interview when hypnotic therapy was to be commenced, he could open 8 mm with pain. He was a good hypnotic patient and soon revealed deep hostility for his wife. At the end of the first hour of therapy he was able to open 27 mm with no pain. On his second visit, he opened 36 mm and after the fourth visit 44 mm. He also bruxed, and although this habit was modified during the hypnotic visits, it has persisted
to the present. There has been no return of trismus.

It is this author's firm conviction that psychosomatic disorders as in the case just described, should never be undertaken for treatment by the dentist alone, but rather as a team member together with a trained psychotherapist.

The treatment of Angular Cheilosis.

Secter (1965) reported the case of a patient who presented suffering with angular cheilosis. Extremely painful sores were present at the corners of the mouth. In addition there was an excessive salivary flow. Preliminary diagnosis ruled out the following: foreshortened intermaxillary distance, moniliasis, non-specific infections, and lues. Vitamin therapy and treatment with hydrocortisone ointment brought no improvement. Reduction of the salivary flow by a technique employing hypnosis allowed the sores to remain dry and rapid healing ensued.

20. Improvement to the Dentist's Health.

"By its very nature, the practice of dentistry places a great psychological strain on those engaged in it. Individual variations between dentists in personality endowment and growth, enable some to cope with it with little apparent strain, but, for others,
the toll taken is considerable. However, it would be a grave mistake to assume that any individual dentist is untouched and unaffected by the work he performs daily (Martin 1965).

By alleviating patients' anxieties and tensions during treatment, the dental practitioner who uses hypnosis will himself avoid tensions, nervousness and irritability. In this way he can preserve his own health and gain increased satisfaction from his work.

Disadvantages and Dangers of Hypnosis in Dentistry.

1. Ignorance as to the nature of hypnosis.

Probably the greatest drawback to the use of hypnosis in dental practice is the almost complete ignorance of the subject by the great majority of people. Unfortunately this lack of knowledge and the many misconceptions as to the utilization of hypnosis, is not confined to the lay public. Many members of the medical and dental professions will frankly admit they have no scientific knowledge of hypnosis whatsoever, and that their only experience with hypnotic phenomena has been to witness demonstrations given for entertainment purposes. They have probably never considered hypnosis
as a serious psychological science which they themselves could quite easily master and apply successfully in their own professional disciplines.

Much of the ignorance surrounding hypnosis probably stems from the days of 'esmer, two hundred years ago. The ban placed on the teaching of "magnetism" in that time still exists in many parts of the world today. This seems incredible in the light of present knowledge, and yet it is factual that people entrusted with the physical and psychological welfare of the community graduate from universities throughout the world without the slightest knowledge of the fundamentals and the application of hypnosis. While this deplorable lack of teaching prevails and the lay public is exposed to exaggerated and distorted accounts of hypnosis through the popular media, the acceptance of this technique as an everyday method of therapy is unnecessarily retarded.

Some common misconceptions about hypnosis are:
A. Repeated subjection to hypnosis makes one weak-minded, or at least emotionally unstable. No evidence whatsoever has been found to support this point of view. Individuals who have been deeply hypnotised over five hundred times have shown no harmful effects as a
consequence of their repeated hypnotic experiences, (Marcuse 1959).

B. There is a common fear that hypnosis will:
   Make a dependent person more helpless.
   Make a detached individual, whose adjustment to life is founded on a need to maintain a chasm between himself and others, panic, and the anxiety caused by the intimate inter-personal relationship will do irreparable harm.

Wolberg (1945) said that these arguments are not valid. A patient in hypnosis will react as he does to everything else, with his usual character strivings and defences, but there is a coincidental striving to be hypnotisable and to get on better terms with others and with himself. The hypnotic experience need not become a sop to the needs of the compulsively dependent individual. Nor will hypnosis rob a person of will power or diminish his self control. If the hypnotic experience has any effect at all, it tends to build up the patient's self-sufficiency and inner strength.

Wolberg added, "Another fallacious notion is that hypnosis in a detached schizoid person may precipitate a psychosis. Without question the individual who is terrified of people will regard hypnosis, like any
other interpersonal relationship, with apprehension, and he may perhaps even resist entering the trance state. However, detached persons are often easily hypnotised, and I have even succeeded, with no deleterious effects, in inducing hypnosis in withdrawn schizophrenic patients."

C. If a patient is hypnotised and while in the trance state the hypnotist leaves him permanently (meets with a fatal accident or is suddenly called elsewhere), he will remain hypnotised forever. Should the patient be "abandoned" in this manner, he will awaken of his own volition, the length of time taken to do so will vary from person to person. The trance state may transform into natural sleep and it may be some hours before the patient awakens.

D. The subject awakens feeling tired or mentally upset. There is again little evidence to support this assumption; on the contrary it is generally agreed that the patient 'awakens' feeling refreshed and relaxed. It is the author's practice to always suggest to the patient that he will awaken from the trance feeling refreshed and alert. In the majority of cases this is so; many patients enthusiastically declare they feel marvellous, and in some, a state of euphoria persists
2. Time Devoted to the Unsusceptible.

The dentist who uses hypnosis must be prepared to devote the necessary time to induce the trance state. Only one person in four can be put into a deep trance at the first hypnotic session. Although this percentage can be considerably increased with subsequent training, many busy dental practitioners consider it more efficacious to use chemical anaesthesia which has rapid onset and more predictable results.

Present knowledge does not enable us to forecast whether a patient can be hypnotised or not and we are unable to tell what depth of trance the patient will achieve. The only reliable way of finding out these things is to attempt induction of hypnosis. The time taken to do this is considered by many to be the greatest disadvantage of hypnosis in clinical dentistry.

Most dental practitioners work on a very tight timetable and to spend an appointment trying to induce hypnosis in a non-receptive patient is both time consuming and frustrating. Freud gave up routine use of hypnosis for this reason.

The author has found that more than ninety percent of dental patients respond in some measure to hypnotic
suggestion. Hypnosis is not a panacea for all dental problems and should be used as an adjunct to existing therapies. Only in exceptional circumstances should long periods of time be devoted trying to induce a deep trance. One appointment of twenty minutes is usually sufficient to assess the hypnotic capabilities of a patient. If after that time a trance of sufficient depth has not been attained, the dentist should take advantage of the increased relaxation which will surely have ensued and proceed with his usual operative technique.

The time lost on the small percentage of people totally uninfluenced is more than recouped on those who do enter the trance and who can be rehypnotised at subsequent appointments in a matter of seconds.


Unfortunately in this country there is a negligible amount of time devoted to the behavioural sciences in the curriculum of most dental schools. There is no undergraduate training in hypnotic techniques. Therefore the dentist wishing to employ hypnosis in his practice must be prepared to undertake some form of post graduate training.
The technique of hypnotic induction is not difficult to learn. In no more than half-an-hour any dentist could be shown how to induce the trance state, providing a susceptible hypnotic subject was available. Such scant training however would leave the dentist ill-equipped to utilise the phenomena characteristic of this state to the patient's best advantage. Furthermore without a thorough understanding of the nature of the inter-personal relationship between patient and dentist he would be at a loss to handle any emergent situation. In like manner a lay person could be taught to remove an anterior tooth with a few minutes instruction, but this would not qualify him to set up practice as a dentist.

A dentist wishing to incorporate hypnotic procedures in his clinical practice should thoroughly acquaint himself with modern knowledge of the subject. This is a task involving many hours research and study.

Marcuse (1959) stated, "Nowadays many dentists are beginning to be aware that in addition to looking into mouths they also have to look into personalities."

4. Requests to Treat Psychological Disorders Unrelated to Dentistry.
The dentist who successfully employs the use of hypnosis in his practice will soon receive numerous requests to treat patients with psychological disorders totally unrelated to dentistry. These requests must be emphatically refused. The use of hypnosis by the dentist must be confined to the alleviation of fear and apprehension, relaxation and hypnoanaesthesia, together with the ramifications previously mentioned. No attempt should be made to probe and explore the patient's subconscious.

Psychological and emotional problems should be referred to a psychotherapist as the dentist is ill-equipped to handle them. It would be unethical for him to do so, and such unqualified meddling could lead to aggravation of the patient's problem.

Because hypnosis brings about a temporary change in the patient's psychic orientation, there are those who feel its induction should be limited to psychiatrists and psychologists. Certainly its use by dentists should be within the framework of their own speciality, but to deny its use by the dental profession is surely as logical as to deny the use of the scalpel. Dentists use scalpels daily but do not open abdominal cavities. Patients can be very persistent and persuasive in
their efforts to encourage the dentist to use hypnosis for purposes unrelated to dentistry: many have the idea that hypnosis is "all-powerful" and believe the mere fact of being hypnotised will cure their ailments. It has been the author's experience that the time taken to discourage such people who can become very tenacious and unreasonable can be classified as a disadvantage.

5. Failure to Remove Suggestions Given Under Hypnosis.

The inexperienced hypnotist may forget to remove suggestions given while the patient is in the hypnotic state. For example, the dentist may suggest to his patient to decrease the secretion of saliva and that the mouth will become perfectly dry. Salivation diminishes and the operative procedures are completed in a dry field, but once the operation is complete the suggestion that the mouth will return to normal in every respect must be given. Failure to do this may leave the mouth completely devoid of saliva, which if left unattended could lead to discomfort and infection and embarrass both dentist and patient. Similarly if hypnoanalgesia had been used and a suggestion that the mouth would return to normal had been omitted, tissue could be damaged as is frequently seen when
children chew their anaesthetised lips and cheek after having had an inferior dental nerve block injection.

The dentist therefore who uses hypnosis must make sure that the patient clearly understands his instructions both in and out of the trance state. Suggestions such as numbness or decreasing normal salivation must be removed before the patient is aroused.

Some years ago the author encountered a case which could well illustrate this point. The patient, a man in good health aged forty-two years, attended the surgery for treatment of an antro-oral fistula of long standing. He had been having his right maxillary sinus irrigated with saline solution and requested that as the experience was unpleasant he would like to have the treatment while hypnotised. He had arrived at a particularly inopportune time, as appointments for that morning were running well behind schedule. It was explained that the initial induction of hypnosis could be a lengthy process and that another appointment could be made, when the necessary time could be set aside. The patient was adamant however that he wanted the hypnotic treatment right there and then. The author's practice in such cases was to suggest a quick hypnotic trial and if not immediately successful to inform the
patient that he was not susceptible to this form of induction. Further explanation was given that on the next appointment, another method of induction would be used which was more powerful but very much more time consuming.

The patient in this case was asked to stare at the dental unit light, told to relax and that on the count of three he would close his eyes and go deeply to sleep. On the count of three his eyes closed and he entered a deep hypnotic trance, no more than ten seconds being devoted to the induction. The saline irrigation was completed and before he was aroused, a post hypnotic suggestion was given that on awakening he would be thirsty and reach for the glass of water on the dental unit and drink.

On awakening the patient declared that it was the best dental treatment he had ever experienced. He said that he was thirsty and he picked up the glass of water and drank. He was then dismissed.

Several hours later the author received a telephone call from the patient. His voice sounded incoherent like that of an inebriated person. He complained that the irrigating solution must have been extremely salty as he was still terribly thirsty and could not stop
drinking. On leaving the surgery he had gone to the local hotel, had drunk several large glasses of beer and then visited a friend and consumed several additional drinks. On returning home he had drunk a large bottle of his wife's cordial. He said he was not a man accustomed to heavy drinking but was still parched and just could not quench his thirst.

The author drove to his home, placed him on the lounge, and induced a deep hypnotic sleep merely by issuing the command "go to sleep!" The suggestion of thirst was then completely removed. When the original suggestion was given it was the author's intention merely to test post hypnotic response. Once the patient had drunk from the tumbler of water the suggestion normally would have been cancelled. Obviously the instruction wasn't explicit enough for this patient, and his thirst continued.

It was fortunate that this experience happened early in the author's hypnotic career and ended without serious adverse consequences. It did serve as a warning of the power of suggestion and the varied interpretation that the same suggestion will have on different people. Stage hypnotists who induce hypnosis in
many people at the same time and give many and varied suggestions, may cause emotional disturbances if all suggestions are not countermanded before the subjects are aroused and dismissed. A subject may be told, for example, that he will go to sleep when hearing a certain tune. On returning to his seat the tune is played and he goes to sleep. If the subject leaves the theatre with the posthypnotic suggestion not removed he could sleep again when he next hears the tune. This could happen while boarding a ferry, driving a car, or executing some like task and the results could be most unfortunate.

