ANIL AGGRAWAL'S
Internet Journal of Forensic Medicine and Toxicology
The world's first online journal devoted entirely to forensic medicine and toxicology · Published 1 January and 1 July

VOL. 13, NO. 2
Downloaded from www.anilaggrawal.com · ISSN 0972-8074 (Online) · https://www.anilaggrawal.com/ij/vol_013_no_002/others/editorial.html;

Editorial

CITE THIS ARTICLE

Chandra Sekharan, P. Apex Court's Ruling on Brain-Fingerprinting: An Exercise In Masochistic, 'Narcotic' Narcissism (Editorial). *Anil Aggrawal's Internet Journal of Forensic Medicine and Toxicology* [serial on the Internet]. 2012; Vol. 13, No. 2 (July - December 2012): [about 5 p]. Available from: https://www.anilaggrawal.com/ij/vol_013_no_002/others/editorial.html; Published July 1, 2012,

Apex Court's Ruling on Brain-Fingerprinting An Exercise In Masochistic, 'Narcotic' Narcissism

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The Supreme Court's 2010 ruling in Criminal Appeal number 1267 of 2004 – which was actually a compendium of relevant cases heard together – that mildly slammed the triply objectionable ‘so-called techniques' viz. narcoanalysis, brain-mapping and polygraph tests.

At the outset, the step, notwithstanding its silly tepidity – should certainly be welcomed.

But, as the verdict's ramifications can convolute investigators, confuse innocents and accused alike simultaneously, one is forced to sadly hasten and add that the measure is somewhat like crossing 50 percent of a deep chasm.

The fly in the ointment is a rider in the judgement that allows the above ‘examinations' if the accused ‘submit' to them voluntarily.

The main contributor to this section of the ruling is the Government of India's Directorate of Forensic Science attached to the Ministry of Home Affairs (DFS-MHA).

For reasons best known to itself, the DFS-MHA combine sabotaged endeavours of well-meaning, professionally qualified bodies sans any hidden agenda like the Forensic Science Society of India, the Indian Psychiatric Association, the Indian Medical Ethics Group, etc., and worse, stoutly defended the above abominations that have outlived their usefulness a century plus ago, in the highest court of India – the world's largest democracy!

The imbroglio assumes an ironical twist with a cruelty quotient raised to the power of infinity when one takes into account that the hoarse cries of voluntary bodies fighting for the prevalence of the rule of law in every aspect of life – like the media, human rights' organisations, academics and intelligentsia to name just a few – have been, for the time being at least, suddenly, mercilessly silenced.

Prof Dr P Chandra Sekharan is a pioneer of many new forensic techniques. Here he is seen, when he announced his skull suture theory and the technique to identify Skull from its suture pattern at the First Asian Pacific Congress on Legal Medicine and Forensic sciences held at Singapore [Sep 18-22, 1983]



Despite the good intentions of the Supreme Court, corrupt and/or misinformed elements within our national police hierarchy will use the ruse of the above mentioned “allowance of scientific techniques' use in evidence gathering methods” to aid criminally guilty carnivorous cannibal cats' escape by fleecing hard-working honest pigeons called conscientious police officers in nationally important, vital cases involving terrorism, espionage, high-profile multiple rapes/murders and/or heists.

Just as ignorance of law is not an escape valve to plead not-guilty or implore for courts' mercy, multiple wrongs performed to politically correct legal and constitutional consent by person[s] concerned even if the deeds are sanctioned by the top most court of the land cannot even be accorded the honour of being fig leaf clearances/alibis for wrongdoers' escape routes through loopholes inadvertently created by ill-informed jurists.

