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## Sudden religious conversions in temporal lobe epilepsy<sup>☆</sup>

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The 'religiosity' of the epileptic has been recognized since the time of Esquirol [12] and Morel [35]. These, and later French workers (including [34]), have sought to explain the epileptic's religiosity as being the result of his disability, social isolation and his enhanced need for the consolation of religion. A specific conversion experience after a fit was reported by Howden [22]. The patient believed that he was in Heaven. He would appear to have been depersonalized, as it took three days for his body to be reunited with his soul. 'He maintained that God had sent it to him as a means of conversion, that he was now a new man, and had never before known what true peace was . . . He assured me that he was a converted man and that he was convinced he would have no more fits.' Howden also reported on John Engellerecht who, after many years of depression, attempted suicide and appeared to die. After visiting Hell and Heaven, he cast off his depression, and acquired a state of religious ecstasy accompanied by visual and auditory hallucinations. Boven [4] mentions a 14-year-old boy who after a seizure 'saw the good God and the angels, and heard a celestial fanfare of music'. He regards the religiosity of the epileptic character as being due to experiences acquired in the course of an epileptic aura and in the subsequent confusional state. Eventually the patient becomes preoccupied with a cure which he believes depends entirely on God, and this belief is the basis of his euphoria. Boven stresses the intensified piety of the epileptic after a severe seizure.

Mabille [33] discusses religious hallucinations associated with epilepsy, and presents four case histories with hallucinations of a religious nature. Only one of these cases is interesting. After the seizure the patient declared that God had given him a mission to reform the world by law. He also heard the voices of God and the

Virgin Mary who commanded him not to eat until his project was finished.

Conversion experiences of this type are uncommon in recent literature. In their large series, Penfield and Jasper [39] did not report a single case, and the same is true of other surveys in the last decade, including those by Hill, Pond, Mitchell and Falconer [21], Falconer [13], Bartel [2], Chafetz and Schwab [8], Stevens [51], Penfield [38], Ostow [37], Kinnier Wilson [57], Henderson and Batchelor [20], Brain [5], Weil [54], Green and Scheetz [18], Falconer, Serafetinides and Corsellis [14], Preston and Atack [41] and Williams [56].

Two patients with 'a greater awareness' are mentioned by Mullan and Penfield [36] in a study of 214 patients with temporal lobe epilepsy. Karagulla and Robertson [27] discuss four temporal lobe epileptics with visual hallucinations. One of them—a 32-year-old female with a right temporo-occipital focus—had a seizure pattern which included a vision of 'Christ coming down from the sky.' They do not state whether the vision resulted in a religious conversion.

W.R. Gowers [16] did not mention any case of religious conversion, although his series included 15 patients whose auras were like dreams 'which seem to come into the mind'. One patient suddenly felt that he had been morally wrong before losing consciousness. In a phenomenological study of epileptic experiences, Sedman [45] mentions states of ecstasy in which the victim sees the Heaven open, hears God speaking, and feels himself transfigured and even believes that he is God. When reviewing the incidence of psychosis arising from temporal lobe epilepsy, Glaser [15] mentioned the frequent occurrence of religious preoccupations. Several patients, when carrying out a battery of tests, tended to associate themes of religiosity with each problem.

In their study of the schizophrenia-like psychoses of epilepsy, Slater and Beard [49] found that mystical delusional experiences were 'remarkably common'. Patients were convinced of the reality and validity of their

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religious experiences. Beard [3] found that 26 patients out of the 69 showed symptoms of religiosity, associated with such organic traits as egocentricity, unctuous utterances, stubbornness, stickiness, perseverativeness, impaired memory, lack of spontaneity, retardation and vagueness. Only eight patients had religious interests before the onset of their illness. Out of the 26 cases with religiosity 6 had conversion experiences which are now described.

### Case 1 (L.T.C., aged 55. Maudsley Hospital Case No. D345)

*Personal history.* Born in London in 1904, the patient was placed in a foster home at the age of three months. He was never able to trace his family. By his own account, he was a shy and timid child of only average ability. At thirteen he started work as a messenger boy; during the war he was in the R.A.F.; afterwards he became a bus driver and then a bus conductor.

His marriage was happy; he had three sons and had adopted a fourth.

*Personality and religious background.* Quiet and reserved, with few friends; somewhat meticulous in his habits and high in his moral standards; teetotal; attended church and Sunday School regularly up to the age of 18; liable to periods of depression and suspiciousness. In later life he attended church intermittently although his interest in religion never waned. He continued to regard himself as a Christian and insisted on his children attending church and Sunday School.