6. Symptom Removal

If a patient suffering an acute abscess is hypnotised and told he will awake without pain, only the warning symptom is removed. The actual pathology is masked and the abscess may rupture with serious consequences. Dentists using hypnosis must be careful when giving post-operative instructions to warn patients that they will be aware that operative or surgical procedures have been performed in their mouths. They should be further instructed to report any undue discomfort. The same principle applies after the insertion of prosthetic appliances. Hypnotised patients should be instructed that they will tolerate the
prosthesis well but will be aware of any undue soreness, as may be caused by over extensions or pressure spots. They should be further instructed to report back to the surgery several days later for final assessment.

As a general rule the dentist should not endeavour to remove psychosomatic symptoms. Patients with these symptoms should be referred to a psychotherapist. Symptom removal without proper regard to the cause of the symptom is poor therapy, sometimes fraught with danger.

7. Stimulation of Disturbing Emotions.

The dentist using hypnosis should never give his patients suggestions which are emotionally disturbing. Physiological responses to hypnotic suggestions are real. Van Pelt (1952) has shown how the heart rate may be varied by hypnotic suggestion. If for example, a person with cardiac pathology was subjected to an hallucinatory situation where he was told he was falling from a very high bridge, where in fact, he was pushed only a few inches from his chair, his heart would react as if the fall was real and the consequences could be serious.

Milechnin (1967) stated that if the emotions are
severely disturbed in the hypnotic state the patient will suffer the same psychological shock with the varying physiological manifestations that would be elicited in the waking state with a traumatic experience. People receiving bad news, witnessing horrifying sights, soldiers in battle, exhibit psychological and physiological responses to varying degrees. The books on legal medicine invariably contain examples of sudden death caused by violent emotions, due to different stimuli of daily life. Similar emotional disturbances occur during natural sleep while dreaming. It is not uncommon for a person to awaken from a frightening dream wet with perspiration, heart pounding and gasping for breath. Even though the contents of the dream are false, the emotions arising from it are real, as real as any emotional effect on the dreamer as one in reality.

There is a historical record of a case of death by intensification of disturbing emotions under the hypnotic state. It appears to be the only case reported and is included to make the reader meditate on the risks of deliberately stimulating such emotions.

According to a description given by Völgyesi (1956) Ella Salomon was a nineteen year old girl, with a
nervous disorder, who had been treated by means of hypnosis with satisfactory results, first by two physicians and then by the amateur Franz Neukomm. This last operator managed to make her better, and at the same time, found in her mediumistic faculties, adequate for experimentation with telepathy and clairvoyance.

In an experiment carried out before a large audience in Tuszer, Szaboles, Hungary, on the night of 14th September, 1894, Franz Neukomm gave the girl under hypnosis the following order; "I am now sending your soul away from here!" The idea was to send the 'soul' of his subject to a far-away village in Hungary to obtain information about a certain sick person.

When this order was given, the subject reacted with an agitated deep breathing and with inarticulate sounds. It was evident that the order had caused the young woman to experience a strong disturbing emotion. Neukomm continued insisting categorically with this order.

The experiment caused the subject's death. The hypnotist, Franz Neukomm, was accused of homicide by imprudent temerity. The result of the autopsy was "death by heart paralysis". Evidently, this 'heart
paralysis' corresponded to a functional cardiocirculatory disorder brought about by an intense disturbing emotion.

This case has been reproduced in detail as it illustrates the dangers of deliberate stimulation of disturbing emotions to the extreme degree. The results are likely to be no less disasterous if the emotions are so disturbed in the waking state or in dreams during natural sleep.

8. Confabulation.

Confabulation, intentional or unintentional, is another possible disadvantage. Suppose that a female patient, hypnotised by a male, attains a deep trance and has amnesia for all the events which have transpired under hypnosis. Wishful thinking may take place and the dentist may find himself accused of anything from unethical conduct to seduction. It is important to realise that many patients or subjects often do not, will not, or cannot differentiate between sexual fantasies (heterosexual or homosexual) that may occur under hypnosis and the events of real life. It is wise, therefore, to have a third person present during hypnosis.

Sometimes a patient will become emotionally upset and begin to sob violently upon entering the hypnotic trance. This reaction may occur in spite of suggestions of well-being and a soothing hypnotic manner. Spontaneous outbursts of crying may at first upset the dentist. There is no need to worry however, as this is generally a release of tension. The patient may have been anxious and pent up with emotion for a long period before being hypnotised and on entering the trance state there has been a feeling of complete relaxation and "letting go". In such a case the dentist should remain calm and allow the patient to cry it out and then give suggestions that on awakening there will be a feeling of relief and well-being. Moss (1952) stated, "Never be alarmed at spontaneous crying; it will always bring with it peace and relaxation. No damage or trauma will ever result from this. This, of course, must not be identified with induced tension and conflict which results in hysteria, age regression, hallucination, delusion, or any other phenomenon which is utilised by a psychotherapist and is something entirely different."
The spontaneous emotional outburst as described above is not really a disadvantage of the use of hypnosis in clinical dentistry, as the patient awakens feeling relieved and much better. It is mentioned at this point because it is distressing for the dentist, particularly when first encountered, and may necessitate the cancellation of dental treatment on that appointment. If the patient has been reassured by a kindly and sympathetic dentist, the next hypnotic appointment will probably be without incident.

A. A dentist using hypnosis should be aware of the pathological condition known as narcolepsy (or hypnolepsy, or Gelineau's disease) where the patient may sleep for days. If by an extremely rare coincidence the patient may have his sleeping crisis during hypnosis or shortly after a hypnotic session the hypnotist could be extremely embarrassed.

There were four hundred cases of narcolepsy diagnosed in the Mayo Clinic in the years 1950-1957 (Flechnin 1967). The real narcolepsy, or abnormal somnolence, is frequently combined with catelepsy or sudden muscular weakening, to produce a 'sleep paralysis' or hypnogogic hallucinations. There is obviously
no relationship whatsoever between narcolepsy and the hypnotic state. Rare occasions where patients suffering from narcolepsy who have begun their sleep at a time associated with hypnotic induction, and who have slept for days, have given rise to sensational press releases about hypnotised people.

B. To attempt induction of hypnosis on grossly inebriated persons is unwise and may lead to embarrassment, as the following anecdote illustrates. A patient, who had previously been hypnotised by the author, attended the engagement celebration of a medical colleague. He proceeded to drink heavily. Late in the evening the patient requested that he be placed in a trance in order to demonstrate hypnotic phenomena. The author, being aware of his state of intoxication, refused and left the room. Several minutes later the author was joined by a medical colleague who proudly announced that he had just succeeded in placing the inebriated person in a 'deep trance'. He added, that he had no knowledge of hypnosis, he had simply placed him on a couch and said in a firm voice 'go to sleep'. The patient had immediately closed his eyes and entered what appeared to be a deep hypnotic trance. The colleague then confided he had given a suggestion
that the patient would not awaken until he heard the author's voice. Two hours passed and the author was then requested to awaken him. Repeated attempts to gain communication with the patient were unsuccessful. The author protested that this was not a hypnotic trance but an alcoholic coma. The patient refused to stir in spite of the efforts of the majority of medical men present, and he continued to 'sleep' even when placed under a cold shower.

The situation was further complicated by the arrival of his wife who became almost hysterical when someone told her that her husband could not be awakened from a hypnotic trance.

Eventually, he was taken home and put to bed. He awoke the next morning feeling surprisingly well, with no recollection of the previous night's proceedings. However, the worried and embarrassed medical practitioner spent a restless night and declared that the experience would be his first and last as a hypnotist.

When questioned the patient admitted that even before he attended the party he had been drinking heavily.

There was no doubt that hypnosis had nothing whatsoever to do with his state of unconsciousness, which was entirely due to excessive alcohol. The case does
illustrate, however, how easily misconceptions about hypnosis may arise and thus bring a useful science into disrepute.

**ANTISOCIAL USE OF HYPNOSIS.**

Associated with the dangers of hypnosis, whether real or imaginary, is the ever-present question, "Can the hypnotised individual be made to commit antisocial acts which he would never normally contemplate in his natural waking state?" This question has been debated since the days of Mesmer and has never been answered to the satisfaction of all authorities.

The clinical material seems to suggest, even more strongly than does the experimental evidence, that hypnotised subjects, including those in deep hypnosis, maintain what has aptly been termed "the sixth sense of reality." Under some circumstances they are able to resist effectively the execution of suggestions perceived to threaten some aspects of their personalities.

Wolberg (1945) stated that contrary to supposition, hypnosis has no weakening effect on the patient's ego. Immature individuals who are easily swayed to conformity with the opinions of others show under hypnosis a surprising capacity to reason independently.
Numerous instances can be cited of subjects in hypnosis refusing to carry out behaviour which they would normally carry out in the waking state.

Janet (1925) described an experiment at Charcot's famous Salpêtrière school where a young woman was instructed to take off her clothes before an audience. The patient refused and awoke in a great state of indignation. This would be the result expected from a modest woman; however had the subject been an artist's model or a strip tease dancer, the idea of removing her clothes would probably not have been offensive to her.

Orne (1962) cited a classic instance of a girl in hypnosis who refused to uncover her chest at her physician's request, even though she had been frequently examined by him in the waking state and had on those occasions not hesitated to disrobe.

Erickson (1939) and Adler & Secunda (1947) report failure to bring about antisocial acts in hypnosis, while other authorities, Wells (1941), Brenman (1942), Rowland (1939), Watkins (1947) and Young (1952) have performed experiments which they claim indicate that hypnotised individuals can be induced to perform antisocial acts. Wells, and those who concur with him,
claim that Erickson was unsuccessful in his experiments because he put the matter badly to the subjects; as if to say, "Take your room mate's money": whereas those who report success have made the situation acceptable to the subject by saying, in effect, "The money is yours; take it".

The authorities who disagree with Erickson's findings suggest that had he created by hallucination and delusion, a situation where the subject was convinced the money he was stealing from his friend was really his own, he could have been persuaded to make the theft and still have a clear conscience. These workers criticise Erickson's methods claiming he had not used every facet of hypnosis, hallucination, delusion and distortion to sway the subject to commit antisocial acts.

Erickson explains Well's results as being mere artefacts of the laboratory with its experimental atmosphere and its subject-hypnotist relationship, including the attitude, "This looks dangerous, but it is not, because you - the experimenter - are a reputable person".

Young (1951) set up an elaborate experiment whereby he demonstrated the power of nitric acid to the
subject by throwing a penny into it. The penny, of course, was completely disintegrated and the subject began to realise the tremendous destructive power of the acid. While the subject's view of the bowl of acid was obscured, an assistant substituted for it a like-sized bowl of methylene-blue water, continuously kept boiling by the presence in it of minuscule droplets of barium peroxide. The hypnotised subject was then ordered to throw the dish of nitric acid (in actual fact the harmless solution) over an assistant who was in the room. Under these conditions it was possible to induce, under hypnosis, various subjects to throw what they considered to be an extremely dangerous acid into the face of another human being.

The same experimenter was able to persuade hypnotised subjects to handle what he had termed deadly snakes. In actual fact, the snakes were of a harmless variety (Natrix rhombifera), but they were so similar to venomous water moccasins (Agkistrodon piscivorus), which the hypnotist suggested they were, that only a herpetologist could differentiate them. The subjects who handled the snakes with impunity while in the trance state, showed signs of terror and refused in
the waking state to even closely approach them.

Watkins was able to induce anti-social behaviour in a young army private with a very good service record. He suggested to the soldier that an army colonel was in fact a "filthy Jap soldier" and that it was his duty to kill him before he himself was attacked with a bayonet. The hypnotised private attacked the commissioned officer with such ferocity that it took the instantaneous assistance of three others to restrain him.

Young concluded that the results of such experiments show that at least certain types of hypnotic hallucinations are real. By using illusions, delusions, age regression, transidentification, and other powerful devices available in hypnosis, the personality can be temporarily so altered as to circumvent the ego demands and implant complexes which are as bona fide as those of a neurosis or a psychosis. The subject-hypnotist relationship itself satisfies certain infantile needs for love, subjection, and feelings of partaking in omnipotence, resulting in an obsessive type of compliance or helpless obedience, and there is a strong presumption that a skilled hypnotist could induce anti-social behaviour in hypnosis.
Orne (1962) stated that the task of determining conclusively whether an individual in hypnosis will commit antisocial and self-destructive acts is extremely complex and difficult. Several problems have been particularly vexing and responsible for considerable confusion. Perhaps the most difficult issue to deal with is the congruence of the cues defining the situation. For example, a hypnotist may say that an item of behaviour is dangerous, but by his actions clearly convey an absence of concern. He may suggest that a subject carry out a given behaviour but by his tone and demeanour indicate the expectation and wish of being refused.

