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Electroshock: Death, Brain Damage, Memory Loss, and Brainwashing

Leonard Roy Frank

San Francisco, California

Since its introduction in 1938, electroshock, or electroconvulsive therapy (ECT), has been one of psychiatry's most controversial procedures. Approximately 100,000 people in the United States undergo ECT yearly, and recent media reports indicate a resurgence of its use. Proponents claim that changes in the technology of ECT administration have greatly reduced the fears and risks formerly associated with the procedure. I charge, however, that ECT as routinely used today is at least as harmful overall as it was before these changes were instituted. I recount my own experience with combined insulin coma-electroshock during the early 1960s and the story of the first electroshock "treatment." I report on who is now being electroshocked, at what cost, where, and for what reasons. I discuss ECT technique modifications and describe how ECT is currently administered. I examine assertions and evidence concerning ECT's effectiveness and ECT-related deaths, brain damage, and memory loss. Finally, I describe "depatterning treatment," a brainwashing technique developed in Canada during the 1950s, drawing a parallel between electroshock and brainwashing.

In October 1962, at the age of 30, I had a run-in with psychiatry and got the worst of it. According to my hospital records (Frank, 1976), the "medical examiners," in recommending that I be committed, wrote the following: "Reportedly has been showing progressive personality changes over past 2 or so years. Grew withdrawn and asocial, couldn't or wouldn't work, & spent most of his time reading or doing nothing. Grew a beard, ate only vegetarian food and lived life of a beatnik - to a certain extent" (p. 63). I was labeled "paranoid schizophrenic, severe and chronic," denied my freedom for nine months and assaulted with a variety of drugs and 50 insulin-coma and 35 electroshock "treatments."

Each shock treatment was for me a Hiroshima. The shocking destroyed large parts of my memory, including the two-year period preceding the last

Requests for reprints should be sent to Leonard Roy Frank, 2300 Webster Street, San Francisco, California 94115.

shock. Not a day passes that images from that period of confinement do not float into consciousness. Nor does the night provide escape, for my dreams bear them as well. I am back there again in the "treatment room"; coming out of that last insulin coma (the only one I remember); strapped down, a tube in my nose, a hypodermic needle in my arm; sweating, starving, suffocating, struggling to move; a group of strangers around the bed grabbing at me; thinking — where am I, what the hell is happening to me?

Well into the shock series, which took place at Twin Pines Hospital in Belmont, California, a few miles south of San Francisco, the treating psychiatrist wrote to my father:

In evaluating Leonard's progress to date, I think it is important to point out there is some slight improvement but he still has all his delusional beliefs regarding his beard, dietary regime and religious observances that he had prior to treatment. We hope that in continuing the treatments we will be able to modify some of these beliefs so that he can make a reasonable adjustment to life. (p. 77)

During the comatose phase of one of my treatments, my beard was removed — as "a therapeutic device to provoke anxiety and make some change in his body image," the consulting psychiatrist had written in his report recommending this procedure. He continued, "Consultation should be obtained from the TP attorney as to the civil rights issue — but I doubt that these are crucial. The therapeutic effort is worth it — inasmuch that he can always grow another" (p. 76). Earlier, several psychiatrists had tried unsuccessfully to persuade me to shave off my beard. "Leonard seems to attach a great deal of religious significance to the beard," the treating psychiatrist had noted at the time. He had even brought in a local rabbi to change my thinking (p. 75), but to no avail. I have no recollection of any of this: it is all from my medical records.

Genuine religious conversions are also seen after the new modified lobotomy operations. For the mind is freed from its old strait-jacket and new religious beliefs and attitudes can now more easily take the place of the old. (Sargent, 1957, p. 71)

At the "Mental Health Center" [in Albuquerque] where I work, there is a sign on the wall near the inpatient wards that reads: "PATIENTS' RIGHTS: Patients have the right to religious freedom unless clinically contraindicated." (Jones, 1988, p. 2).

One day, about a week after my last treatment, I was sitting in the "day room," which was adjacent to the shock-treatment wing of the hospital building. It was just before lunch and near the end of the treatment session (which lasts about five hours) for those being insulin-shocked. The thick metal door separating the two areas had been left slightly ajar. Suddenly, from behind the door, I heard the scream of a young man whom I had recently come

to know and who was then starting an insulin course. It was a scream like nothing I had ever heard before, an all-out scream. Hurriedly, one of the nurses closed the door. The screams, now less audible, continued a while longer. I do not remember my own screams; his, I remember.