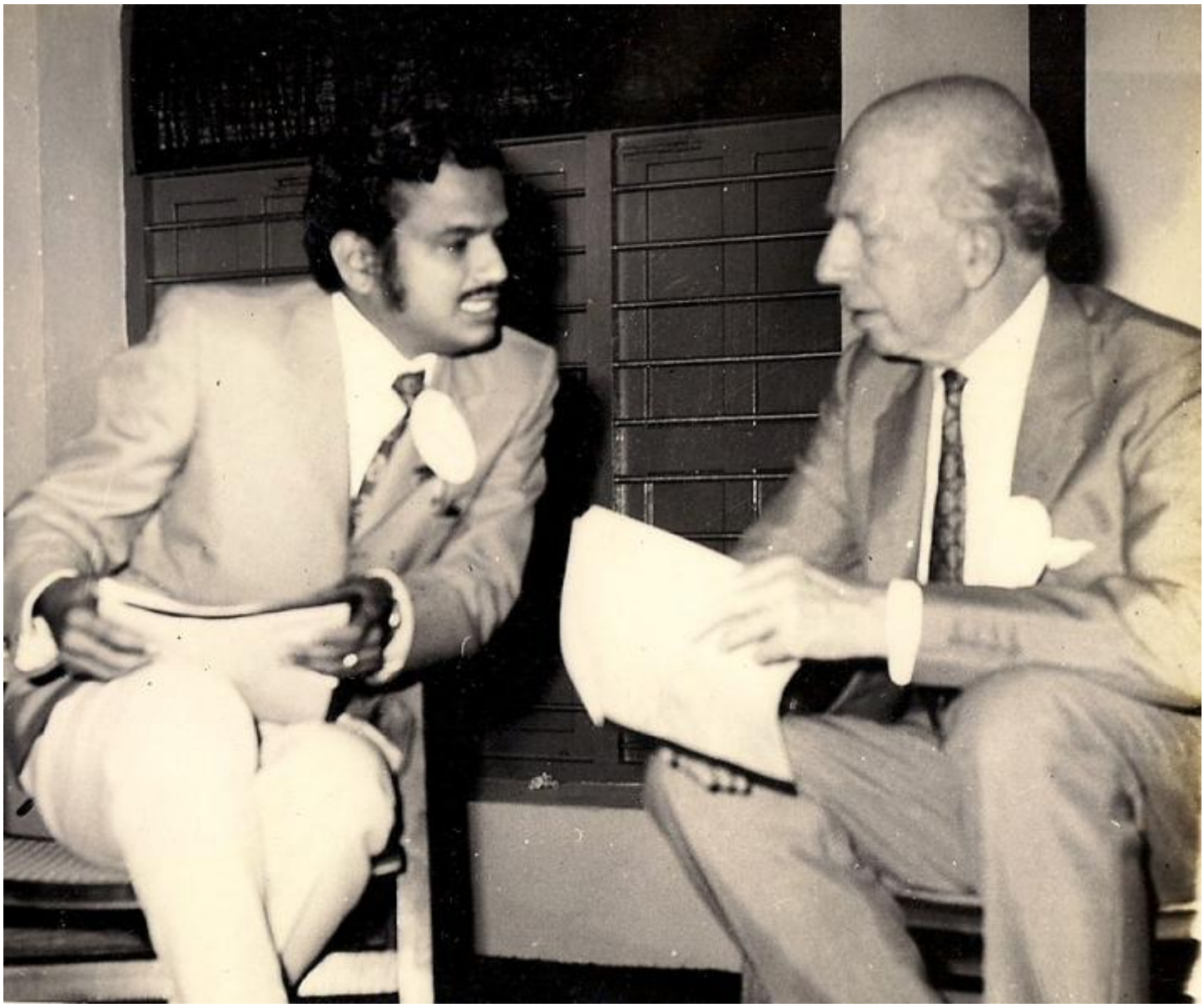
And this is simply because such the above ‘constitutional consent' mentioned manifold in the judgement and its corollary would imply multiple commissions of perjury and/or misleading of courts by the guilty to facilely beat sure raps bound to otherwise end in stiffly sentenced penal servitudes for the notorious criminals convicted for multiple offences including terrorism.

The Supreme Court's 250-page ruling citing several decisions of American, Canadian and British courts has failed to elicit answers to the following vital but basic questions that dovetail the combination of triple sins called narcoanalysis, brain-mapping and polygraph tests:

1. Narco tests were abruptly revived in India during the last decade by untruthful, non-medical lie-detector-technician-psychologists in forensic science laboratories decades after completely jettisoned the world-over as an ineffective invasive medical procedure violating the privacy of individuals. Why?