*History of epilepsy.* Seizures began in 1941, at the age of 37, the first occurring after an injection of T.A.B. prior to service overseas. The *major seizures* were at first nocturnal and occurred on average every third night, usually between 2 and 4 a.m. The frequency gradually declined to one a month. There were no personality or mood changes prior to these fits. An attack was ushered in with a scream and rolling of the eyes; extension and generalized symmetrical myotonic movements followed immediately. During these fits, which usually lasted about two minutes, he became cyanosed and often bit his tongue, but was only occasionally incontinent. Following the first psychiatric episode in 1955 (see below) the patient was free from major attacks for nearly two years. However, he started to get *minor seizures* during this period. In these, his expression became blank and he stared straight ahead, sucking his lips. Sometimes he mumbled incoherently or counted. These seizures usually lasted about three minutes, after which he slept for about ten minutes. On recovery, he felt vague. The frequency of attacks varied from one a week to one a month.

The patient also had periods of *automatism*. At first these were nocturnal; he would get up, go downstairs, and if questioned appear to be confused. He had no

memory of these episodes next morning. In 1952, while driving his bus, he seems to have had an attack of this type. He drove off the main road and round some back streets, eventually regaining his proper route after a period of about twenty minutes. Later he had no recollection of this event, which led to a period of sick leave and his demotion to bus conductor.

*Conversion experience.* The patient's first conversion experience occurred in 1955 at the end of a week in which he had been unusually depressed. In the middle of collecting fares, he was suddenly overcome with a feeling of bliss. He felt he was literally in Heaven. He collected the fares correctly, telling his passengers at the same time how pleased he was to be in Heaven. When he returned home he appeared not to recognize his wife, but she did get from him a somewhat incoherent account of his celestial experience. Later the patient told his G.P. that he felt as if a bomb had burst in his head and that he thought he was paddling in water. On admission to St. Francis Hospital Observation Unit, he was constantly laughing to himself; he said that he had seen God and that his wife and family would soon join him in Heaven; his mood was elated, his thought disjointed and he readily admitted to hearing music and voices: 'I wish they would tell me I could go to earth. Look at you cooped up here. I could give you a game of tennis.' He remained in this state of exaltation, hearing divine and angelic voices, for two days. Afterwards he was able to recall these experiences and he continued to believe in their validity. He was discharged from hospital after ten days.

During the next two years, there was no change in his personality; he did not express any peculiar notions but remained religious. In September 1958, following three seizures on three successive days, he became elated again. He stated that his mind had 'cleared'. (A letter to his wife, in which he attempted to express his religious ideas was, in fact, unintelligible.) During this episode he lost his faith. 'I used to believe in Heaven and Hell, but after this experience I do not believe there is a hereafter.' He also lost his belief in the divinity of Christ—he had been born, had a father and mother, and therefore could not be the son of God. This sudden conversion was marked by an elevation of mood and a general sense of well-being and clarity of mind. He considered that this second episode also had the nature of a revelation.

*Investigations.* Three electroencephalographic studies with sphenoidal leads showed spiked discharges, predominantly on the left but with the occasional discharge on the right. The supposition was that the focus lay in the left temporal lobe, but the skull X-ray showed an elevation of the right petrous bone which was taken to favour a right-sided lesion.

An air encephalogram also favoured a right-sided lesion. However, when sodium amytal was injected into

the left carotid artery the patient became aphasic, and as this was a feature of his minor seizures a left temporal lobectomy was decided on. This was carried out in March 1959.

*Follow-up.* The patient remained fit-free over the next eighteen months, though he had to have a course of E.C.T. for a depressive episode in September 1960. Throughout this period he retained belief in the validity of his second experience and continued in an attitude of agnosticism.

### Case 2 (D.W.H., aged 35. Maudsley Hospital Case No. G0465)

*Personal history.* The patient was born in 1920. He had an uneventful early life, leaving school at 16 to enter the R.A.F. and reaching the rank of sergeant (ground crew) by 1945, when he received a medical discharge because of dyspepsia. The patient married at the age of 28; intermittently he suffered from impotence. (At the age of 20 he had had an operation for an undescended testicle.)

*History of epilepsy.* At the age of 2 the patient had four grand mal seizures without sequelae (he was not febrile at the time). There were no further fits until 1942, when he was 23; he then started to have an occasional minor seizure which took the form of an epigastric flush. A year later he had a major seizure with an aura of derealization, and his minor seizures altered in character. In the new pattern of minor seizures he would stand up clenching his fists and biting his lips. On some occasions he made chewing movements; his eyes were turned down. After the fit he snuffled, and there were some fidgeting automatisms including the picking up of stray articles.

From then on the patient suffered from three types of seizures: *minor seizures* as described; more frequent *minimal seizures* consisting of a momentary interruption in conversation and a wiping of his face with his hand 'as though wiping it away'; and *major seizures*, of which he had only five in the period 1945–1955. The frequency of the minimal seizures could reach six a day, particularly if he was anxious. The aura in the minor and minimal fits continued to be a feeling in the stomach which went to the head 'like a mist'; in them he said he knew what he wanted to say but was unable to speak. The aura in the major fits was always derealization. The only localizing feature of these attacks was that his head turned to the right.