[The insulin-coma patient] is prevented from seeing all at once the actions and treatment of those patients further along in their therapy. . . . As much as possible, he is saved the trauma of sudden introduction to the sight of patients in different stages of coma – a sight which is not very pleasant to an unaccustomed eye. (Gralnick, 1944, p. 184)

During the years since my institutionalization, I have often asked myself how psychiatrists, or anyone else for that matter, could justify shocking a human being. Soon after I began researching my book *The History of Shock Treatment* (1978) I discovered Gordon's (1948) review of the literature in which he compiled 50 theories purporting to explain the "healing" mechanism of the various forms of shock therapy then in use, including insulin, Metrazol, and electroshock. Here are some excerpts:

Because prefrontal lobotomy improves the mentally ill by destruction, the improvement obtained by all the shock therapies must also involve some destructive processes. . . . They help by way of a circulatory shake up. . . . It decreases cerebral function. . . . The treatments bring the patient and physician in closer contact. . . . Helpless and dependent, the patient sees in the physician a mother. . . . Threat of death mobilizes all the vital instincts and forces a reestablishment of contacts with reality. . . . The treatment is considered by patients as punishment for sins and gives feelings of relief. . . . Victory over death and joy of rebirth produce the results. . . . The resulting amnesia is healing. . . . Erotization is the therapeutic factor. . . . The personality is brought down to a lower level and adjustment is obtained more easily in a primitive vegetative existence than in a highly developed personality. Imbecility replaces insanity. (pp. 399-401)

One of the more interesting explanations I found was proposed by Manfred Sakel, the Austrian psychiatrist who in 1933 introduced insulin coma as a treatment for schizophrenia. According to Sakel (cited in Ray, 1942, p. 250),

with chronic schizophrenics, as with confirmed criminals, we can't hope for reform. Here the faulty pattern of functioning is irrevocably entrenched. Hence we must use more drastic measures to silence the dysfunctioning cells and so liberate the activity of the normal cells. This time we must *kill* the too vocal dysfunctioning cells. But can we do this without killing normal cells also? Can we *select* the cells we wish to destroy? I think we can. (*italics in original*)

Electroshock may be considered one of the most controversial treatments in psychiatry. As I document below, the last decade has witnessed a resurgence

of ECT's popularity, accompanied by assertions from proponents concerning its effectiveness and safety — assertions which deny or obscure basic facts about the historical origins of ECT, the economic reasons behind its current popularity, as well as its potential for destroying the memories and lives of those subjected to it.

The First Electroshock

Electroshock was introduced in Rome in 1938. Psychiatrist Ugo Cerletti (1956) administered the first electroshock to an Italian man identified as S.E., a 39-year-old engineer sent to him for observation by the Police Commissioner of Rome. An accompanying note stated that S.E. had been arrested at the railroad station “while wandering about without a ticket on trains ready for departure” and did not appear “to be in full possession of his mental faculties” (p. 93). S.E. was diagnosed as “schizophrenic” based on “his passive behavior, incoherence, low affective reserves, hallucinations, deliriant ideas of being influenced, neologisms” (p. 93). Having found a suitable subject, Cerletti readied the experiment. Surrounded by several colleagues, he applied the first shock which — because the voltage had been set too low — failed to induce a convulsion. As the doctors discussed what to do next, S.E., “who evidently had been following the conversation, said clearly and solemnly, without his usual gibberish: ‘Not another one! It’s deadly!’ ” (p. 93). In spite of this plea, Cerletti ordered a second and larger jolt, which caused S.E. to have a seizure.

This example of psychiatric experimentation had a theatrical quality to it which Cerletti excluded from his account. For this, one has to turn to Lothar B. Kalinowsky, the dean of American electroshock. Born in 1899, Kalinowsky left Germany in 1933 for Italy, where he eventually became associated with Cerletti, who, according to another electroshock colleague (Accornero, 1988, p. 42), was then referred to as “Maestro.” Kalinowsky missed the first electroshock experiment but was present for the second. In a recent interview (Abrams, 1988b), Kalinowsky commented on these early events in the history of electroshock:

Cerletti had been worried that something might go wrong with the first treatment, and it was given in secret. . . . When the first treatment went well, we were allowed to attend the second treatment. We were called together for the treatment with a trumpet! (p. 30)

Asked for his impression of ECT on seeing it for the first time, Kalinowsky replied,

According to my wife — because I don’t remember it exactly — she claims that when I came home I was very pale and said “I saw something terrible today — I never want to see that again!” (p. 30)