2. Despite being aware of the global abhorrence against the above triple fraud techniques, why did the Apex Court did not investigate as to whether there are any path-breaking discoveries/ inventions after authoritative research, peer review and authentic publication?

Prof Dr P. Chandra Sekharan quoted as the ‘legendary Forensic Science Expert’ by Mr B Raman, of Cabinet Secretariat, New Delhi and Head of the Counter-Terrorism Division of R&AW conversing with Prof Keith Simpson, the legendary Professor of Forensic Medicine, UK



3. Was there any accurate scientific assessment about the mental conditions of the individuals during the entranced/hypnotic stages after the administrations of the ‘truth-drugs'[Scopolamine to those who remember their WWII movies, but Pentothal Sodium replacing Scopolamine now?]

4. Is there any logical explanation as to why narcoanalysis is offered as a confirmatory test in the ‘three-in-one package' of polygraph-brain-fingerprinting-narcoanalysis tests conducted in that order – by a single psychologist?

5. And how on earth, can narcoanalysis tests, carried out on the same subject five or six times until the desired answer is obtained, be considered as scientific?

After elaborate discussions on ‘narcoanalysis technique' in paragraphs 41 through 66, the court has failed to clearly state that the expert in this branch of ‘science' when in vogue abroad in the distant past were purely medical, clinical psychiatrists and ***not*** the non-medical psychologists strutting about on the Indian medical corridors.

This gaffe has come about because the court swallowed misleading disinformation contained in the Laboratory Procedure Manual titled “Forensic Narco-Analysis” released by the Directorate of

Forensic Science, Ministry of Home Affairs and Government of India combine – hook, line and sinker.

Sadly, the fact that the manual has been challenged as a ‘bogus document' by the Forensic Science Society of India which the MHA has orally expressed willingness to withdraw has not been recorded in the Apex Court's pronouncement despite several mentions during the hearings and deliberations.

The Supreme Court's judgment deals with ‘brain analysis' – that is based on brain fingerprinting and/or mapping techniques in paragraphs 67 through 77.

The method is referred to as ‘Brain Electrical Activation Profile (BEAP) test, something vouchsafed by the ‘Laboratory Procedure Manual (2005) published by the Directorate of Forensic Science, Ministry of Home Affairs since challenged several times by several duty bound responsible citizens with clear, provable scientific knowledge including poor old me – the Founder-President of the Forensic Science Society of India.

Prof Dr P Chandra Sekharan honoured by the President of India with Padma Bhushan during the mille [2000]



The Supreme Court had simply parroted what the MHA laboratory manual said.

The brain fingerprinting technique was actually first developed and patented in 1995 by Lawrence A. Farwell of the U.S.A.

Here are some details:

Brain Fingerprinting is a controversial technique was actually first developed and patented in 1995 by Lawrence A. Farwell of the U.S.A. that works on the basic theory that the brain processes known, relevant information differently from the way it processes unknown or irrelevant information.

*Details of a crime stored in the brain, is revealed by a specific pattern in the **EEG** (electroencephalograph*).

Later Farwell discovered the MERMER ("Memory and Encoding Related Multifaceted Electroencephalographic Response"), which includes the P300 and additional features.

Brain fingerprinting is fundamentally different from the polygraph (lie-detector), which measures emotion-based physiological signals such as heart rate, sweating, and blood pressure.