*Conversion experience.* When he was a boy the patient was taken to church by his father, who was very concerned that his son should live a religious life. This was the more so when the father was converted from Methodism to Christian Science. At the age of 9 the boy decided to become a minister, and at that time he used to get up at 6 a.m. to sing hymns. However, his interest

in religion ebbed as the years passed and had become minimal by the time he was 21.

At the age of 23 the patient had his first major seizure. He was then in Iraq with the R.A.F. living a Spartan and isolated life. A fortnight after the seizure, while walking alone, he suddenly felt God's reality and his own insignificance. As a result of this revelation, he recovered his faith and determined to live in a Christian manner. However, this conversion experience gradually lost its impact and he once again ceased concerning himself with religion. Then in 1954 he had two of his rare grand mal attacks in one day. Within twenty-four hours of the second seizure he had another conversion experience as part of a florid religious psychosis that lasted a week. He remembered feeling dizzy for a period following the second seizure, then returning home with a dull headache and going to bed. Several hours later he had a sudden dream-like feeling, saw a flash of light, and exclaimed 'I have seen the light'. He suddenly knew that God was behind the sun and that this knowledge meant power; he could have power from God if he would only ask for it. He had a series of visions in which he felt that his past life was being judged; a book appeared before him, a world atlas with a torn page; a pendulum was swinging and when it stopped the world would end.

Some elements in this experience had a paranoid trend. He knew that his thoughts were being recorded. He saw people looking down at him from Heaven and heard one of them laugh and say 'H ... is going to commit suicide.' Later, in hospital, he heard heavenly voices abusing him, felt rays were being shone on him to punish him (they caused a sensation of burning), and said he had been twisted round until his bones were nearly broken. He made an attempt at suicide by breaking a window and trying to cut his throat.

*Investigations.* Serial electroencephalograms suggested a left anterior temporal lobe focus. A left carotid arteriogram was normal, but the air encephalogram showed some contraction of the anterior horn and body of the left lateral ventricle and some enlargement of the lateral cleft of the left temporal horn. The straight X-ray was also suggestive of a left temporal lesion.

A left temporal lobectomy was performed in January 1955.

*Follow-up.* Five months later, the patient was still so involved in his psychotic experience that he had no interest in other topics. He completely believed in the validity of everything he had seen and heard during the acute phase, and specifically rejected the idea that the experience could have been the product of a disordered mind. He considered that he had received a message from God to mend his ways and help others, and the fact that he had been singled out in this way meant that he was God's chosen instrument.

Twelve months after operation there were no new psychotic experiences to record, but his religious beliefs

remained strong and he was attending church regularly. The patient had since remained fit-free.

**Case 3 (J.P., aged 37. Maudsley Hospital Case No. J2046)**

*Personal history.* The patient was born in 1920 to middle class Jewish parents. The father, a jeweller, died of cancer of the kidney at the age of 45; the mother was alive and in good health at the age of 68. The patient was the fourth child in a family of five. He had an undistinguished school career, then a long series of jobs, in none of which did he give or receive satisfaction. He was an active homosexual between the ages of 15 and 28.

*Personality and religious background.* Shy; quiet; tidy and meticulous; a poor mixer who preferred the company of his own sex. He was brought up strictly in the Jewish orthodox faith and remained devout until the age of 17. Although he afterwards ceased to attend regular worship, he felt guilty about these lapses.

*History of epilepsy.* The patient had seizures with an average frequency of two or three a week from the age of four. The aura consisted of a flutter in his stomach which rose up to his neck; he would then lose consciousness and make stereotyped rhythmical movements, scratching his left leg with his left hand or pulling up his sock. The attacks lasted between 7 and 10 seconds and were followed by drowsiness and headache, but he was able to continue his work almost immediately the attack was over.

*Conversion experience.* The patient's first religious experience occurred in St. Ebba's Hospital during photic stimulation. He had a vision in which he was in the cockpit of an aeroplane flying over a mountainous region of France. The aircraft gained altitude and brought him to a different land, a land of peace. He had no cares and no burdens. He felt that the power of God was upon him and was changing him for the better.

Afterwards 'people seemed changed somehow'. When asked if this was a conversion experience, he said, 'I prefer the words change of heart; I became intensely interested in following the teachings of Jesus Christ'. As soon as he came out of the hospital he went to a Billy Graham meeting where 'he gave his heart to the Lord and his name to the Counsellor'. He became a firm member of the Pentecostal Church.

One night a year later he had a very vivid dream of the Crucifixion. About two months after this he had a day-time visual hallucination in which he saw angels with their harps, praying and worshipping. He was able to continue working in a desultory way throughout this purely visual experience.