Kalinowsky, however, overcame his initial distaste for electroshock and during 1939-1940 went on to help introduce the procedure in France, England, the Netherlands, and the United States. Cerletti's first impression of electroshock was similar to Kalinowsky's:

When I saw the patient's reaction, I thought to myself: This ought to be abolished! Ever since I have looked forward to the time when another treatment would replace electroshock. (cited in Ayd, 1963, p. A7)

Electroshock Facts and Figures

Since 1938 between 10 and 15 million people worldwide have undergone electroshock. While no precise figure is available, it is estimated that about 100,000 people in the United States are electroshocked annually (Fink, cited in Rymer, 1989, p. 68). Moreover, the numbers appear to be increasing. Recent media accounts report a resurgence of ECT interest and use. One reason for this is the well-publicized enthusiasm of such proponents as Max Fink, editor-in-chief of *Convulsive Therapy*, the leading journal in the field. Fink was recently cited as saying that "[ECT should be given to] all patients whose condition is severe enough to require hospitalization" (Edelson, 1988, p. 3).

A survey of the American Psychiatric Association (APA) membership focusing on ECT (APA, 1978) showed that 22% fell into the "User" category. Users were defined as psychiatrists who had "personally treated patients with ECT," or "recommended to residents under their supervision that ECT be used on patients," during the last six months (p. 5). If valid today, this figure indicates that approximately 7,700 APA members are electroshock Users.

A survey of all 184 member hospitals of the National Association of Private Psychiatric Hospitals (Levy and Albrecht, 1985) elicited the following information on electroshock practices from the 153 respondents (83%) who answered a 19-item questionnaire sent to them in 1982. Fifty-eight percent of the respondents used electroshock (3% did not use electroshock because they considered it to be "inappropriate treatment for any illness"). The hospitals using ECT found it appropriate for a variety of diagnoses: 100% for "major depressive disorder," 58% for "schizophrenia," and 13% for "obsessive-compulsive disorder." Twenty-six percent of the ECT-using hospitals reported no contraindications in the use of the procedure. Darnton (1989) reported that the number of private free-standing psychiatric hospitals grew from 184 in 1980 to 450 in 1988. In addition, nearly 2,000 general hospitals offer inpatient psychiatric services (p. 67). While the use of ECT in state hospitals has fallen off sharply over the last 20 years, the psychiatric wards of general hospitals have increased their reliance on ECT in the treatment of their adult inpatients (Thompson, 1986).

In cases of depression, an ECT series ranges from six to 12 seizures – in

those of schizophrenia, from 15 to 35 seizures – given three times a week, and usually entails four weeks of hospitalization. In 72% of the cases, according to the APA (1978, p. 8) survey cited above, electroshock costs are paid for by insurance companies. This fact led one psychiatrist to comment, “Finding that the patient has insurance seemed like the most common indication for giving electroshock” (Viscott, 1972, p. 356). The overall cost for a series of electroshock in a private hospital ranges from \$10,000 to \$25,000. With room rates averaging \$500 to \$600 a day, and bed occupancy generally falling, some hospitals have obtained considerable financial advantage from their use of ECT. A regular ECT User can expect yearly earnings of at least \$200,000, about twice the median income of other psychiatrists. *Electroshock is a \$2–3 billion-a-year industry.*

More than two-thirds of electroshock subjects are women, and a growing number are elderly. In California, one of the states that requires Users to report quarterly the number and age categories of electroshock subjects, “the percentage 65 and over” being electroshocked increased gradually from 29% to 43% between 1977 and 1983 (Warren, 1986, p. 51). More recently, Drop and Welch (1989) reported that 60% of the ECT subjects in a recent two-year period at the Massachusetts General Hospital in Boston were over 60 years and 10% were in their eighties (p. 88). There are published reports of persons over 100 years old (Alexopoulos, Young, and Abrams, 1989) and as young as 34½ months (Bender, 1955) who have been electroshocked. In the latter case, the child had been referred in 1947 to the children’s ward of New York’s Bellevue Hospital “because of distressing anxiety that frequently reached a state of panic The child was mute and autistic.” The morning after admission he received the first of a series of 20 electroshocks and was discharged one month later. “The discharge note indicated a ‘moderate improvement,’ since he was eating and sleeping better, was more freindly with the other children, and he was toilet trained” (pp. 418–419).