He added, "A summary of the literature and review of the total available evidence have led the author to conclude that the situation envisaged by fiction writers and the lay public is not supported by evidence, that is, extant material does not indicate that an unsuspecting individual can be tricked into hypnosis and compelled to undertake behaviour to the advantage of the hypnotist in the absence of a long term meaningful personal relationship".

**ADVERSE SEQUELAE**

The hypnotist cannot be absolutely sure how every individual will react to every suggestion under hypnosis.
In the great majority of people hypnosis causes no unpleasant side effects. In a very small percentage of cases, however, adverse sequelae may occur. Weitzenhoffer (1957) said that post hypnotic difficulties range from mild to severe headaches, with vertigo and nausea, various degrees of depression, persistent drowsiness and perseverance of other suggested effects and neurotic and psychotic episodes. In very rare instances these adverse sequelae occur in spite of all precautions, but usually, they can be ascribed to flagrantly improper management of the subject.

Hilgard (1965) reported that 2.3% of hypnotic subjects from an experimental group of more than 200 students reported slight adverse sequelae after being hypnotised. In no case was the unintended consequence serious and usually consisted of a headache of short duration.

Brenman and Gill (1947) reviewed studies of adverse sequelae following hypnotic therapy and concluded that the dangers were greatly exaggerated. In their own experience they found no undesirable consequences.

Those who have emphasised some disastrous consequence of hypnotic therapy have usually cited cases of severely ill patients, whose varied symptoms were of
long duration and often (but by no means always) treated by incompetent therapists.

A careful medical history in many of these cases would have revealed psychotic tendencies.

Symptom removal when patients are on the verge of psychosis can deprive such patients of a major means of defense, and is ill advised. It may be noted that similar unfortunate results are reported when non-hypnotic therapies are directed towards symptom removal.

In the preceding dissertation some of the possible dangers of hypnosis have been mentioned. Used intelligently by well-trained operators, ill effects of hypnosis are extremely rare. Moss (1952) cited investigations by Bramwell who consulted many of the medical hypnotists of his time in an effort to discover whether any harm had ever been done their patients by the use of hypnosis. He reported Forel, Liébault, Wetterstrand, Van Eden, De Jong, Moll and others, and all consulted had never seen a single instance in which physical or mental harm had ever been caused by hypnotism. Including Bramwell's own cases, the observations cover more than 50,000 patients who have been hypnotised by physicians. Moss stated that he had never seen any harm done by hypnosis and concurred with
Bramwell's investigation.

Apropos to the danger of hypnotism Janet (1925) stated that it is unfortunate that there is so little danger attached to the use of hypnosis. Janet said "I say 'unfortunate' for the reason that a medicament is not really potent unless it is able to be dangerous on occasions; and it is very difficult to think of any method of treatment which would be efficacious although it could never by any possibility do harm. The dangers attaching to the use of a poisonous drug make it necessary that we should study with great care how to administer it, and in what doses; but the fact that the drug is poisonous is the primary indication that it is powerful. We can hardly say as much of suggestion and experimental hypnosis, for, even in bad hands, suggestion and hypnotism do not seem to have been able to do much harm."

Milechnin (1967) said that the induction of hypnosis, by means of an understanding, accepting, reassuring attitude, providing the subject who needs it is willing to receive it from the hypnotist (with the accompaniment of varied verbal or sensory stimuli intended to favour muscular relaxation or repose), has no possibility whatever of causing harmful effects.

This opinion is fully supported by the author.
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WAKING SUGGESTIBILITY.

The more familiar one becomes with the principles of suggestion and hypnosis, the more obvious it becomes that there is a large area of overlap between 'hypnotic' and 'waking' suggestibility. This fact has been re-emphasised by such workers as Weitzenhoffer (1953) and Gorton (1962). Weitzenhoffer pointed out that in some persons phenomena ordinarily seen only in the hypnotic trance, may easily be evoked in the waking state, that is, without any preceding induction procedure. Gorton stated, "There can be little question that in certain individuals such phenomena as anaesthesia can be induced simply by forceful waking suggestion, whereas in most subjects such phenomena can only be elicited in the trance state. This state of affairs necessarily complicates attempts to evaluate physiologic changes under hypnosis, particularly because we still do not possess any objective method of determining the existence of the hypnotic trance. The work of Orne (1951) and others has demonstrated how easily simulation of hypnosis can be confused with the presence of a trance state, as judged by clinical
criteria. It should be noted that we possess practically no studies of a controlled character relating to the degree to which waking suggestion is capable of altering physiologic phenomena."

There is therefore no clear line of demarcation between the waking and hypnotic states. Some investigators question whether after all a person may not be said to be hypnotised from the time he first responds to suggestion, regardless of what may have been done with him before the suggestions were given. Singer (1960) contended that 'trance' and 'hypnosis' are by no means synonymous. He said, "In this broad sense, a hypnotic relationship has been achieved when the individual's attention has been gained. He is likely to be very greatly influenced and will perhaps act on any suggestion that he feels to his advantage. Whether he is sceptical or not does not influence the power of these suggestions. A hypnotic relationship in this broad sense may be deliberate or accidental, for benefit or harm. There is always a strong personal involvement."

"A hypnotherapeutic relationship, has a narrower meaning: it is one in which the individual's attention has been gained for the purpose of changing his psych-
ological or physiological processes so that he may think and act and feel in a manner that will make him more comfortable with himself."

Suggestion is one of the most effective means of helping the anxious dental patient. It is important therefore that the factors which facilitate the use of suggestion should be considered in some detail. Individuals in the course of their everyday lives, accept suggestions from people they like and trust; they reject similar suggestions from those they dislike and distrust. The situation is the same in the dental surgery.

Meares (1963) stated there is a biological reason for this. He said, "Suggestion is the primitive process by which early man uncritically accepted civilised ideas. By the natural process of evolution it would be imperative that he should accept suggestions uncritically from his friends rather than those who were not well disposed towards him. This is an obvious protective mechanism; and it is easy to see the way such a mechanism should have evolved along the pattern of Darwinian evolution. Our present-day suggestibility with our friends is thus a part of our ancestral heritage."
In the clinical situation therefore, every effort should be made by the dentist to secure firm rapport with the patient before commencing operative procedure.

Prestige and Suggestion.

Suggestions are more readily accepted from persons who are looked up to. In clinical work, prestige is the value the patient places on the physician or dental surgeon in relation to himself, and as Meares (1963) pointed out this is a matter of some subtlety.

As in the case of rapport, there is a biological reason for the way suggestions are accepted more readily from a person with prestige. If the operation of suggestion is considered in its primitive state, it will be seen that ideas should be accepted uncritically from the leader, rather than from those of equal or inferior status. This is necessary for the tribe to survive as such. The leader is looked up to and his suggestions are accepted uncritically. This, and the fact that the leader symbolizes the father, is the psychological basis of prestige.

In the dental surgery, the dentist takes on in a symbolic fashion some of the attributes of the leader. The patient looks up to him and he accepts his
suggestions. In the past, and to some extent in the present day, physicians and dental surgeons have gone to great lengths to establish prestige. For the most part this has not been clearly evaluated by the individual physician or dental surgeon; but he has rather unconsciously drifted into the habit of presenting himself as a person of authority. He has learned that this approach fosters better dentist-patient relationship which is of great overall value in clinical treatment. Other practitioners have deliberately cultivated a flamboyant, grandiose or authoritative manner with this end in view.

Meares (1963) condemns this approach in modern professional practice. The present-day practitioner can still use prestige, but it should be something quite free of flamboyancy and grandiosity. He can assume a role symbolic of the leader who is strong, but who at the same time is quiet and passive. This is the wise leader. Prestige of this kind is more subtle and is more difficult to attain than a grandiose image. It is more dependent on the psychological integration of the individual and compares with the meditative type of leadership as opposed to the demagogic.
There are direct practical applications of these theoretical considerations. The dental surgeon starts off with some prestige because of his professional status. As regards the matter in hand - the patient's dental problem - the patient looks up to the dentist because of his greater knowledge and experience in this area. From this basis the dental practitioner should endeavour to structure the relationship so that in the patient's eyes he comes to symbolize the wise leader. The thoughtful and sympathetic dentist is usually able to quickly establish rapport with his patients. If he creates an air of competence in his professional capacity and delivers suggestions in a confident manner, the anxious patient will most likely respond by relaxing and earnestly attempting to give full co-operation.

Patients like to feel that their comfort is of prime consideration to the dentist. Once they are secure in this feeling they will tend to relax and tolerate unpleasant sensations to a greater degree. The patient should be made to understand by a kind, considerate approach the extent of the discomfort that he may expect, for it is a well-known physiological axiom that the nervous system dislikes
surprises and, in many instances, reacts violently to them. Therefore, one of the most important factors necessary for optimum rapport is honesty and sincerity. Incidental anxiety can then be kept minimal and the physiological response to pain noticeably diminished.

Shor (1962) conducted a research project designed to test the physiological response of hypnotised subjects receiving extremely painful electric shocks. He used a control group of waking subjects who had been carefully briefed concerning the nature of the experiment in order to minimize apprehension and anxiety.

He found that for his particular set of experimental conditions, there were only tiny systematic physiological responses to painful stimuli in both hypnotised and waking subjects; that is, even in the waking state when the person was just letting things happen naturally (Wake Control), there was only a slight change in galvanic skin resistance when shocked. Although highly statistically significant it was a trivial response to high level shock. Similarly there was about a 5 beat per minute increase in heart rate when shocked, again highly statistically significant, but a tiny response to a truly painful stimulus.
Shor concluded that since incidental anxiety was artificially kept low, physiological responses to pain were tiny. Therefore, hypnotic analgesia could show no further special effects on physiological reactivity.

This research indicates that since the experience of pain is eliminated during hypnotic analgesia, physiological reactions resulting from stressful or threatening qualities, which the pain might otherwise have, do not occur. But anything else that minimizes the incidental anxiety component of the total pain experience—such as ego-protective procedures in the waking state—can have an effect on physiological response similar to that of hypnotic analgesia.

Pollack (1966) conducted an experiment to test the hypothesis that waking suggestion from the dentist was an important factor in producing a calm reaction from the patient during the injection of a needle into the mucous membrane of the mouth. Five hundred patients were divided into two main groups; one group received an application of topical anaesthetic prior to injection; the other group received only a placebo. Both groups were further divided so that half of all the subjects became experimental in that they were given a suggestion that no pain would be felt;
the other half were control and received no suggestion at all. The hypothesis was borne out that suggestion is a factor in obtaining calm reactions during needle injection. In the comparison between the control and experimental patients receiving the topical anaesthetic fifty-seven point six percent (57.6%) of the control patients remained calm whereas sixty-eight point eight percent (68.8%) of the experimental patients were calm. The difference is significant at the .03 level of probability.

In both the control group and the experimental group there was no advantage of the topical anaesthetic over the placebo for obtaining calm reactions.

A comparison of the objective reactions between men and women indicated that the experimental men were more suggestible than the experimental women. 81.1% of the men remained calm as compared to 64% of the women. Women showed more extreme reactions than did the men: 7% of the control women and 5% of the experimental women exhibited extreme reactions while 3.4% of the experimental men scored extreme reactions.

An analysis of the objective reactions in relation to the subjective statements made by the patients after injection indicated a good positive
correlation among all the groups. The role of semantics and prestige of the operator was also presented as being of great importance.

The great importance of the elimination of fear and apprehension as a prelude to the establishment of satisfactory rapport between patient and operator soon becomes obvious to all those who practice dentistry.