During this period the patient had a woman friend who was religious in a more conventional way and did

her best to moderate his ideas. Through her influence he became a Methodist and somewhat less fanatical. He had at one time told her that he was able to pick up other people's thoughts.

*Investigations.* Electroencephalograms showed a persistent spike focus at the right sphenoidal electrode and an air encephalogram demonstrated deformity of the right temporal horn in the supracortical cleft, suggesting the presence of a tumour in the antero-medial part of the temporal lobe.

*Follow-up.* When seen after 2½ years the fits were less frequent and less severe. He would go blank for a few seconds only, and never fell. The frequency was one or two a week.

There was little diminution in his preoccupation with religion. He soon brought any conversation round to a religious topic and frequently said that we must all believe in the Lord Jesus Christ. He had walked in the streets carrying a banner with the legend 'Be prepared to meet thy God', and he showed no ability to modify his conversation according to his company. He continued to believe that a religious meaning underlay ordinary events.

**Case 4 (J.R., aged 33. National Hospital No. 16871)**

*Personal history.* The patient was born in 1921. Delivery was by forceps, and a mild hemiplegia was present in the first few weeks of life. After a satisfactory school career he entered medical school, but left at the time of the First M.B. examination and had a succession of clerical jobs.

*Personality and religious background.* Timid, inclined to worry; irritable at times; never particularly religious in later life, although brought up in a strict Non-conformist family.

*History of epilepsy.* At the age of 18 patient had his first recorded seizure, a nocturnal attack in which he fell out of bed, hit his head and bit his tongue. Shortly after he began to have classical grand mal seizures, with tongue biting and incontinence. The attacks lasted for about two minutes and he would sleep for some hours afterwards.

*Pre-conversion psychiatric history.* The patient suffered his first breakdown at the age of 17. In 1943, aged 22, he suffered a relapse and was an in-patient for five months. There were further relapses in 1949 and 1950. These episodes were schizophreniform; during them he showed no tendency to become preoccupied with religious topics.

*Conversion experience.* In 1954 he stopped taking his anti-convulsants; within six weeks he was having fits every few hours; he had become confused and forgetful. At this point he suddenly realized that he was the Son of God; he possessed special powers of healing and could

abolish cancer from the world; he had visions, and believed that he could understand other people's thoughts.

At a subsequent interview he mentioned a 'holy smell' and gave the following account of his conversion. 'It was a beautiful morning and God was with me and I was thanking God, I was talking to God; I was entering Aldwych, entering the Strand, between Kingsway and the Strand, going down some steps ... I was not thanking God, I was with God. God isn't something hard looking down on us, God is trees and flowers and beauty and love. God was telling me to carry on and help the doctors here, and I was telling Him back, not aloud, I wasn't talking to myself, they would call you crackers if they heard that; God was telling me, at last you have found someone who can help you, and He was talking about you, doctor, He was talking about you ....'

*Investigations.* An air encephalogram showed moderate dilatation of the whole of the left lateral ventricle including both temporal and frontal horns. An electroencephalogram showed that the main focus of abnormal discharge was localized to the temporal lobe, although there were occasional similar discharges from the left side. The patient was not considered suitable for temporal lobectomy.

*Follow-up.* In 1957 the patient appeared very much the same as he had on his discharge from hospital 2½ years previously. His talk was rambling, his thoughts disordered, his manner inconsequential and his mood fatuous and euphoric. He had been admitted to psychiatric hospital for nine months and was still attending as an outpatient. He had held several minor clerical jobs for short periods. He was taking anti-convulsants regularly and was apparently free from fits.

Three months before this follow-up interview, the patient had had a feeling that his dead father was trying to get in touch with him, and also had a marked passivity experience. 'God or a power—electrical power—was making me do things.' At the same time he saw a light going round the room which stopped just over his head. He considered that God had put these ideas into his head in order to convert him to the true way of life.

Five years after he was first seen the patient showed considerable improvement. He had held the same job for a year. He was brighter and quicker in manner. Fits had been rare. However, his sister said that he still sometimes talked about God in an inappropriate way.

### Case 5 (G.P., aged 60. National Hospital)

*Personal history.* Born in 1900, the patient was a daughter of a Notting Hill publican, and the youngest of his nine children. She described her childhood as a happy one, but she was an early and severe nail-biter and left school at 11 because of a 'nervous breakdown'.

This occurred when her brother caught a moth and put it down her dress. As a result of this, she went into hysterics, then had a nightmare in which she saw her brother dressed as a ghost, and finally 'became unconscious for two days'. The doctor advised that 'her brain should be kept calm' and she stayed at home for the next four years.

*History of epilepsy.* The patient began to have petit mal attacks in her teens; the frequency rapidly built up to eight or ten a day. The attacks usually began with smacking of the lips and a repetitive rotation of the forearms. She did not fall, but was usually amnesic afterwards. Sometimes she had a 'frightened feeling in the stomach' before the attack. On rare occasions she had a classical grand mal seizure.