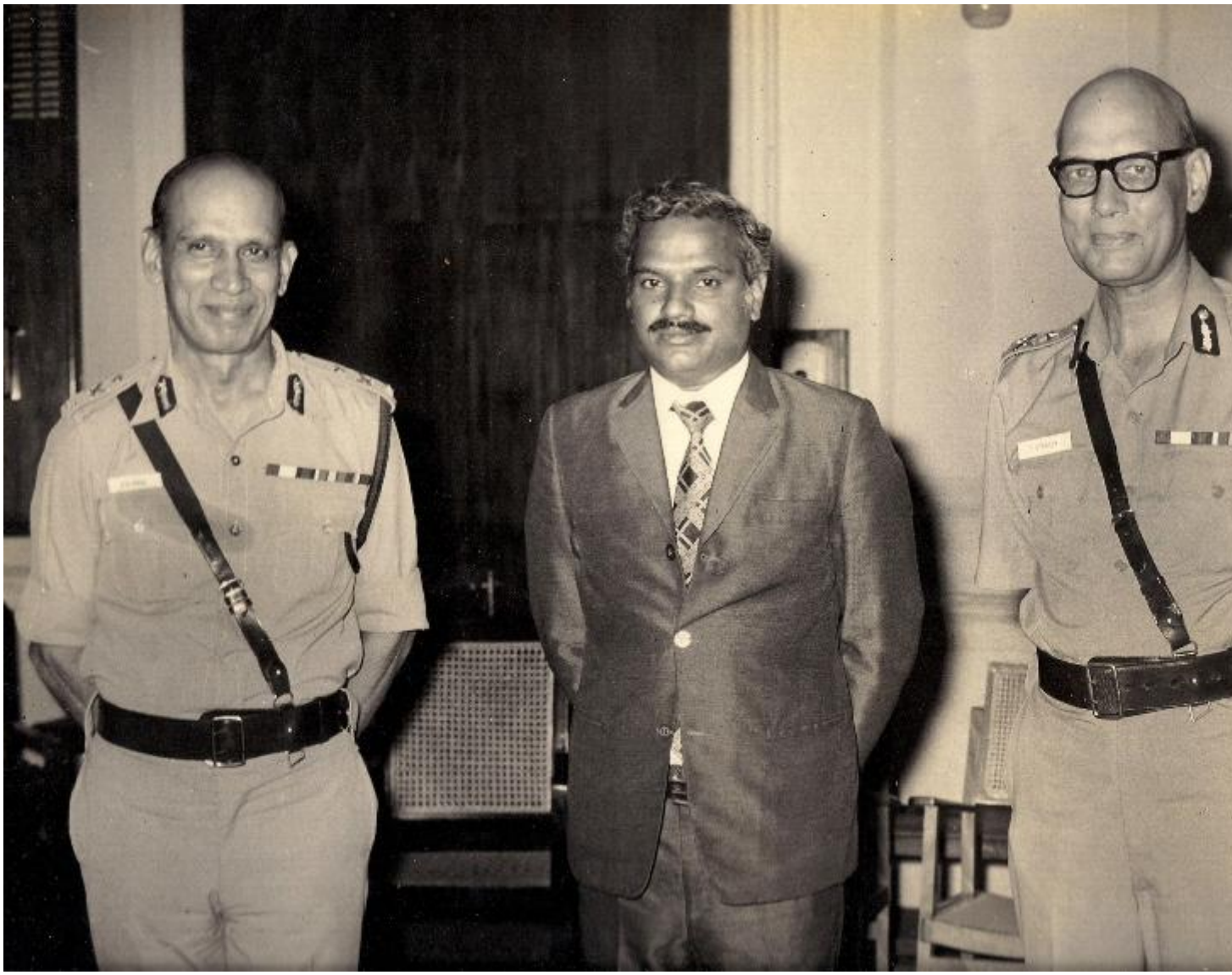
Also, unlike polygraph testing, it does not attempt to determine whether or not the subject is lying or telling the truth.

Rather, it measures the subject's brain response to relevant words, phrases, or pictures to detect whether or not the relevant information is stored in the subject's brain.

http://en.wikipedia.org/wiki/Brain_fingerprinting

Reproduced hereunder is what Farwell himself has been quoted as saying in his various publications and public utterances.

Mr F.V. Arul, IP, Director CBI and Mr. E.L. Stracey, IP, Chief of Tamil Nadu Police, the last two c independent IP regime' felicitating Prof Dr P. Chandra Sekharan. Mr. Arul, after reading Chandra regular contributions in the weekly 'Harrington Post', e-mailed to him saying "Your English is better t an Oxford Don".