In a busy dental surgery it is rarely practical to attempt routine hypnotic induction on the large number of patients who attend each day for treatment. The majority of nervous patients will, however, quickly relax and co-operate when given tactful positive waking suggestions. For many years it has been the author's standard technique to endeavour to relax the patient quickly and thus raise his pain threshold before initiating any procedure which would be in the slightest degree painful. This is simply done by:

1. Making sure that the patient is comfortable in the dental chair.
2. Giving an assurance that he will be kept informed as to the nature of the treatment.
3. Warning him in advance of any impending unpleasantness (such as an injection into the mucous membrane of the mouth).
4. Instructing him to close his eyes and to let all the muscles in his body relax. The suggestion to relax is repeated several times; the arms are allowed to rest limply by his sides and as the suggestions of relaxation are given, the forehead is gently stroked.

The majority of apprehensive patients will then relax in approximately one minute and will tolerate injections in the mouth, exhibiting very little evidence of discomfort: in fact, the majority declare that they were unaware of the needle penetrating the mucous membrane. This simple technique is practiced routinely in the author's surgery, where with the assistance of six associate dental surgeons approximately two hundred patients are treated each day.

The more familiar one becomes with the principles of suggestion, the more successful the method becomes. With added success the self confidence of the operator increases. The additional self confidence and conviction is sensed and appreciated by the patient and the operator's prestige is consequently elevated.

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PSYCHOLOGICAL PROBLEMS OF DENTIST-PATIENT
RELATIONSHIP.

Long before the patient ever visits a dentist for the first time, powerful forces are usually brought to bear which can only make dentistry difficult for him. Incredible as it may seem, some children who misbehave are threatened by their parents that unless they are good they will be taken to the dentist to have all their teeth out. At school, the child hears harrowing stories of dental brutality from classmates.

Television, radio, 'movies' and cartoons in the popular press, in an attempt to be humorous, often portray the dentist as a gruesome 'bogey-man'. Adults, discussing their dental experiences have a tendency to grossly exaggerate details of treatment ... "He drilled and drilled right into the nerve"... "He broke the top of my tooth and had to gouge out the roots"... "He filled my mouth up with that impression stuff and held it there for ages; I was sure I would choke"... are typical statements of dentistry, made by patients. It is not uncommon for brave servicemen to declare that they would rather be in battle and for some
women to say that they would rather have a baby than visit the dentist. It is little wonder that children overhearing this kind of sentiment, have a very poor preconceived idea of dental treatment long before they enter the dental surgery for the first time. Exaggerated fear of dental treatment is so much a part of our culture that its expression is witnessed every day by dentists in their surgeries.

Martin (1965) stated that the distortion of reality is common to most attitudes towards dentists and dental treatment. This distortion is not only present in the judgement of pain, but it plays a large part in opinions about dentists' behaviour, the cost of dental services and the quality and reliability of the dental work performed.

He found that when dental patients were seriously questioned as to their extreme terror in the dental situation, by far the great majority had never been actually hurt to any appreciable extent while receiving dental treatment. Modern day dentistry in no way justifies the legend that has commonly grown up about it. He added ....

"While there is great difficulty in adequately defining pain, and even greater difficulty in measuring
it, it seems clear, even on the patient's own testimony, that the frequency and/or intensity of pain experienced in the dental surgery is in no way commensurate with the fear experienced by the patients. Indeed as many of the patients point out they have never really been hurt in a dental surgery in their life, and yet they are never the less terrified. Even on those occasions when the patient is not hurt at all, where a thoroughly effective anaesthetic is achieved, the fear and discomfort experienced may be just as severe as in the most painful situations.

In order that the dentist be able to adequately understand and cope with extremely nervous patients it is necessary to know something of the meaning that dental treatment has for the individual in terms of his experience and development. Psychologists and psychiatrists are agreed that individual mannerisms and personality traits of the adult and the child, can be attributed to the various responses and adjustments to the environment that were made by the individual during the earlier stages of his life. The newly-born infant in adjusting to his strange new environment finds that his mouth is not only a pleasureable source in satisfying hunger needs, but is also
a means of communication and of aggression. By crying he is able to receive the necessary attention to satisfy all he needs. Where the response to his demands are forthcoming, the environment is friendly and warm and so the infant is able to develop a warm, agreeable attitude towards life. Where the need is not satisfied, the frustration and anxiety which results, affects the infant's outlook, and certain unconscious mechanisms are set up in defence to meet the disturbing situation. Rejection of food, thumb-sucking, and later nail-biting and overeating, may be some of the attention seeking, insecure or hostile symptoms related to this period of development, and these methods of overcoming problems might unconsciously be adopted later in life to mould the individual's behaviour and produce certain personality traits in the grown child and in the adult. Resistance to dental treatment may be due to unconscious retention of early oral pleasure needs, or in the rejected child it might possibly be a symptom of hostility against one of the parents (Shaw 1960).

The oral cavity is a highly emotional zone of very great psychological significance, a fact unfortunately not appreciated by many members of the dental profession.
Stolzenberg (1950) stated, "The head and face are the most 'personal' part of the body, being the seat of four of the five senses (incoming), and the mouth particularly, through which personality is almost wholly expressed in speech ... The mouth has additional centralization of interest in being the aperture through which the food is admitted, this being the principal interest and pleasure of the child during the earliest period of his life."

Delays in feeding, unpleasant tasting foods, medicines etc., give rise to early frustrations. The oralisation of anxiety often expresses itself in compulsive eating to ward off fear.

Moss (1952) stressed the great psychic importance associated with the oral cavity, the oral mucosa, the tongue, the lips and the teeth. Exposing these areas to the manipulation of another individual has highly disturbing significance to many people. It is from these roots that fear and anxiety spring. Many patients will remark that they know that the impending extraction will not hurt and there is nothing to it, yet they cannot understand why they are quaking so violently. The dentist should know some of the reasons. For instance, extraction of teeth frequently is unconsciously associated with punishment, sadism or even
castration. Naturally the patient is unaware of this, the association being at a deep seated subconscious level.

When a nervous adult or a terrified child first visits a particular dental surgery, the chances of a pleasant and successful dentist-patient relationship are greatly enhanced if the dentist:

1. is kind, patient and sympathetic,
2. comprehends and uses the power of suggestion and hypnosis if need be,
3. understands the deep, psychological significance of oral tissues,
4. realises that the fear of dental treatment can be just as real in a patient who has never been to a dentist previously (but who has preconceived ideas of the agony of dental treatment), as the fear of a patient who has previously suffered an actual painful dental operation.

Extreme fear will sometimes cause actual spasm of the oral musculature particularly in children. The patient will not be able to open his mouth for a dental examination. If spasm does occur in a terrified child, any attempt to use force to pry open the mouth will aggravate the situation.
Authorities both in the genetic and psychoanalytic schools assert that the functional unit, insecurity-anxiety, exists not only in childhood, but at all ages. Whenever anxiety occurs, it provokes regression of thought and affectivity to an earlier infantile level. The individual interprets reality according to the emotions he experiences, and objective judgements become inaccessible to him.

The dental situation has many components comparable to features of the early life experience, consequently the adult frequently perceives his relationship to the dentist imbued with danger such as he perceived in the past.

The infant suffers a biological helplessness and countless restraints imposed by the social environment into which he is born. The dental patient experiences restraint necessitated by dental procedure.

It should perhaps be mentioned that the clinical state appearing as anxiety in man occurs primarily where there is perception of danger accompanied by thwarting of the impulse "to attack or run". The attack or avoidance response is invariably rooted in the past, and related to fantasies and dreams that deal with injuring the other person or being injured by him.
A further correlation between the dental situation and earlier life situation is with respect to the individual's dependency upon an authority. The infant is dependent upon the parent or parent-substitute— who nurtures the child but also frustrates all-important oral pleasure-seeking needs. The patient is dependent upon the dentist as an authority who cares for the individual's teeth, but also probes the oral cavities and at times causes physical pain (Blum 1969).

Parents who remain in the surgery can be one of the greatest drawbacks to the child's acceptance of the dentist and dental treatment. Unfortunately many parents have no comprehension of the psychological trauma and anxiety that thoughtless and exaggerated stories of dental treatment will cause their children. In many instances the child will hear parents discussing the agonies of dentistry long before he has a need to attend a dentist himself. In some instances, as previously stated, a visit to the dentist is held as a threat against the child if he misbehaves.

Frequently the child's first contact with the dentist is when he is brought to the surgery suffering severe dental pain which probably necessitates radical treatment. More often than not he will have observed his parents' deep concern for his 'coming ordeal',
seen numerous towels and handkerchiefs packed to 'mop up the blood', is bribed by various members of the family not to scream and to 'bear the pain like a good little man'.

It is little wonder that many a child arrives at the dental surgery for the first time terrified and convinced he is about to undergo excruciating agony. The situation is still further aggravated by the presence in the surgery of the 'well-meaning' parent. A small and nervous teenager was recently brought to the author's surgery by such a mother. The girl had spent a sleepless night with severe toothache caused by a grossly carious lower right molar. The mother pushed the reluctant and whimpering child towards the dental chair and said to the assistant, "You can't wonder at Alice being nervous, I'd rather have a "breach birth' than a tooth out". Alice had probably heard her mother discussing the fearful experience of a 'breach birth' and if this experience was to be worse, is it any wonder that the child was terrified.

Remarks by parents of this nature are not rare, the author has heard similar statements hundreds of times. The anecdote is mentioned in this thesis to emphasize the manner in which preconceived anxiety is built up in many patients long before they ever have
any actual contact with the dentist.

Many Australian children attending the dentist for the first time, have grossly infected mouths and often extraction of the offending tooth or teeth is the only feasible treatment. If the child has had a restless night with severe toothache and is extremely nervous the pain threshold is lowered and the dentist is confronted with a severe and urgent problem.

Parents should be asked to remain outside the surgery while the child is receiving treatment. Stolzenberg (1950) stressed that a parent can do the dentist-patient relationship a great disservice by holding the child's hand during treatment ('helping him to stand the pain'), giving advice and going through sympathetic gasps and noises with the child (thus encouraging him to continue them), or in other ways magnifying every possible fear-inspiring aspect of the visit. The rapport between the child and the dentist is thus negated.

When the parent has left the operatory, the dentist may then begin the mammoth task of pacifying the child. The dentist who has a sound knowledge of psychology and the special significance of the oral cavity can appreciate that the child is genuinely afraid and not just putting on a tantrum, and will usually find
the child very responsive to a kindly and understanding attitude. Wherever possible painful dental work should be avoided on the first appointment. If the child's confidence is won, the time is well spent and the visit can be used to acquaint the new patient to the dental environment. A simple prophylaxis or placement of a sedative dressing will show the child that the dentist is interested in his welfare and that impressions he had formed of dentistry were by no means true.

If the situation has deteriorated to the state where extraction is necessary, a few minutes spent gaining the child's confidence, the use of controlled suggestion, topical analgesia, sharp needles and adequate chemical analgesia, will make the experience much less traumatic.

It is of the utmost importance that parents be encouraged to bring their children to the dentist at an early age and before they have obvious dental troubles; a 'first hand' dentist-patient relationship can then be developed. The stories of gruesome dental experiences when told by other children or overheard from adults, will then have little psychological effect.

Dellow (1962) stated, "If the pain sensation is
basically 'learnt' in infancy, and if one's emotional attitude towards a so-called painful stimulus is also developed at this stage, an important role of the dental surgeon can be seen. With patient co-operation, the very early introduction of a child to the dental surgery, before the memory processes are fully established, will set certain internal neuronal patterns. For the optimal results the experiences should not be unpleasant ones, and should continue frequently in the early stages. Once confidence in and empathy with the operator has been established, a child's attitude towards dental treatment is fundamentally one of acceptance; and should actual organic pain occur his attitude towards it is not likely to be grossly disturbing."

Any concept of modern dentistry embodies many factors. One of the most important is patient management. Underwood (1962) said, "The paramount factor to be recognised is that the patient is a whole person, not just teeth, and total patient care must always be a consideration. The wise dentist develops an attitude of positive expression. He does not say 'this won't hurt' but 'this will feel like a pin-prick'. Instead of asking for instruments by name, they can be requested by number. 'Syringe' can be substituted for 'needle'. Even unpleasantness can be stated in the affirmative."
A dental surgery should be neatly furnished, cheerful and comfortable. There should be no unnecessary display of instruments. The operatory should be so planned that patients waiting for treatment are unable to see into it, and be as soundproof as possible. Not only must the patient be protected from a view of dental work being done upon another patient, in whose inconvenience or discomfort he is certain to identify himself, but the patient in the dental chair should also be protected from the additional distress of knowing that his treatment and his reactions (which may not be of the most commendable nature) are being observed.