*Conversion experience.* The patient was always religious, but her feelings suddenly intensified in 1957. At that time she was having a lot of trouble with her landlord and her fellow tenants; in despair she buried her head in a towel and pleaded 'I beseech you Lord to come to me. I plead with you God to help me!' Then she said the Lord's Prayer. About three hours later she heard a voice say 'A human life is like a tree or a shrub. It either grows straight up or bends and goes right over. As long as it is upright it has the hand of God'. The voice was soft and tender; it was difficult to decide whether it was the voice of a man or woman. Later the same day she heard a church bell ring in her right ear, and the voice said: 'Thy Father hath made thee whole. Go in peace!'

The only unusual event immediately prior to this experience had been an admission to hospital for an operation to relieve a rectal abscess. She came to believe that the operation was the Almighty's way of removing her petit mal. The frequency of her fits did, in fact, fall from the usual eight to ten down to one a day.

Following her hallucinatory experience the patient was admitted to Shenley Hospital, where she expressed many paranoid ideas about her landlord and about the other tenants. She accused them of breaking up her furniture, exploding her radio and whitewashing all her ornaments. She also said she had trouble with 'bogus policemen and policewomen' who were in league with her persecutors.

She had various new hallucinatory experiences during her seven months at Shenley. She saw an arm with lights coming out of the fingers, eight-sided rockets—'the new weapon', a woman in a black dress and people in her bedroom. She also admitted to hearing the Almighty's voice again on several occasions. She had a mildly grandiose attitude towards her visions and ideas, and was garrulous and cheerful in disposition.

*Investigation.* A 1950 electroencephalogram was reported on as showing idiopathic epilepsy with predominant discharge in the right fronto-temporal area. A repeat, five years later, showed no focal activity and no

features indicative of petit mal. In 1958 there were again 'no definite localizing features in this near normal record', but a few days later another recording was taken which showed a frequently firing sharp spike in the fronto-temporal region and an occasional one on the left side. An air encephalogram suggested a mild degree of cortical atrophy.

Psychological testing showed her I.Q. to be 95, with a performance on the items sensitive to organic deterioration that was about 20 per cent below the accepted level for her age. She also did very badly on tests for retention and learning and failed to do Weigl's sorting test.

#### **Case 6 (W.S.G., aged 50. Maudsley Hospital Case No. K0403)**

*Personal history.* The patient was born in Scotland in 1908. After an uneventful school career he did a course in agriculture, then emigrated to Rhodesia. There he ran a farm, at first with his uncle, and later on his own account. He married a teacher and had three children. The family background was not a religious one, and as an adult he never attended church.

*History of epilepsy.* At the age of 40 he was briefly in hospital for an incident that could have been a fit. For the next eight years he was quite well, then he had an undoubted major seizure in which his wife discovered him 'rigid and foaming at the mouth'. He had bitten his tongue and been incontinent. The only warning he had had was a feeling of tension and 'a dullness in my brain for about twenty-four hours before'. These seizures recurred at yearly intervals thereafter.

*Conversion experience.* After his first certain seizure the patient woke up feeling 'better than ever before. I felt completely relaxed. I felt that I had now found my situation in life and that this had been specially selected by God. I was fanatical, terrified that I would not be able to carry out my belief that the greatest power is the love of God. Somehow I had to find a way to prove it because the Russians had found another. I had to find some way to prove that the Bible was true'.

These ideas persisted after he had been sent back to Scotland and admitted to a psychiatric hospital. However, after a while his mood shifted to depression. He had a great feeling of loneliness and spent the nights moaning and groaning. He also became paranoid, believing that he was being poisoned and refusing to take his tablets.

The patient was advised to stay in the United Kingdom for at least six months; but he returned to Rhodesia, sold his farm and bought a place in the mountains. Most of the following year he spent in a psychiatric hospital. In 1957, he again returned to the United Kingdom.

On admission to the Maudsley in 1958 his speech was slow, ponderous, diffuse and circumstantial. He still retained his religious beliefs. 'We have got to achieve a high standard before God will do anything for us. This needs an open mind and I have got it. Truth comes into my head when the atmosphere is clean'. When asked the reason for his admission to hospital, he replied 'I feel I have been chosen as a suitable person to be tested for this new amount of power'. When asked what sort of power, he replied: 'it's splitting the acorn of true love and watching its behaviour.' The special power within him was to be used to search for the truth about God and also to prevent the Russians from dominating the world. He was trying to get into 'the orbit of the love of God'. This love could deflect rockets and provide a new elemental power.