Brain fingerprinting does not detect lies.

It simply detects information.

No questions are asked or answered during a brain fingerprinting test.

The subject neither lies nor tells the truth during a brain fingerprinting test, and the outcome of the test is unaffected by whether he has lied or told the truth at any other time.

The outcome of "information present" or "information absent" depends on whether the relevant information is stored in the brain, and not on what the subject says about it.

Brain fingerprinting does not determine what information should be, could be, or would be stored in the subject's brain if the subject were innocent or guilty.

This investigative process, in which the investigator gathers the information to be tested from the crime scene or other sources related to the crime, depends on the skill and judgment of the investigator.

Brain-fingerprinting process is outside this scientific process of investigation.

It precedes the scientific process of brain fingerprinting, and only determines whether the information tested is stored in the brain of the subject or not.

http://en.wikipedia.org/wiki/Brain_fingerprinting

The international criticism against brain fingerprinting is paraphrased hereunder:

According to sworn testimony by Dr. William Iacono, an independent expert unaffiliated with Dr. Farwell who has conducted extensive research in the area, the social policy questions of how and when this [Brain Fingerprinting] science should be applied vary widely. Various other attempts to apply this science in the detection of concealed information have varied in accuracy and efficacy, depending on the scientific procedures used.

Prof Dr P Chandra Sekharan honoured by the President of India with Padma Bhushan during the mille [2000]



It does not provide scientific data on the effectiveness of the investigation that produced the information about the crime that was tested.

If, however, the suspect knows everything that the investigators know about the crime for some legitimate reason, then the test cannot be applied.

If a suspect acknowledges being at the scene of the crime, but claims to be a witness and not a perpetrator, then the fact that he knows details about the crime would not be incriminating.

Another case where brain fingerprinting is not applicable would be one wherein a suspect and an alleged victim – say, of an alleged sexual assault – agree on the details of what was said and done, but disagree on the intent of the parties.

In a case where the suspect knows everything that the investigators know because he has been exposed to all available information in a previous trial, there is no available information with which to construct probe stimuli, so a test cannot be conducted.

http://en.wikipedia.org/wiki/Brain_fingerprinting

Readers are welcome to draw their own conclusions.

In India, the Brain Fingerprinting research, to put it mildly, is a hoax.

Its two main psychologist defenders are from Bangalore and Ahmadabad whose careers bloomed under Dr C.R. Mukundan whose attempts at brain fingerprinting research began in 2001 at the controversial Bangalore FSL using those accused of criminal acts shepherded by the police for ‘voluntary research' with or without the consent of the persons concerned.

In 2003, Dr Mukundan left Bangalore unceremoniously and settled in Ahmadabad.

Both the groups currently credited with national fame or infamy as one's intellect pronounces – merely copied Farwell's technique but gave their ‘findings' different names to circumvent patent rights.

As expected, each group debunked the other's ‘technique'.

The Bangalore FSL group termed its technique as ‘brain-mapping' claiming its details were perfected in 1992 in a Canadian University – i.e. a full three years before Farwell!

The Ahmadabad group credited its technique's invention / development to Dr Mukundan and called it ‘brain electrical oscillation signature profiling' (BEOS).

Dr. Mukundan managed to fabricate BEOS machines and marketed them to unsuspecting buyers – a track record that earned him the post of Advisor, Directorate of Forensic Science, Ministry of Home Affairs [DFSMHA].

Before long the questionable details began stinking to high heaven.

As a result, DFSMHA appointed a committee chaired by the Vice Chancellor Director, NIMHANS to examine the scientific validity of the brain fingerprinting technique practiced by these two groups.

Sure enough, the Committee declared both the techniques as “unscientific” and recommended their “immediate discontinuance”.

For unfathomable reasons, the DFSMHA dissolved the Committee and even tried in vain to prevent its report's reaching the government.