Dental treatment for the patient involves many complex psychological factors. Positive suggestion and hypnosis can be of inestimable value in allaying the fear and apprehension stemming from these psychological origins.

Malabet and Delgadillo (1962) stated, "In the classification of dental patients for hypnosis, the clinical history is the most important element. A special form is not needed, but the usual history should be orientated to elicit information relating to the patient's previous illnesses, especially those which may have affected his nervous system ... About ninety percent of patients seeking dental treatment
are normal. Usually, they are in good health with normal nervous systems and reflexes. These patients can be regarded as suitable candidates for hypnosis."

Borland and Epstein (1961) contend there is a place for hypnosis in dentistry. They cite the need for dentists who are well trained in the psychodynamics of hypnosis as applied to dental treatment and who can recognise patients who are unfit for hypnosis.

Raginsky (1968) says that a satisfactory dentist-patient relationship makes the best medication work even better. Some in any group of neurotic patients, experience relief after drug administration provided they are treated by sympathetic dental personnel. But drugs are not an effective substitute for intimate human contact with the patient. A trusted dentist is worth a lot more than a grain of codeine.

"The widespread use of hypnosis in dentistry is remarkable. Its use however, entails an appreciation of human behaviour. When hypnotic techniques are applied without such knowledge there is no control over the powerful emotions which may be released."

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The case histories presented in this chapter have been selected from the author's records. There are some hundreds of similar cases in the files, and those reproduced here represent an average sample of the successful application of hypnotic suggestion.

Not every patient attending for dental treatment requires or is offered hypnotic relaxation, however, the principles of suggestion are routinely applied. The author has found that after more than two decades of hypnotic experience the vast majority of nervous dental patients can be satisfactorily treated with the aid of suggestive therapy; less than one percent are premedicated with drugs. In cases where definite hypnotic induction is instigated, ninety percent of patients attain at least the light trance state.

Before any hypnotic induction, a thorough medical history is recorded. Where any doubt exists as to the advisability of hypnotic therapy either for psychological or physiological reasons, the hypnosis is delayed until the patient's particular problem has been discussed with his medical advisors.
When there appear to be no contraindications, a brief discussion is held with the patient prior to hypnotic induction. His queries are answered and his doubts dispelled. There is always a third person present, and the method of induction routinely used by this author has been described in detail earlier in the thesis. When chemical analgesia is required the solution used is Lignocaine Hydrochloride 2%, Noradrenaline .0015%, Adrenaline .0005%.

Case History No. 1

Miss R.P., aged twenty-one, attended the surgery for her first appointment suffering with a badly infected upper right third molar. She complained that this tooth had given her severe pain for three days, but she had been too nervous to seek dental treatment. While her history was being taken, she trembled violently and sat upright on the edge of the dental chair. After some persuasion she settled back and allowed her mouth to be examined. The third molar, which was causing her the pain was grossly carious and tender to percussion; extraction was indicated.

The patient burst into tears when told the tooth should be extracted immediately and sobbed that she was unwilling to have it removed unless she were given
a general anaesthetic. She added that she invariably "passed out" when given an injection. It was explained that there were no facilities immediately available for the administration of general anaesthesia, and when hypnosis was suggested, she readily agreed.

Miss R.P. proved to be an excellent hypnotic subject and within six minutes from the commencement of induction was in a deep trance. Suggestions were given that the tooth to be extracted and the surrounding tissues were completely numb... just as if a large injection of local anaesthetic had been given... that there would be no pain during the extraction... that the harder the tooth was pressed, the more numb it would become. The analgesia was tested with a probe and when satisfied it was profound, the author invited an associate, Mr. Kevin Hayes, to extract the tooth. The extraction was uneventful.

The patient was given post-hypnotic suggestions that she would, on awakening, feel very little discomfort, bleed a minimal amount and have rapid and uneventful healing of the socket. Suggestions were also given that she would have no fear of future dental procedures.

When awakened the patient expressed amazement
that the tooth had been extracted. She was given a further appointment three days later. On this second occasion, she confidently entered the surgery and exhibited no sign of her previous nervousness. Examination revealed that the socket was healing rapidly and Miss P. said it had not been at all painful. A more thorough dental inspection disclosed ten carious lesions; the patient agreed to have the restorative dentistry commenced immediately, provided that it could be done while she was hypnotised. On this occasion she entered a deep trance after only one minute induction time; three deep cavities were prepared and restored and when awakened she again said she had been completely unaware of the treatment.

All her subsequent dental work has been carried out with the aid of hypnoanalgesia and she is no longer afraid.

Case History No. 2

Mr. K.C. was an eighteen year old youth who was suffering severe dental pain. When first examined by the author, he apologised for the deplorable state of his mouth and said he was terrified of dentists. He
sought emergency treatment only when he could no longer stand the pain. When hypnosis was suggested to help overcome his fear he readily agreed, and proved a very susceptible subject. Induction to the deep trance state took ten minutes. After this time profound analgesia could readily be produced in any region of the oral cavity by gently stroking the nominated area. Painless operative dentistry without the use of chemical anaesthesia was performed at this and subsequent appointments. The patient was most appreciative of the treatment and began to take exceptional care with his oral hygiene.

In March 1950, the author was asked to give a lecture and demonstration on the use of hypnosis in dentistry at the Western Suburbs Dental Group, Sydney. Mr. C. was taken to this meeting; he had an infected non-vital lower right first molar to be extracted. It was proposed that this extraction be done to demonstrate hypnoanalgesia.

He was quickly placed in a deep trance and analgesia was suggested in the tissues surrounding the offending tooth. A colleague from the audience, Mr. D. Wayne, came forward and tested the analgesia. Satisfied it was profound, he studied the radiographs and volunteered
to do the extraction. The patient showed no pain re-
action during the removal of the tooth which proved to
be difficult. Before he was awakened he was given
post-hypnotic suggestions that there would be very
little bleeding from the socket and little discomfort.
The patient was awakened and declared he was unaware
that the tooth had been extracted. He remained for
the rest of the dental meeting and thoroughly enjoyed
the fellowship.

Mr. C. still attends the author's surgery at reg-
ular intervals and no longer fears any type of dental
treatment. He is still meticulous with his oral hy-
giene and is determined his children will have regular
dental appointments, thus avoiding a repetition of his
own unfortunate early dental history.

Case History No. 3

Mr. J.G., a salesman aged thirty-four, was re-
ferred to the author by a medical colleague. His
mouth was in a highly septic condition, his breath
offensive, his anterior teeth grossly carious, and his
gingival condition extremely poor. This oral sepsis
had caused a breakdown in his general health and his
employer had delivered an ultimatum that he was to
have his teeth restored or seek other employment. He
told the author his mouth was in this condition because
he was terrified of dental treatment.

Hypnosis was suggested and an undertaking was
given that this first appointment would be confined to
an attempt at hypnotic induction and an oral prophyl-
axis. A medium trance was induced in fifteen minutes,
his teeth were scaled and cleaned and suggestions were
given that at future appointments he would sleep more
deeply and have no fear of dental work.

At the second appointment, hypnosis to the medium
trance state was induced in twenty minutes and suffic-
ient hypnoanalgesia was obtained to complete two mod-
erately deep restorations.

During subsequent appointments, Mr. G. would
quickly attain the medium trance state but was never
able to become a somnambulistic patient. He said he
now enjoyed his dental appointments and had an exten-
sive restorative program completed which necessitated
twelve separate appointments. The patient was always
punctual and began to take excellent personal care of
his mouth. On the last appointment a difficult ex-
traction was undertaken. Mr. G. was placed in a méd-
ium trance and 1 ml. of local anaesthetic solution was
infiltrated around the upper right first molar, the tooth to be extracted. (1 ml. of this type of anaesthetic solution is less than half the amount usually infiltrated by the author on a non-hypnotised patient requiring a similar extraction).

The extraction was uneventful and when awakened the patient said he had felt no pain and was confident that he would never again be fearful of any dental procedure.

Case History No. 4

Master James K., a boy aged nine, was brought to the surgery by his mother who said she had previously taken him to several dentists who had been unable to control him and had refused to have him back in their surgeries. He had kicked, screamed and bitten the dentists and his mother had been very embarrassed by his uncontrollable behaviour.

When seated in the dental chair at the author's surgery, the lad had hung his head and refused to speak or co-operate in any way. The mother was asked to wait outside and the boy was assured no dental work would be attempted at that appointment. His mother had told him she was taking him to the dentist who would put him to sleep just by talking to him.
The child was spoken to in a soothing manner, the dentist merely trying to gain his confidence. No more than a few words had been said when he started to yawn. Suggestions were then given that he was very, very sleepy and that he could go soundly to sleep if he wanted to. With that he closed his eyes and entered a deep hypnotic trance.

The lad was given a post-hypnotic suggestion that when he awoke he would be no longer frightened to visit the dentist and that he would sleep deeply whenever commanded to do so by the author. No dentistry was attempted as promised. When he awoke he said that he had enjoyed his sleep and that he was quite willing to attend again to have his teeth "fixed".

The mother was called and the child excitedly said to her, "I like this place and I'll come back any time." The author then asked him if he would open his mouth widely so his teeth could be examined. This he readily did, and his mouth was charted.

The mother was astonished at the change in her son's attitude. James attended the surgery the following week and strode confidently to the chair. He sat down and on command immediately entered the deep trance.
state. Two first permanent molars were prepared and filled at that appointment; no chemical analgesia was used. The child remained completely unperturbed throughout the treatment.

His behaviour was similar at subsequent appointments, when two more fillings were completed and two deciduous teeth extracted without the use of local analgesia.

James has attended the author's surgery at regular intervals for a period extending over ten years. He remains a model patient and tolerates all classes of operative dentistry without injections of local anaesthetic solution or formal hypnotic induction technique.

Case History No. 5

Mr. S., a man aged sixty-one, was referred by a dental colleague because of his extreme fear of "needles" and dental procedures. He requested his treatment with the aid of hypnosis.

After a brief explanatory discussion, the hypnotic induction was commenced and a trance of medium depth achieved in ten minutes. Before he was aroused, the
patient was given a post-hypnotic suggestion that in future he would sleep much more deeply and more quickly when so instructed by the author. He said he felt the headrest uncomfortable and was of the opinion he would sleep more deeply if his head could be slightly lowered. The headrest was adjusted to his liking; he was told to relax and that on the count of three he would take a big breath and go into a deep, deep sleep. Accordingly, Mr. S. entered the somnambulistic state. He was requested to open his mouth and the tissues were tested for analgesia. A probe was inserted to the depth of four millimetres in the gingival tissue adjacent to the upper central incisors which were grossly carious and were marked for extraction. As an undertaking had been given that no dental treatment would be commenced at this first appointment, Mr. S. was aroused after being given post-hypnotic suggestions that he would no longer fear dental treatment and would sleep more quickly and more deeply on his next appointment.

On the next appointment, he quickly entered the somnambulistic state and two upper anterior teeth were extracted. There was no complication, little haemorrhage and minimal post-operative soreness. A further
appointment was arranged three days later, and the four upper remaining anterior teeth were extracted using hypnoanalgesia: no chemical analgesic adjunct was used. There were no post-operative complications and Mr. S. has remained an excellent dental patient.

Case History No. 6

Mr. J.S. a man aged twenty-three, was involved in a motor vehicle accident and sustained severe injuries. In addition to multiple deep lacerations to the face and arms and a compound fracture of the right femur, his mandible was fractured in the region of the lower right first premolar and through the neck of the left condyle. Mr. S. was admitted to Liverpool District Hospital and the author in his capacity as Honorary Dental Officer to that hospital, was called to manage the fractured mandible.

Examination revealed considerable displacement of the fragments. The patient had a full complement of teeth and it was decided to construct upper and lower cast metal splints to maintain alignment and effect immobilisation of the mandible.

The finished splints were taken to the bedside where the author intended to reduce the fractures using
local analgesia. The patient protested when he was told that the treatment involved several injections in the mouth. He volunteered to have the fragments realigned without analgesia and said that he had heard that the author used hypnosis and requested that this form of treatment be first tried. The author agreed.

After a brief discussion as to the nature of hypnosis, induction was commenced and the patient reached the deep trance state in fifteen minutes. The mandibular fragments were manipulated into correct alignment, the splints were tried in, adjusted and the occlusion checked.

Suggestions were then given to the patient that his mouth would remain dry while the splints were being cemented. Salivation diminished and the splints were cemented in a "dry field". After allowing adequate time for the cement (zinc phosphate dental cement) to set, it was suggested that normal salivation would again commence and the patient was awakened.