Six months after his admission he had a succession of fits which changed the nature of his delusions. This time he experienced 'an animal feeling, as though there were dogs and cats about. My salivary glands behaved as though I wanted to dribble. My brain was an open feeling in my mind. I could no longer get hold of the higher truths I used to get hold of'.

*Investigations.* An electroencephalogram showed epileptogenic areas in both temporal lobes (left more than right) and possibly the right frontal area as well. The skull X-ray was normal. An air encephalogram showed some degree of dilatation of the lateral ventricles indicative of cerebral atrophy. The psychological testing suggested that there was an auditory learning deficit.

*Follow-up.* Two years later there had been no fundamental changes in the patient's mental state. He had had a further admission to a psychiatric hospital, and had proved unable to hold down a job when he left.

#### **Conversion of possible epileptic mystics**

The most controversial diagnosis is associated with the sudden conversion of St. Paul. It will be recalled that up to the time of his conversion Paul had a notorious reputation for the thoroughness with which he hunted down and persecuted Christians. His way of life was completely changed by the dramatic incident on the road to Damascus. He fell down and suddenly experienced visual and auditory hallucinations with photism and transient blindness. As a direct result of this experience he was converted to Christianity. Lombroso [32], Krenkel [28] and Bryant [7] believe that his sudden conversion was due to an epileptic seizure rather than a mystical experience, but Seeligmüller [47], Woods [58] and Pirkner [40] reject this view on the ground that Paul did not show any subsequent mental deterioration. Underwood [53] suggests that Paul's hallucinations were probably brought on by the fact that he was a tired traveller who had neglected his siesta during the mid-

day heat; he goes on to state that Paul's experiences were 'indisputable evidence of the presence and works of divine power'. Lennox [29] regards Paul's experiences as being the emotional reaction to 'the voice of conscience possibly complicated by a migraine-like syndrome'. Finally, William James [26] believed that Paul's conversion might be regarded as either a 'physiological nerve storm or discharging lesion like that of epilepsy', or alternatively, a 'mystical or theological hypothesis' may be offered.

The visions, chronic headaches and transient loss of consciousness of St. Teresa of Avila (1515–1582) were probably due to temporal lobe epilepsy, although details of her illness are too fragmentary to allow a firm diagnosis. As a young girl she experienced a series of diabolical apparitions. When 24 years old she was given up for dead; she was comatose for four days. On recovery it was found that she had bitten her tongue; her bones seemed to be out of joint, and she was badly bruised. Later she suffered intense headaches and experienced chronic noises in the head like 'a number of rushing waterfalls within my brain; while in other parts, drowned by the noise of the waters, are the voices of birds singing and whistling'. She was able to drive away the diabolical voices by the application of holy water. Her biographer, V. Sackville-West [42] agrees that many of these experiences may well have been the result of epilepsy. However, Hahn [19], a Jesuit priest who studied under Charcot, regarded her illness as hysteria. 'We are in the presence of an instance of organic hysteria as characteristic as possible, the disease reaches in truth its highest limit . . . . It is the *grande hystérie*, with its prodromata, its contractures and its attacks which recall closely the frightful fits of epilepsy'. At that time hysteria was one of the more favoured diagnoses, whereas the protean symptomatology of temporal lobe epilepsy was not fully understood. Furthermore, Hahn would, in all probability, be reluctant to diagnose epilepsy, which at that time carried a suggestion of degeneracy.

Another curious story, strongly suggestive of epilepsy, concerns the sudden conversion of Joseph Smith [11]. In the spring of 1820 Smith was seized with some strange power which rendered him speechless. Darkness gathered round him, and he was greatly afraid. 'Just at this moment of great alarm,' he writes, 'I saw a pillar of light exactly over my head, above the brightness of the sun, which descended gradually until it fell upon me. It no sooner appeared than I found myself delivered . . . . When the light rested upon me, I saw two personages, whose brightness and glory defy all description, standing above me in the air. One of them spake unto me . . . . When I came to myself again, I found myself lying on my back looking up at heaven.'

Epilepsy brought about the conversion of Francis Libermann (1802–1852). A Jew, he first began to study for a rabbi. In 1823 he developed severe headaches, and

shortly afterwards he lost his Jewish faith. Libermann was baptized a Christian in 1826. While the holy water was actually running over his forehead, he saw an immense ball of fire and felt that he had transcended ordinary experience. Soon after his sudden conversion, Libermann began to study for the priesthood. An argument with another student brought on severe headaches and temporary loss of consciousness. In 1827 he received a dramatic letter from his father urging him to return to the Jewish faith or reap his everlasting curses. He again had violent headaches and dizzy spells. A year later, Libermann's brother accused him of causing his father's death by deserting his original religion; he became greatly distressed, and fell into a major fit described as follows: 'Suddenly he fell to the ground, his face distorted foaming at the mouth, his hands horribly convulsed. When his violent movements finally stopped his fellow-seminarians carried him to the infirmary. At last his nervous disease had declared itself: he was an epileptic, and epilepsy is a canonical obstacle to ordination.' Libermann was then 27 years old, and during the next few years his seizures caused him to become so depressed as to contemplate suicide. Thereafter, the pattern of fits varied. In 1835 he had only mild seizures with no loss of consciousness, but three years later, a major fit rendered him unconscious for three-quarters of an hour, and affected his speech. Gradually the fits diminished, and in 1841, at the age of 39, Libermann was finally ordained.