In spite of the fact that NIMHANS was the training ground of the aforesaid questionable groups from Bangalore and Ahmadabad, despite an expert committee based in the same institution adversely commenting upon the ‘techniques', DFSMHA released the manual [that ought to have been banned forthwith] on Brain Electrical Activation Profile terming it an officially recognised document that finally ended up fooling even the Supreme Court!.

Memoranda against these misdeeds submitted to the Home Minister and the Prime Minister by credible, impartial forensic professionals and the media have apparently fallen on deaf ears.

Both the groups make use of the EEG machine to detect the scalp electrical signal outputs.

Here are some details of the EEG with a timeline that stretches backwards – all the way to 1875:

Richard Caton (1842–1926), a physician practicing in Liverpool , presented his findings about electrical phenomena of the exposed cerebral hemispheres of rabbits and monkeys in the British Medical Journal in 1875.

In 1890, Polish physiologist Adolf Beck published an investigation of spontaneous electrical activity of the brain of rabbits and dogs which included rhythmic oscillations altered by light.

In 1912, Russian physiologist, Vladimir Vladimirovich Pravdich-Neminsky published the first EEG and the evoked potential of the mammalian (dog).

In 1914, Napoleon Cybulski and Jelenska-Macieszyna photographed EEG-recordings of experimentally induced seizures.

German physiologist and psychiatrist Hans Berger (1873–1941) began his studies of the human EEG in 1920. He gave the device its name and is sometimes credited with inventing the EEG, though others had performed similar experiments. His work was later expanded by Edgar Douglas Adrian .

In 1934, Fisher and Lowenback first demonstrated epileptiform spikes. In 1935 Gibbs, Davis and Lennox described interictal spike waves and the 3 cycles/s pattern of clinical absence seizures , which began the field of clinical electroencephalography. Subsequently, in 1936 Gibbs and Jasper reported the interictal spike as the focal signature of epilepsy.

The same year, the first EEG laboratory opened at Massachusetts General Hospital.

Franklin Offner (1911–1999), professor of biophysics at Northwestern University developed a prototype of the EEG which incorporated a piezoelectric inkwriter called a Crystograph (the whole device was typically known as the Offner Dynograph).

In 1947, The American EEG Society was founded and the first International EEG congress was held. In 1953 Aserinsky and Kleitman describe REM sleep.

In the 1950s, William Grey Walter developed an adjunct to EEG called EEG topography which allowed for the mapping of electrical activity across the surface of the brain. This enjoyed a brief period of popularity in the 1980s and seemed especially promising for psychiatry. It was never accepted by neurologists and remains primarily a research tool.

The EEG has been used for many purposes besides the conventional uses of clinical diagnosis and conventional cognitive neuroscience. Long-term EEG recordings in epilepsy patients are used for seizure prediction .

Neurofeedback remains an important extension, and in its most advanced form is also attempted as the basis of brain computer interfaces .

The EEG is also used quite extensively in the field of neuromarketing . There are many commercial products substantially based on the EEG.

Honda is attempting to develop a system to move its Asimo robot using EEG, a technology which it eventually hopes to incorporate into its automobiles.

EEGs have been used as evidence in trials in the Indian state of Maharashtra .

http://en.wikipedia.org/wiki/Brain_fingerprinting

The Maharashtra reference above cites two murder cases.

While trawling the net on the first involving two MBA students' cold-bloodedly murdering a classmate, the following details emerged from various relevant clippings.

One of them has an illuminating headline – ***"True Lies"*** .

Excerpts:

The Law Commission of India will soon be submitting its recommendations... asking the government to ban narco analysis, brain finger printing and polygraph (lie detector) tests as it deems them "unreliable" and a "violation of human rights."

"How can these tests be conducted when they find no mention in the Criminal Procedure Code," says Rajesh Mahale, a Supreme Court advocate...

Mahale also points out that since narco analysis involves an invasive procedure in the form of injections, before extracting information from the accused, it amounts to torture, which is against the Indian Evidence Act, 1872.

"It is a case of the police being taken for a ride by the so-called scientists and experts," says S.T. Ramesh, additional director general of Karnataka Police.