Mr. S. said he had absolutely no pain and no recollection of the manipulation of his jaw and the fixation of his splints. His recovery was uneventful.

The author has frequently been hampered by saliva while cementing dental splints in fracture cases. This
has been particularly so when the patient has been hospitalised and facilities for aspiration have been poor.

Since treating Mr. S., seven more cases involving fractured mandibles have been treated where hypnoanalgesia was successfully employed; in these cases no chemical analgesia was used. The patients said they felt no pain during the reduction of the fractures, salivation was well controlled in each case, and thus the cementation of the dental splints was greatly facilitated.

In sixteen other cases (three fractured maxillae, thirteen fractured mandibles), where hypnosis was attempted, the author had only limited success and chemical analgesia had to be employed to effect satisfactory reduction of the fractures.

Case History No. 7

Miss P.S., a woman aged twenty-two was referred by her medical practitioner as her badly infected teeth were having an adverse effect on her general health. Her history was as follows:

At the age of ten years, she was taken by her parents to a dentist to have an infected tooth removed.
She was an extremely nervous child and according to her story had received harsh, unsympathetic and painful treatment. She left the surgery in a state of severe emotional stress. Her mother said that for weeks after the extraction she had been restless at night and was often awakened by hideous nightmares. Since that time, repeated attempts by the parents to encourage Miss S. to seek dental attention at numerous dental surgeries, had been fruitless.

The patient had completed her schooling, obtained a university degree and was now a school teacher. Her physical appearance was ruined by her grossly carious and broken anterior teeth. Over the years she had suffered agonising toothache from cariously exposed dental pulps. Whenever a tooth had abscessed, she had attended her medical practitioner for antibiotic therapy and had been able to avoid its extraction.

She entered the author's surgery for the first time obviously terrified. At twenty-two she still clung to her mother like a small child. Hypnotic treatment was requested. The nature of hypnosis was explained and an undertaking was given to confine this first appointment to an examination of the mouth and an attempt at hypnotic induction. The mother was asked to leave the surgery.
Oral examination revealed that all the maxillary teeth and all the posterior mandibular teeth were grossly carious, the crowns of six teeth having completely disintegrated.

Hypnotic induction was commenced using the author's routine technique and the patient entered the somnambulistic trance state in nine minutes. Suggestions were given that on her next visit she would sleep deeply immediately she was instructed to do so, and no longer fear dental treatment. Further suggestions of well-being were given, and the trance was terminated. The mother was called back into the surgery and was amazed by the change in her daughter's attitude.

A treatment plan was outlined whereby all the upper teeth were to be removed and replaced with a full upper denture. The lower posterior teeth were also to be removed and a cast metal denture constructed. It was planned to extract the posterior teeth one quadrant at a time, then allow a rest period of some six weeks before impressions were taken for the constructions of the dentures. The upper denture was to be an immediate insertion following the removal of the six upper anterior teeth.

On the next appointment, the patient arrived and
appeared quite calm without any external signs of nervousness. She was asked to relax completely in the dental chair and told that on the count of five, she would take a big breath and go deeply to sleep. This, she did. It had been decided on this occasion to remove the five upper right posterior teeth and as the upper right second premolar and first molar were broken to subgingival level, these would be removed surgically.

The gingival tissue surrounding the teeth to be extracted was tested for analgesia by sinking a probe several times deeply (4 mm.) into it. The patient signified that there was still slight feeling. 2 ml. of local anaesthetic solution was infiltrated to supplement the hypnoanalgesia. Some ten seconds later, the patient complained she felt sick. Suggestions of well-being were given, but to no avail, and shortly afterwards she vomited into a kidney bowl, held under her chin by an assistant. Soothing suggestions were continued and she rinsed her mouth with water and still did not awaken from the trance state. Several minutes later when asked how she felt, she replied, "Much better, thank you. I am now ready to have the teeth removed."

Each extraction proved extremely difficult and the
patient groaned throughout the procedure. When the extractions were completed, the bone was trimmed and the soft tissue sutured. The patient was awakened and had no recollection of being sick or of having the teeth removed; she said she would no longer be afraid of dental treatment.

Miss S. arrived punctually for all her future appointments. She quickly entered the deep trance state on each occasion. She showed no further evidence of being sick and the remaining extractions were accomplished using a combination of minimal amounts of local anaesthetic solution combined with hypnoanalgesia.

When the dentures were inserted it was suggested that she would have very little discomfort with them and would be able to manage them efficiently. This was so, and Miss S. expressed great satisfaction with the treatment and was delighted that it was never necessary for her to miss one teaching period from school.

Case History No.8

A forty-five year old woman, Mrs. P.D., was referred to the author by a dental colleague. She complained that for the past six months her full upper denture had been irritating her mouth. At times, the
annoyance became so acute that she had to remove the denture, and this caused her very great embarrassment. Mrs. D. had worn a denture for more than ten years and until recently had never suffered the slightest discomfort. When the irritation had first become apparent, the denture had been relined, but no improvement was noted. Mrs. D. sought another opinion and further adjustments to the appliance were also unsuccessful. She became very despondent and refused to accept any social engagements at all. Her husband, a leading businessman in the town, had recently been elected president of his service club; this position frequently required the presence of his wife at club functions. Mrs. D. refused to attend, and in consequence, there was a great deal of matrimonial disharmony.

A careful examination revealed no oral abnormalities and the retention of the denture appeared quite satisfactory. Several lower posterior teeth were missing but the remaining teeth were in excellent condition.

The patient said that she never had been happy with the aesthetics of the denture, but apart from that felt that it fitted satisfactorily. She volunteered that her recent inability to tolerate it was due to "nerves".
A treatment plan was formulated whereby a new upper denture and a partial lower denture were to be constructed. Hypnotic induction would be attempted prior to taking the impression and a further hypnotic session would precede each subsequent appointment.

This plan met with ready approval and before being dismissed, the patient was given positive waking suggestions along the following lines:

When the new and differently designed upper denture was constructed to function adequately with the lower natural teeth, plus a partial denture, the stress on the upper tissue would be balanced and the irritation would be greatly diminished.

On the second appointment, hypnotic induction was commenced but in spite of forty-five minutes determined effort only the light trance state could be attained. Suggestions were given that when the impressions were taken, Mrs. D. would tolerate the procedure quite well and that when her new dentures were issued she would manage them without difficulty.

On her next appointment, thirty minutes were devoted to hypnotic induction; again only the light trance state was attained. On this appointment the bite recording was taken and suggestions were given
as to the comfort of the "bite rims"; suggestions were repeated that the new dentures would fit even more snugly and there would be no difficulty in tolerating them.

The same procedure was repeated at the next appointment when the dentures were at the "try-in" stage. The patient expressed satisfaction with their comfort and appearance and said she was eagerly waiting their completion.

On the appointment when the dentures were to be issued, the light trance state was again achieved and further suggestions as to how comfortable the new dentures would be, were given. The patient was told that they would be easy to tolerate and she would only remove them for cleaning. Care was taken to warn her that if painful pressure spots were noticed she was to report back immediately. She was then awakened and the dentures were issued.

The patient left the surgery highly delighted. She said she was particularly pleased with their appearance and setting, that they were perfectly comfortable and that she was confident she would be able to wear them consistently.

Mrs. D. reported back to the surgery one week later to have the dentures finally checked. She said
they had been perfectly comfortable and she had no desire to remove them. She had already attended two social functions with her husband and felt her former confidence had returned. When recalled six months later, Mrs. D. asserted that she was still extremely pleased with her dentures and had no difficulty in managing them whatsoever.

Case History No. 9

Mr. C.T., a thirty-four year old man in excellent health, had been a patient at the practice for four years. He professed extreme terror at the thought of dental extractions, claiming that he had been brutally treated by a dental officer while serving in the armed forces. He was now completely edentulous except for two upper central incisor teeth. These two remaining teeth had now become infected and they were mobile due to excessive resorption of the supporting alveolar bone. Extraction was indicated and it was decided to replace them with a full upper immediate denture. The patient requested general anaesthesia but when the author explained that there were no facilities immediately available, he agreed to try hypnosis.

Twenty minutes were devoted to the first hypnotic
induction session and the patient entered only the light trance state. A further twenty minutes were devoted at the next appointment and he entered the medium trance; at the third appointment he entered the somnambulistic state quickly, only five minutes induction being required. He was given post-hypnotic suggestions that he would sleep still deeper at subsequent hypnotic inductions and that he would no longer fear dental extractions. A further post-hypnotic suggestion was given that he would not "gag" while his impressions were being taken.

On "awakening" the patient said he felt marvellous; alginate impressions were taken and although a large bulk of impression material impinged onto the soft palate, there was no evidence of "gagging".

On his next appointment several days later, Mr. C.T. entered the somnambulistic trance state after only a few seconds induction time. He was tested for analgesia of the mouth by inserting a probe into the gingival tissues to a depth of 4 mm; he showed no reaction and said he felt no pain whatsoever. He was then awakened and his bite record was taken.

Three days later the dentures were "tried-in"; he again entered the somnambulistic trance immediately on
command and excellent analgesia of the oral tissues was again evident. Suggestions were given that on the next appointment when the teeth were to be extracted he would not be afraid, he would be able to remain "deeply asleep" throughout the operation and "awaken" wearing his new dentures.

The patient arrived punctually on the day appointed for the surgery and said he was not nervous and felt quite confident.

He was seated in the dental chair and given the signal to go to "sleep", but failed to respond. The original induction technique was attempted without success; the technique was varied but after one hour of sustained effort by the author and the utmost conscious co-operation by the patient, not the slightest hypnotic response was evident.

The patient was most apologetic for the lack of response and he agreed to have the teeth extracted using local analgesia. The extractions proved simple and straightforward and the dentures were inserted immediately.

Before the patient was dismissed, the author suggested another quick attempt at hypnotic induction; the patient agreed and on the count of three immediate-
ly entered a very profound trance. Suggestions were
given that the dentures would be comfortable and that
he would "awaken" with a feeling of well-being. This
was so.

Mr. C.T. thereafter remained an excellent hypnotic
subject. The author has had his co-operation on many
occasions with various hypnotic experimentations. He
learnt how to induce self hypnosis, and on one occasion
in hospital, while being prepared for an abdominal
operation, he surprised members of the surgical team
by placing himself in a trance. He required no premed-
ication and entered the operating theatre in a state
of euphoria and was highly raised by the anaesthetist
for his excellent co-operation.

This case history has been included as it helps
to illustrate several important points:

1. Patients who have been trained to become excell-
ent somnambulistic subjects, never become mere
automatons completely dominated by the hypnotist.

2. Although the patient is highly motivated at a
conscious level to enter a deep trance, deep
seated prejudices and fears at a subconscious
level may prevent it.

3. The mouth is a highly erotogenic region of
special psychological significance and it appeared that this patient had a deep seated subconscious reluctance to part with his two last remaining teeth, the extraction of which he had rigorously avoided for the last ten years.

Case History No. 10

Jennifer, aged thirteen, was a frail and nervous girl brought by her mother to the surgery for operative treatment and advice regarding an orthodontic problem. The very reluctant child was pushed toward the dental chair by her mother, a dominating person who immediately answered any question addressed to the daughter. A dental examination revealed that Jennifer had eight carious lesions and a severe orthodontic problem. A treatment plan was suggested whereby the operative dentistry would be commenced, and a consultation arranged with the orthodontist who visited the practice at regular intervals.

On the first operative appointment the child appeared extremely nervous and was unco-operative. The mother was asked to wait outside, and finally after a session which lasted thirty-five minutes, a small one surface, silver amalgam restoration was
accomplished. In spite of all the patience and charm that both the dentist and the assistant could muster, the child remained surly and completely unco-operative throughout the entire appointment.

Two days after this initial operative appointment, Jennifer was examined by the orthodontist. He suggested treatment should be commenced without delay and proposed the construction of a removable orthodontic appliance. The mother agreed and alginate impressions were taken.

Jennifer was given weekly operative appointments. She remained unco-operative and only one filling could be completed at each visit. The orthodontic appliance was eventually fitted and careful instructions were given for its maintenance.

One week later, when the child reported back to the surgery for a further operative appointment, she was not wearing her appliance. Her mother was very upset and said Jennifer had removed the appliance as soon as she had left the surgery and in spite of very determined efforts from members of the family, she simply refused to put it back in her mouth.