A German mystic, Hieronymus Jaegen (1841–1919) may well have been a victim of temporal lobe epilepsy. In 1867 he experienced mystical graces and visual hallucinations. His health deteriorated, and according to Graef [17] he suffered from 'headaches and migraine.' In 1900 he went through a 'mystical marriage', and eight years later his headaches intensified in severity and frequency.

St. Thérèse of Lisieux (1873–1897) experienced a series of mystical states which were probably due to temporal lobe epilepsy. These curious experiences began when she was about 9 years old. She was seized with 'strange and violent tremblings all over her body', of such intensity that she thought she was about to die. Later, she was assailed by terrifying visual hallucinations which gradually changed to celestial visions. When Thérèse was 14 years old she had a mystical experience which brought about a 'complete conversion'. On a later occasion she felt herself suddenly wounded with a 'shaft of fire'.

The Florentine saint, St. Catherine dei Ricci (1522–1590), had strange experiences which were suspiciously like some form of epilepsy. She had a series of visual hallucinations and developed stigmata. Regularly she lost consciousness at noon on Thursday, and recovered at 4 p.m. the next day. According to Leuba [31] three other Christian mystics also suffered from abnormal

mental states which he tentatively diagnosed as hysteria, although their symptoms equally well suggest temporal lobe epilepsy. They were St. Catherine of Genoa (1447–1510), Mme. Guyon (1648–1717) and St. Marguerite Marie (1647–1690). These mystics had periodic attacks which included the following symptoms: sensations of extremes of heat and cold, trembling of the whole body, transient aphasia, automatisms, passivity feelings, hyperaesthesiae, childish regression, dissociation, somnambulism, transient paresis, increased suggestibility and an inability to open the eyes.

Leuba [31] also mentions a priest whose epileptic attacks were preceded by a rapturous aura. When walking along he would suddenly feel ‘transported to Heaven’, but this ecstatic state would soon pass, and he would find himself seated on the kerb aware that he had suffered an epileptic attack.

Unfortunately, the biographical details of several of these saints and mystics are too meagre to allow an accurate assessment of their experiences. There is, however, little doubt that some suffered from temporal lobe epilepsy causing states of altered awareness which brought about their sudden conversion.

### Psychological and theological aspects of conversion

In his discussion of the physiological mechanisms underlying religious conversion, Sargant [43] maintains that emotional stress and increased suggestibility cause disruption of existing patterns of thought and behaviour allowing new and suppressed patterns to reassert themselves. He believes that such a religious conversion is often preceded by various forms of stress causing brain inhibition. And in a later paper, Sargant [44] mentions such stresses as bereavement, the emotionalism of Jehovah’s Witnesses, and a modified leucotomy operation, all of which have preceded sudden religious conversions.

Brandon [6] believes that the three fundamental factors in any conversion are the conditioning process, the personal response and the process of integration. In a survey of 700 conversions he found that 36 per cent were younger than 15 years, 48 percent were between 15 and 21, and 16 per cent were converted after the age of 21. Earlier, Daniels [10] had studied a total of 1,000 conversions to Christianity; of these 548 occurred in persons under the age of 20. In his analysis of the predisposing factors to sudden conversion, Underwood [53] unwittingly illustrates the wide gulf which separates theologians and psychiatrists. After mentioning such predisposing factors as grief, and ‘old-fashioned hell-fire Christianity’ he states that glossolalia is ‘considerable proof of true conversion and of possession of the Holy Spirit’. He does, however, concede that automatisms are not necessarily divine phenomena, but may result from the ‘physical and mental condition’ of the subject. Leu-

ba’s [30] so-called psychological analysis of the mental state immediately preceding conversion includes such theological categories as ‘a sense of sin and self-surrender’; there is no mention of temporal lobe epilepsy.

Similar theological predisposing factors are reiterated by Selbie [48], who concedes that conversions are not confined to those solely prepared for this divine grace by Christian teaching. ‘Crying, screaming, speaking with tongues, dancing, epileptic movements and cataleptic states were’, he states, ‘all common in the revivals under Jonathan Edwards in America, under John Wesley in England and under Evan Roberts in Wales’. Thouless [52] mentions that a mood of exaltation may stimulate the expression of religious sentiments immediately before an attack of epilepsy, and quotes Dostoevski’s Prince Mishkin in *The Idiot* as an example. Starbuck [50], whose pioneer study of conversion is often quoted by theologians, gives a list of various psychological symptoms immediately preceding the event, including such vague terms as ‘a sense of estrangement from God’ together with more conventional states such as ‘loss of sleep’, ‘loss of appetite’, ‘nervousness’ and ‘weeping’. Furthermore, such ambiguous predisposing factors as ‘affection of hearing’ and ‘affection of touch’ may refer to auditory and tactile hallucinations or to mild sensory aberrations.