In his previous stint as the head of crime and technical services, Ramesh supervised the functions of the forensic labs in the state. "The police are under pressure to solve cases and they think that by resorting to these "scientific tests" they can crack the cases," he says.

According to Ramesh, these tests have "blunted" the skills of investigation officers. Ironically, in the case of narco analysis tests it is the laboratory analysts and not the investigation officers who do the interrogation.

http://www.telegraphindia.com/1090617/jsp/opinion/story_11122239.jsp

EEG

EEG has several limitations. Most important is its poor spatial resolution.

EEG is most sensitive to a particular set of post-synaptic potentials: those which are generated in superficial layers of the cortex, on the crests of gyri directly abutting the skull and radial to the skull.

Dendrites which are deeper in the cortex, inside sulci , in midline or deep structures (such as the cingulate gyrus or hippocampus), or producing currents which are tangential to the skull, have far less contribution to the EEG signal.

The meninges , cerebrospinal fluid and skull "smear" the EEG signal, obscuring its intracranial source.

It is mathematically impossible to reconstruct a unique intracranial current source for a given EEG signal, as some currents produce potentials that cancel each other out.

This is referred to as the inverse problem .

In the common man's language, an EEG test is comparable to the knowledge gleaned by a soccer fan sitting outside a football stadium without seeing any of the activity inside but making reasonable guesses about the course of the game based on hearing the fluctuating roars of the crowd.

The 'vantage point' does not allow the fan to discern or deduce even a minor fraction of the game's finer details or the paths of its progress.

Section 45 of the Indian Evidence Act recognises the opinion of "persons especially skilled" when it comes to "science, or art, or as the case may be to the identity of handwriting or finger impression."

And this forms the basis for conducting 'scientific tests' on criminals.

How can our non-medical psychologists claim to read reactions of the brain with the help of an EEG to pinpoint the guilty and pronounce their findings, after such a 'scientific test' evidently comparable to the football fan above, legally acceptable?

The Supreme Court also discussed the use of polygraph test more elaborately in paragraphs 9 to 40 in some detail.

The world's scientific community knows Polygraphy as a widely rejected pseudoscience .

Here are the reasons:

Polygraphy has little credibility among scientists.

Despite claims of 90-95% validity by polygraph advocates, and 95-100% by businesses providing polygraph services, critics maintain that rather than a "test", the method amounts to an inherently unstandardizable interrogation technique whose accuracy cannot be established.

A 1997 survey of 421 psychologists estimated the test's average accuracy at about 61%, a little better than chance.

Critics also argue that even given high estimates of the polygraph's accuracy a significant number of subjects (e.g. 10% given a 90% accuracy) will appear to be lying, and would unfairly suffer the consequences of "failing" the polygraph. In the 1998 Supreme Court case, United States v. Scheffer , the majority stated that "There is simply no consensus that polygraph evidence is reliable" and "Unlike other expert witnesses who testify about factual matters outside the jurors' knowledge, such as the analysis of fingerprints, ballistics, or DNA found at a crime scene, a polygraph expert can supply the jury only with another opinion..."

Also, in 2005 the 11th Circuit Court of Appeals stated that "polygraphy did not enjoy general acceptance from the scientific community".

Charles Honts , a psychology professor at Boise State University , states that polygraph interrogations give a high rate of false positives on innocent people.

In 2001 William G. Iacono, Distinguished McKnight University Professor of Psychology and Neuroscience and Director, Clinical Science and Psychopathology Research Training Program at the University of Minnesota, published a paper titled "Forensic "Lie Detection": Procedures Without Scientific Basis" in the peer reviewed Journal of Forensic Psychology Practice.

He concluded that:

Although the CQT [Control Question Test] may be useful as an investigative aid and tool to induce confessions, it does not pass muster as a scientifically credible test. CQT theory is based on naive, implausible assumptions indicating (a) that it is biased against innocent individuals and (b) that it can be beaten simply by artificially augmenting responses to control questions. Although it is not possible to adequately assess the error rate of the CQT, both of these conclusions are supported by published research findings in the best social science journals (Honts et al., 1994; Horvath, 1977; Kleinmuntz & Szucko, 1984; Patrick & Iacono, 1991).