The author suggested hypnosis and the mother readily agreed. The child at this stage had become
quite distraught and ten minutes were spent comforting her. An understanding was then given that no fillings would be done that day, all she had to do was to try to relax and listen carefully to what she was being told and she would go into a nice deep sleep. It was further explained that in future she would not feel so frightened when she had to visit the dentist.

Jennifer finally agreed to co-operate and deep hypnosis was induced in fifteen minutes, using the "fractionation technique". Suggestions were given that she make a very big effort to wear her appliance, and the beneficial results of the treatment were stressed. She was told that in future she could go to "sleep" for her fillings and that going to the dentist could be quite a pleasant experience.

When aroused Jennifer smiled and said, "Thank you". This was the first time she had shown any pleasantness during her six appointments. She left with the appliance in her pocket wrapped in her handkerchief. The next operative appointment was one week later and when Jennifer entered the surgery, she smiled and revealed the orthodontic apparatus.

The mother was delighted with the change in the child's attitude. It appeared that on arrival home
from the last appointment, Jennifer had gone straight to the bathroom, cleaned her teeth and inserted the appliance. Since that time she had worn it consistently as instructed. The child was congratulated on her very fine progress.

A deep trance was again readily induced, then with her full co-operation two silver amalgam restorations were completed.

Jennifer had two more appointments where hypnosis was employed. These were equally successful and her restorative dentistry was completed.

The orthodontia took twelve months to complete and throughout that period this patient was fully co-operative and meticulous in her oral hygiene.

**Case History No. 11**

David H., a boy aged six years, was referred by his medical practitioner after he had fallen from his bicycle and injured his mandible. Clinical examination indicated a fracture in the right condylar area, severe trauma to the left condyle and resultant gross displacement of the occlusion. There were deep lacerations to the lips and chin. When examined by the author in the evening some three hours after the accident, the child
was in great pain and extremely distraught. He was given first aid treatment and referred for radiographs the following morning. The radiologist's report confirmed a fracture through the neck of the condyle with severe displacement of the fragments and indicated a crack through the neck of the left condyle with no displacement. The boy had spent a restless night and when he entered the author's surgery, he was still in considerable pain. He was now quite composed and very tired. David was assured that the dentist would be extremely gentle. The suggestion was then made that if he was tired the best thing to do was to go to sleep, and then he would feel no pain at all. The child closed his eyes and his forehead was gently stroked. Soothing suggestions of sleep were given and in one minute he entered a deep hypnotic trance.

The fracture was reduced, a procedure which required severe digital pressure. The mandible was then immobilised by placing stainless steel ligatures directly around maxillary and mandibular teeth.

The operative time for this procedure was fifty minutes and was difficult because of the very small deciduous teeth and the severe laceration of the lips and oral mucosa. Throughout the treatment the child
remained in a trance, gave excellent co-operation and felt no pain. When the mandible was securely immobilised in correct occlusion, the child was given further suggestions that when he awoke he would experience little discomfort and would enjoy his liquid diet with the aid of a drinking straw. He was congratulated on his excellent behaviour and aroused.

The recovery was uneventful, and on his several post-operative checks during the ensuing weeks of mandibular immobilisation, the child was most co-operative. He remained unperturbed during the painful and tedious removal of the stainless steel ligatures. David has attended the surgery for restorative dentistry on several occasions since the treatment of the fracture. He remains an excellent dental patient.

This case history illustrates how hypnosis may be very easily induced in some children. A deep trance was obtained in less than one minute by simply saying to the child, "Go to sleep", while at the same time gently stroking his forehead. A difficult and painful operative procedure was accomplished without premedication, local or general analgesia. The patient was able to co-operate and experienced no pain throughout the appointment. Post-hypnotic suggestions enhanced
future co-operation and helped minimise post-operative pain, and this, no doubt, was an important factor in the rapid and uncomplcicated recovery.

Case History No. 12

Denise P., a thirteen year old girl, was brought to the surgery by her mother who explained that the girl was terrified of dental treatment. Her mouth was very badly neglected as attempts by several previous dentists to do restorative dentistry had been abandoned because of the child's fear. Hypnosis was requested.

At first the girl sat on the edge of the dental chair and refused to open her mouth. An undertaking was given that no dental treatment would be attempted at this first session and great trouble was taken to win her confidence. Eventually she opened her mouth and permitted an examination of her teeth with a mouth mirror; a promise had been given not to use a probe. The preliminary examination revealed many cavities and two lower molars so badly carious that extraction was indicated. The child was then asked if she would permit radiographs to be taken and after careful explanation that the procedure was painless, she agreed.
Denise remained extremely tense and suspicious and considerable difficulty was experienced taking the radiographs.

The parent was asked to leave the surgery and the patient was given a brief explanation of what could be accomplished using hypnosis. A further assurance was given that no dental treatment would be attempted at this session and the child was invited to lie back in the chair and try to relax. Hypnotic induction was commenced but the child remained tense and failed to enter a trance. After twenty minutes endeavour, the session was terminated. The child was complimented on her effort to co-operate and was assured that good progress had been made as the radiographs were successful and would be very helpful in determining future treatment. She was further assured that she now knew something of hypnosis and would probably be able to relax much better at her next appointment. An undertaking was given to confine the next visit to a thorough dental examination and another attempt at hypnosis. If she agreed her teeth would be polished.

Denise was seen one week later and confidently entered the surgery by herself. Though obviously still nervous, she showed a keen interest in her radiographs.
and allowed a thorough examination and charting of her teeth. When this was completed she was asked to lie back in the chair and relax; hypnotic induction was commenced, and she entered a trance of medium depth in ten minutes. Suggestions were given that she would lose her fear of dental procedures, that she would feel no pain during treatment and that at each session she would quickly enter a hypnotic trance.

It was further suggested that she would request her teeth to be polished when she was aroused. As soon as the trance was terminated she expressed delight at the experience and asked if she could have her teeth polished. This was done and she was most cooperative.

At the next appointment she entered a deep trance after five minutes hypnotic induction; analgesia was suggested in the upper central incisor teeth and surrounding tissues. The patient was asked to signal by raising the right index finger when she could feel numbness in these tissues. When she gave an affirmative signal, a probe was used to test the analgesia, which proved profound. One ml. of local anaesthetic solution was slowly infiltrated paraperiostially in the midline of the labial sulcus adjacent to the species
of the upper central incisor teeth. The patient did not perceive this injection. Two deep mesial cavities were then excavated and restored with silicate cement. The child was then warned that on awakening, her lip, upper front teeth and surrounding gingival tissues would remain numb for approximately one hour. Then normal feeling would return. Further suggestions were given that the child would no longer fear operative dentistry and would have a sense of achievement and well-being when aroused. When awakened the child was delighted and said that she had felt no pain throughout the operation. She was unaware she had been given an injection and was relieved to have two unsightly cavities in her anterior teeth restored.

Denise attended the surgery each week for the next six weeks. She quickly entered a medium trance on each occasion; seventeen cavities were filled and two lower molars extracted. The hypnoanalgesia was supported on each occasion with a minimal quantity of local anaesthetic solution.

Dental appointments had ceased to frighten Denise. Her oral hygiene was excellent and now she was taking extreme pride in her mouth. When the program was completed, this patient left the surgery stating that she
would never fear dentistry again. When recalled six months later, Denise said she had been looking forward to the appointment. A careful examination of her teeth revealed no cavities.

Case History No. 13

Mr. C.R., a Dutch migrant aged thirty-five, was first seen by the author when he required emergency after-hours treatment. He was extremely apprehensive and in spite of severe pain, was reluctant to open his mouth. Eventually, after much coaxing a dental examination was made, and the offending tooth, a lower left second molar was located. When told this tooth should be extracted immediately Mr. R. became even more agitated. It was thirty minutes before the author was able to pacify him sufficiently to allow the extraction to be carried out. Mr. R. had several other severe dental problems and a future dental appointment was arranged.

Radiographs at this second appointment revealed a badly infected upper left lateral incisor. Extraction of this tooth and its replacement with a partial immediate denture was advised. The patient agreed to this treatment and alginate impressions were taken.
When the denture was completed, the patient was recalled for his third appointment. He was seated in the dental chair and prepared for the extraction. The author was about to proceed with the injection of local anaesthetic solution when the patient asked that proceedings be halted. He said that he detested injections in the mouth. The last time he had felt sick after leaving the surgery and this he attributed to the injection; he further intensely disliked the feeling of numbness in his mouth which had persisted for some hours.

The author suggested hypnosis could be an alternative analgesia; the patient readily agreed to cooperate. Mr. R. was an excellent hypnotic subject and after an induction of ten minutes was in a somnambulistic trance. Suggestions were given that the tissues surrounding the tooth to be extracted were anaesthetised and would become "more and more numb". When profound analgesia was apparent the tooth was extracted and the immediate denture inserted. No painful reaction was evidenced. Suggestions were then given that there would be very little post-operative soreness, that the recovery would be uneventful and that the denture would be well tolerated and comfortable. The patient was then aroused.
Mr. R. was amazed that the operation was over, and asked, "But Doctor, how can it be ...?"

After a further brief explanation of hypnotic analgesia, he was instructed how to manage his denture and was discharged. The following day he reported back for a post-operative examination. He had no discomfort at the extraction site and the denture was comfortable. Mr. R. has subsequently visited the author's surgery on numerous occasions for operative dental treatment. Profound hypnoanalgesia was readily produced in any part of the mouth in a very short time (approximately five minutes), and the treatment was completed much to the satisfaction of both dentist and patient.

**Case History No. 14**

Stephen T., a male aged seventeen years, was in his last year at high school. He was a lad of nervous temperament who complained that he was unable to settle down to study. He realised the importance of a good pass in his final examinations and his lack of concentration was having a deleterious effect on his general health. Although always a very nervous dental patient, Stephen had attended the surgery regularly for eight
years. Examination of his mouth on this appointment revealed his oral hygiene had been badly neglected. He apologised for the state of his mouth and said he was so worried over his school work that he had just, "let himself go". He requested his dental work be done with the aid of hypnosis.

He proved an excellent hypnotic subject and entered a somnambulistic trance in ten minutes. Three lower posterior teeth were restored with the aid of hypno-analgesia and while in the trance, suggestions were given that when he awoke he would be able to concentrate wholeheartedly on his lessons. When aroused he expressed delight at the hypnotic experience; he said he felt marvellous and was unaware of his teeth being filled.

On his next appointment one week later, Stephen showed no signs of nervousness and said that he had been able to concentrate much better at school; he was much less worried about his forthcoming examinations and felt better generally. He entered a somnambulistic trance immediately on command, "Go to sleep". Two more fillings were completed; he was given further suggestions of general well-being, aroused and allowed to go home.

The next appointment was ten days later when
Stephen was to have his fillings polished and a final oral prophylaxis. He said that he had continued to improve in his school work and his attitude had amazed his teachers. He requested that his final simple treatment be carried out while he was in the trance state. He entered the deep somnambulistic stage on the command, "Go to sleep!" His dentistry was completed and suggestions of continued well-being were given. When aroused, Stephen said that he regretted his dental treatment was completed as he had looked forward to the visits and since his first hypnotic session, he had felt in excellent mental and physical health.

This case illustrates how hypnosis, instigated to relieve fear and apprehension in the dental surgery, helped overcome lack of concentration during school lectures and extreme nervousness at examinations. No attempt was made to probe the boy's subconscious mind; a simple suggestion of confidence and well-being was all that was required.

Case History No. 15

Mrs. S.E., a female aged thirty, had been a patient at the practice for several years. Her teeth were extremely sensitive and all operative dentistry
was carried out with the aid of local analgesia. Mrs. E. said she disliked injections in the mouth and usually put off dental attention until she was troubled with pain.

Hypnosis was suggested and after a short preliminary discussion, she was made comfortable in the dental chair and hypnotic induction was commenced. A light trance was achieved in ten minutes and this was subsequently deepened utilising the 'fractionation technique'. A medium trance was obtained after a further ten minutes.

At this stage a right inferior dental nerve block injection was given, only 1 ml. of anaesthetic solution being used. Five minutes later the analgesia was found to be effective and whilst the patient was still in a trance three deep buccal cavities were prepared and restored with silver amalgam. Then aroused the patient expressed disbelief that she had had three fillings completed.