### Psycho-dynamic and other psychiatric aspects of conversion

Christensen [9] reported on the religious conversions of 22 men professionally engaged in the field of religion, who had all been treated psycho-analytically for some form of mental disorder. Two were diagnosed as paranoid schizophrenia, 3 were suffering from psycho-neurotic depression, 7 were obsessive-compulsive reactions, and the remaining 10 had personality disorders. Christensen defines conversion as ‘an acute hallucinatory experience occurring within the framework of religious belief and characterized by its subjective intensity, apparent suddenness of onset, brief duration and observable changes in the subsequent behaviour of the convert’. He regards the conversion experience as an interaction of unconscious conflicts in an adolescent, superimposed on a background of fundamental religious beliefs acquired in the early environment. Other predisposing factors include: (1) conscious conflicts related to unconscious conflicts producing anxiety and depression; (2) an acute reaction to participating in religious meetings such as retreats; (3) withdrawal from others; (4) a feeling of submission; (5) sudden understanding and a sense of elation with auditory and visual hallucinations; (6) a feeling of change within the self which modifies subsequent behaviour. Christensen considers that the psychodynamics of religious conversion are due

to additional psychic stress which overwhelms an ego already weak or vulnerable as it passes through the transitional stage of adolescence. 'The religious conversion experience is an egophenomenon' he concludes, 'functioning to reintegrate the ego as an hypothesis advanced to explain the event.' These psychoanalytical opinions were reiterated by Allison [1], who described three cases of religious conversion and interpreted them in classical Freudian terms. 'The central feature of the psychodynamics in these cases' she writes, 'is the resolution of an Oedipal conflict through delayed identification with the parent of the opposite sex.'

A more empirical approach to religious conversion has been made by Sedman and Hopkinson [46] in their study of 12 cases occurring in 7 schizophrenics, 3 manic-depressives and 2 patients with personality disorders. They believe that conversion appears 'to be a non-specific phenomenon occurring in both psychotic illnesses, neurotic developments and emotional reactions'. They reported 'counter-conversion' in a schizophrenic whose experience turned him away from religion. Aspects of mood and religious conversion were also discussed, and in general they found that religious preoccupations were less marked during a depressed phase. One patient, converted during an ecstatic phase of his illness, came to doubt his experience when his mental state returned to normal. Another was converted to Roman Catholicism on three separate occasions during phases of exaltation: when his mood returned to normal he reverted to his original faith. In schizophrenic patients they found that religious conversion experiences tended to occur most frequently at the beginning of the upward swing from depression to exaltation.

In order to explain the occurrence of conversion experiences in patients with temporal lobe epilepsy, the nature of the epileptic discharge must be considered. Hughlings Jackson [23] explained the effects of an epileptic discharge in terms of the evolution of the nervous centres. The 'duplex' nature of the discharge causes loss of function of the highest centres with a superimposed increased function of the lower centres. The resulting alteration in the level of consciousness provides a suitable psychological *milieu* for a conversion experience to take place. However, an elaborate mental state, such as a religious conversion experience, does not occur as a *direct* result of the epileptic discharge; it is facilitated by an alteration in the level of consciousness, increased excitability of the lower nervous arrangements and aspects of the patient's own religious background. Although Jackson did not actually report any cases of religious conversion, two of his patients did experience various borderline sensations with some relevance to our series. One man [24] believed that he had 'double consciousness', and felt that 'the past as if present—a blending of past ideas with present'. Another patient had a series of 'curious sensations—a sort of transplan-

tation to another world' [25]. They both had what Jackson calls 'reminiscence' experiences. Religion was important in the lives of the first five patients in our series, and several conversions (including one counter-conversion) took place in states of ecstasy. We have only meagre information about the early background of the sixth patient, whose conversion occurred in the setting of a florid psychosis with politico-religious overtones and was subsequently obliterated by another series of fits. It is possible that in some cases stress may have precipitated the chain of events. For example, the second patient was socially isolated in a strange land at the time of his conversion; and Case 5 was under the stress of a recent operation together with an anxiety state due to the deterioration in his relation with others.

## Summary

Six cases of religious conversion experiences occurring in patients with temporal lobe epilepsy are described. The conversion experiences of various mystics and saints, who were probably epileptic, are reviewed. Some theological and psychiatric aspects of religion are discussed.

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