Although defense attorneys often attempt to have the results of friendly CQTs admitted as evidence in court, there is no evidence supporting their validity and ample reason to doubt it. Members of scientific organizations who have the requisite background to evaluate the CQT are overwhelmingly sceptical of the claims made by polygraph proponents.

Summarizing the consensus in psychological research, Professor David W. Martin, PhD, from North Carolina State University, states that people have tried to use the polygraph for measuring human emotions, but there is simply no royal road to (measuring) human emotions.

Therefore, since one cannot reliably measure human emotions (especially when one has an interest in hiding his/her emotions), the idea of valid detection of truth or falsehood through measuring respiratory rate, blood volume, pulse rate and galvanic skin response is a mere pretence. Since psychologists cannot ascertain what emotions one has, polygraph professionals are not able to do that either.

Polygraphy has also been faulted for failing to trap known spies such as double-agent Aldrich Ames , who passed two polygraph tests while spying for the Soviet Union.

Other spies who passed the polygraph include Karl Koecher , Ana Belen Montes , and Leandro Aragoncillo .

Polygraph examination and background checks failed to detect Nada Nadim Prouty , who was not a spy but was convicted for improperly obtaining US citizenship and using it to obtain a restricted position at the FBI.

The polygraph also failed to catch Gary Ridgway , the "Green River Killer". Ridgway passed a polygraph in 1984 and confessed almost 20 years later when confronted with DNA evidence.

Conversely, innocent people have been known to fail polygraph tests.

In Wichita, Kansas in 1986, after failing two polygraph tests (one police administered, the other given by an expert that he had hired), Bill Wegerle had to live under a cloud of suspicion of murdering his wife Vicki Wegerle, even though he was neither arrested nor convicted of her death. In March 2004, a letter was sent to The Wichita Eagle reporter Hurst Laviana that contained Vicki's driving license and what first appeared to be crime scene photographs of her body. The photos had actually been taken by her true murderer, BTK , the serial killer that had plagued the people of Wichita since 1974 and had recently resurfaced in February 2004 after an apparent 25 year period of dormancy (he had actually killed three women between 1985 and 1991, including Wegerle).

That effectively cleared Bill Wegerle of the murder of his wife. In 2005 conclusive DNA evidence including DNA retrieved from under the fingernails of Vicki Wegerle, demonstrated that the BTK Killer was Dennis Rader .

Prolonged polygraph examinations are sometimes used as a tool by which confessions are extracted from a defendant, as in the case of Richard Miller , who was persuaded to confess largely by polygraph results combined with appeals from a religious leader.

http://en.wikipedia.org/wiki/Polygraph

And the narcoanalysis and/or brain-mapping and/or polygraph tests are conducted by non-medical personnel in India, whose careers are, to the say the least, highly questionable!

The opening gambit of my submission vide this write-up was that I welcomed a part of the Supreme Court ruling in this matter – that has effectively rendered use of the highly objectionable ‘scientific techniques' described above illegal sans consent by the persons concerned.

So the court's intentions were good.

As the cliché goes, the road to doomsday is paved with good intentions without adequate follow-up and necessary preparations.

Judges are not expected to do their own research as done by the author of this article.

As I do not apprehend any ulterior motive on the part of any judge of the Supreme Court, I am doing the obvious and presuming that the institution swallowed the sugar-coated arguments put forth by costly lawyers for whom – their clients' victory is of paramount importance even if the whole nation is dumped into the dustbin of history – without as much as a cursory check!

I am quoting our erudite Union Law Minister Veerappa Moily in this regard – who said the following in an entirely different context:

“When judges deliver judgments, they should be realistic and go by ground realities instead of merely believing arguments”.

So what is the way out, one might ask.

A simple review by the very same court after going through many more, better researched reports than those cited here when someone seeks a revision of the above judgement and an upturned verdict would do nicely.

Isn't the legal profession built on the basic premise that justice should not only be done but also should seem to be done?

-P Chandra Sekharan



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