On her next appointment she said she had been eagerly awaiting another hypnotic session. A deep trance was very easily induced and in five minutes, profound hypnoanalgesia was present in a designated area encompassing the left mandibular premolars. Two deep buccal cavities were prepared and restored with silver amalgam, and the patient experienced no discomfort.
On the third appointment a deep trance was quickly induced and analgesia of the upper right central incisor was achieved in five minutes. The patient was told that the tooth would remain numb after awakening from the trance. It would feel normal again only after it had been filled and the numbness removed by the command of the operator. When aroused Mrs. E. said she must have had a very large injection as her tooth was extremely numb. She was assured that she would feel no pain during operative procedures on that tooth. A broken-down silicate cement restoration was then removed and recurrent caries excavated; no pain was felt even though the cavity was very deep and there was a small pulpal exposure. The pulp was capped with calcium hydroxide and a silicate cement restoration inserted. The patient was then told that the numb feeling would leave the tooth and it would feel perfectly normal. A test with a probe on the surrounding gingiva indicated that this was so, and the patient was dismissed. Before leaving the surgery she expressed great delight with her success as a hypnotic patient and said she regretted that her dental treatment was now completed.

This case illustrates how on the first appointment hypnoanalgesia was used in conjunction with chemical
analgesia; on the second appointment hypnoanalgesia was used alone and on the third appointment hypno-
algesia obtained in a trance was maintained after the patient was aroused.

Case History No. 16

Mr. B.E., a motor car salesman aged thirty-five, reported to the surgery with his anterior teeth badly broken down. He had become so self conscious about their appearance that he was afraid to smile. He said although he could afford dental treatment he was afraid to have his teeth drilled and requested that his entire dentition be removed and dentures inserted while he was 'under' general anaesthesia. Examination of the mouth revealed that only his upper anterior teeth were infected and it was the author's opinion that these teeth could be restored with jacket crowns.

The advantages of retaining his natural dentition were stressed and the possibility that hypnosis could be employed during the operative procedures was explained to the patient. He agreed to try hypnotic treatment and a future appointment was set aside for this purpose. He proved to be very susceptible to hypnosis and in eight minutes had entered a trance of medium depth.
He was relaxed and reassured and 1 ml. of local anaesthetic solution was infiltrated into the mucosa, labial to the upper right central incisor. This tooth was then prepared for a jacket crown, a procedure which took approximately forty minutes. During this time Mr. E. remained in a trance and as the crown preparation proceeded, suggestions were given that he would remain relaxed, have no fatigue of his oral muscles, and at no time feel pain.

When the preparation was finished, an impression of the mouth was taken and a temporary crown constructed and cemented into position. The patient had now been in the trance state for more than one hour and had held his mouth open for most of that time. He showed no signs of fatigue and when awakened only a hurried reference to his watch would convince him that he had been in the surgery for more than five minutes. He said that he was unaware that he had been given an injection; he had felt no pain and found the experience very soothing.

Future appointments were arranged and on each occasion he readily entered the trance state. Four more anterior teeth were prepared and restored with procelain jacket crowns. The patient showed no appre-
hension and remained completely relaxed throughout each operative procedure.

Although the somnambulistic state was never attained, the medium trance was sufficient to make dentistry agreeable to him. A short time previously, he had been prepared to sacrifice all his teeth rather than submit to operative procedures.

This case illustrates how hypnotised patients are able to give maximum co-operation throughout long dental appointments and exhibit minimal fatigue.

Case History No. 17

Mrs. Li.F., a school teacher aged twenty-five, attended the author's surgery and requested a restorative program be undertaken as soon as practicable. She had just arrived in the district after spending some years teaching at a remote country school, and had been unable to obtain adequate dental care.

Visual and radiographic examination revealed numerous cavities and two teeth so badly decayed that their extraction was necessary. On the second appointment Mrs. F. was given an injection of local anaesthetic solution prior to the removal of one of these teeth and immediately complained she felt sick. She was lowered to the supine position and damp towels were applied to
her face. Shortly afterwards she began to feel better and ten minutes later the tooth was extracted. She left the surgery still not feeling well.

On her next appointment it was decided to restore a deep cavity in an upper cuspid. She was given an injection and again, almost immediately complained that she felt sick. She was allowed to rest in a reclining position for fifteen minutes before the operative dentistry was attempted. She remained unwell throughout the appointment which proved difficult as she was unable to co-operate. Before she was dismissed the author suggested that at her next appointment she could probably be helped with hypnosis. She said she had never heard of hypnosis being used for dental treatment, but was very willing to try it.

When next seen Mrs. F. said that she had been reading hypnotic literature and some of the misconceptions she had previously held had been dispelled. She was eager to be hypnotised and hoped she would prove to be a susceptible subject. After a brief discussion during which several of her queries were answered, hypnotic induction was commenced. She was very responsive and in five minutes had entered a deep trance. Hypnoanalgesia was readily produced and
a large mesial cavity on a lower molar was prepared and restored with silver amalgam. When awakened the patient said she felt relaxed and although she clearly remembered the filling being done, she had felt no pain or inconvenience. Mrs. F. said she would look forward to her next appointment and would like to have all her future dentistry carried out while in the 'trance' state.

A long series of appointments was arranged as a big program of oral rehabilitation was planned. Unfortunately the work was then interrupted for some weeks as the author was absent from the surgery.

When the program was recommenced, the patient announced that she was pregnant and said she was worried that she may not remain well enough to continue her dentistry; she had been very sick during her previous pregnancy. It was agreed that the treatment should proceed and only be postponed if sickness made it absolutely necessary.

The patient quickly entered a deep trance on the command, "Go to sleep!", and two teeth were prepared as bridge abutments. Before being awakened she was given the usual suggestion of well-being and when aroused declared she felt marvellous.
Throughout her pregnancy, Mrs. F. remained perfectly well and was able to continue teaching. She kept every dental appointment and her extensive restorative program was completed. She told her obstetrician of her hypnotic dental appointments and asked if she could have the baby delivered with the aid of hypnosis. He was impressed, but having no hypnotic experience himself, requested that the author continue the hypnotic sessions and transfer the rapport at the time of her confinement.

Mrs. F. taught school until ten days before the baby was due, the entire pregnancy giving her no trouble. When the time came to go to the hospital, she remained calm and her doctor was amazed at her relaxed condition. He gave her a severe examination which usually was painful; she felt no discomfort. He estimated the birth to be still some hours away and left the hospital.

The baby came earlier than expected however and the doctor was unable to get back in time. The birth was uneventful; Mrs. F. required no premedication or anaesthetic.

The author had taken the precaution when transferring the rapport, to suggest that the patient would
quickly enter a trance on the command of her doctor or medical advisors, when the baby was about to be born. Thus, the eventuality of the specialist's absence was covered and suggestions given by other members of the obstetric team were equally effective.

This case history is included as it illustrates how hypnosis initiated for a dental situation is used to advantage in a seemingly-unrelated medical field. There was excellent understanding and co-operation between the patient's dental and medical advisors and rapport was readily transferable.

Case History No. 18

Mr. M. D., aged nineteen years, was referred to the author by a medical colleague resident at Liverpool District Hospital. He had been assaulted by an unknown assailant and had suffered a fractured mandible in the region of the lower right first molar.

Mr. D. was extremely nervous and apprehensive. He exhibited gross swelling around the fracture site and was in intense pain. Adequate clinical examination of the oral cavity was very difficult. The author decided to combine intravenous sedation, hypnosis and local analgesia in the management of the case. The treatment plan was outlined to the patient who readily agreed to
its immediate implementation.

Ten milligrams of diazepam were slowly injected intravenously in four increments of 2.5 milligrams with a time lapse of thirty seconds between each increment. The patient relaxed immediately and was given an inferior dental nerve block injection (2 ml. Lignocaine hydrochloride, noradrenaline .0015%, adrenaline .0005%). Hypnotic induction was then commenced and within five minutes the patient was in a deep hypnotic trance.

The severe mandibular fracture was then reduced and Jelenko splints were used to immobilise the mandible; the patient was able to give full co-operation. Post-hypnotic suggestions of comfort and uneventful healing were given and the trance was terminated.

The reduction of the fracture and the immobilisation of the mandible had taken approximately one hour. The patient said that he had felt no pain and had complete amnesia of the whole operation.

When next seen three days later, the alignment of the bony fragments was good, the swelling had greatly diminished and there had been little post-operative pain. This case has been included as it illustrates the
excellent combination of sedation and hypnosis. Hypnosis to a profound stage was quickly achieved as the sedated patient relaxed rapidly and lost his apprehension. Only a small amount of drug was necessary (10 mgs diazepam), for a patient who weighed twelve stone seven pounds. The amnesia of the operation can be attributed to the combination of hypnosis and the drug. The author feels it important to stress that it was indeed fortunate that the patient was an excellent hypnotic subject.

There is as yet no scientific evidence that drugs of any description will produce the trance state in patients normally refractory to hypnotic induction. Induction is facilitated and hastened in those normally susceptible to hypnosis.
CONCLUSION.

The dental practitioner who wishes to provide a complete service for his patients, should realise that when treating dental and associated oral problems, he is dealing with a highly charged erotogenic zone and an integral part of a total personality. To be technically proficient in every aspect of clinical dentistry without regard to the emotional requirements of patients, reduces the practitioner to the role of a mere technician. If the dentist is to maintain full and equal partnership in the healing team and take his place alongside his other specialised medical colleagues, it becomes essential that he augment his technical expertise with an adequate knowledge of psychology.

Hypnosis can be a valuable asset to the dental practitioner; it can be used to bridge the gap between the dentist's ability to administer his services and the patient's refusal for psychological reasons, to accept them.

Surveys throughout the world have confirmed that fear of pain is the chief reason for postponing necessary dental care. Hypnosis used to alleviate anxiety and as an adjunct to chemoanaesthesia, can make the
dental appointment a period of relaxation, free from psychological trauma. Hypnosis is a complex psychophysiological phenomenon; a limited tool to be cautiously used by those who are well trained; it is not a panacea.

The dentist may use hypnosis safely and effectively provided he has an adequate understanding of the psychodynamics of human behaviour. With added training, he will learn to recognise the various forms of anxiety, frustration, depression and agitation, and have some understanding of the origins and ramifications of these and other psychological phenomena.

It has been the author's experience that nearly all dental patients can be assisted to some extent by positive suggestion and hypnosis. Despite the fact that hypnotherapy has proved to be a safe, efficient and practical technique, its use in all facets of medicine remains clouded by misconceptions. To maintain and increase respect for hypnosis in dentistry, the most important factor is the dental surgeon's scrupulous observance of ethical procedure and the limitation of its use by him to purely dental situations.

The majority of patients can benefit from hypnosis without entering the trance state, for hypnosis begins
when a patient is ready to listen and believe; therefore in its initial stage, it is used unwittingly by every dental surgeon. What is used unknowingly could be of much greater benefit if the dentist had a thorough knowledge and understanding of the principles of suggestion.

The dentist with a positive attitude and confident manner is usually able to help even his most nervous and apprehensive patients to relax and co-operate in the dental chair.

Shaw (1958) said, "While many dentists occasionally apply this positive approach in dealing with their patients, it is essential that every dentist using hypnosis in his practice should learn to make positive statements in giving suggestions. By developing the habit, eventually all conversation will become sufficiently tinged with this positive attitude to make the dentist's whole outlook one of self-assurance. This self-assurance is reflected in one's chair-side manner and leads to greater rapport with the patient."

Hypnotic induction should be carried no further than is necessary to accomplish the main goal, which is good dentistry, not deep hypnosis. It is an adjunct to, not a replacement for, standard dental procedures.
The more familiar the dentist is with the technique and principles underlying the use of hypnosis, the less need there appears to be for formal hypnotic induction.

Certain aspects of hypnosis still remain unknown and controversial, as is true in many other areas of medical science and psychology. Therefore, active participation and high-level research by members of the medical and dental professions are to be encouraged. It is hoped that dental schools will, in the near future, include hypnosis and the necessary psychological training in their curricula. Such tuition would lift the dentist's horizons and elevate dentistry from the mechanistic plateau of the past.

Over one hundred years ago, James Braid, the father of modern hypnotism, wrote that the practitioner who has not studied the laws of mind and body, and how they act and react on each other, is unfit to practice his profession either with credit to himself, or advantage to his patients. Let such an individual duly attend to these studies and the advantages will soon become apparent to both himself and others.

REFERENCE