Children continue to be electroshocked. Black, Wilcox, and Stewart (1985) reported on “the successful use of ECT in a prepubertal boy with severe depression.” Sandy, 11 years old, received 12 unilateral ECTs at the University of Iowa Hospitals and Clinics in Iowa City. He “improved remarkably” and “was discharged in good condition. Follow-up over the next 8 years revealed five more hospitalizations for depression” (p. 98).

Some of the better known people who have undergone shock treatment include: Antonin Artaud, Thomas Eagleton, Claude Eatherly, Frances Farmer, Zelda Fitzgerald, James Forrestal, Janet Frame, Ernest Hemingway, Vladimir Horowitz, Bob Kaufman, Seymour Krim, Vivien Leigh, Oscar Levant, Robert Lowell, Vaslav Nijinsky, Jimmy Pearsall, Robert Pirsig, Sylvia Plath, David Reville, Paul Robeson, Gene Tierney, and Frank Wisner.

In the early 1970s electroshock survivors – together with other former

psychiatric inmates/"patients" – began forming organizations aimed at regulating or abolishing electroshock and other psychiatric practices which they believed were harmful. In 1975 one group, the Network Against Psychiatric Assault (San Francisco/Berkeley), was instrumental in the passage of legislation that regulated the use of electroshock in California. Since then more than 30 states have passed similar legislation.

In 1982 the Coalition to Stop Electroshock led a successful referendum campaign to outlaw ECT in Berkeley, California. Although the courts overturned the ban six weeks after it went into effect, this was the first time in American history that the use of any established medical procedure had been prohibited by popular vote.

The Committee for Truth in Psychiatry (CTIP), all of whose members are electroshock survivors, was formed in 1984. Thus far, it has successfully opposed the APA's efforts to have the Food and Drug Administration (FDA) reclassify ECT devices from the dangerous, high-risk category (Class III) of medical devices to the low-risk category (Class II). The 1979 law governing medical devices requires the FDA to investigate Class III devices preliminary to reclassifying or banning them. However, CTIP's call for the FDA to fulfill its full investigative mandate has thus far gone unheeded.

Method of Administration

Typically, modified ECT (see below) is administered in the following manner. The subject is not allowed to eat or drink anything for at least six hours before treatment. Tranquilizers or sedatives may be used during this period to lessen the subject's fears and sometimes his or her physical resistance to treatment. About 30 minutes before the convulsion, Atropine – a conventional preanesthetic medication – is administered to maintain heart activity and dry secretions in the mouth and air passages, thus reducing the risk of suffocation or other complications that could develop from swallowing one's own saliva. Bladder and bowels should be emptied; dentures, hairpins, and sharp-edged jewelry are removed.

The subject is then brought to the "treatment room" and put on a bed, gurney, or thickly padded table. Electrolyte jelly, applied to the areas where the electrodes are to be placed, increases conductivity and prevents burns. A short-acting barbiturate, commonly Brevital (methohexital), renders the subject unconscious in a few moments. The muscle relaxant Anectine (succinylcholine) is then administered to reduce the risk of bone dislocations and fractures during the convulsion. It virtually paralyzes the entire body, including the respiratory system. Consequently, while this agent is in effect, the subject's breathing must be maintained artificially. After a rubber gag is inserted into the subject's mouth, the electrodes are put in place. Electrode

placement is a matter of controversy among Users (see below). During the procedure blood pressure, heart rate and other functions are monitored.

The User now presses a button on the shock device releasing between 100 and 150 volts of electricity into the subject's brain for anywhere from one-half second to two seconds. This produces a *grand mal* convulsion lasting between 30 and 60 seconds. The immediate possible complications include apnea, cyanosis, and heart problems such as arrhythmias and cardiac arrest.

The convulsion is followed by a period of coma, from which the subject awakens with a number of the following effects: confusion, disorientation, amnesia, apathy, dizziness, headache, nausea, muscle ache, physical weakness, and delirium. Most of these gross effects usually subside after a few hours, but amnesia, apathy ("emotional blunting"), learning difficulties, and loss of creativity, drive and energy may last for weeks and months. In many instances they are in some measure permanent. The intensity, number, and spacing of the individual electroshocks in a series greatly influence the severity and persistence of these effects.

Claims of Electroshock Effectiveness

Virtually all the psychiatrists who evaluate, write about and do research on electroshock are themselves Users. This partially explains why claims regarding ECT's effectiveness abound in the professional literature — while the risks associated with the procedure are consistently understated or overlooked. User estimates of ECT's effectiveness in the treatment of the affective disorders (i.e., depression, mania, and manic-depression) usually range from 75% to 90%. Two important questions, however, need to be addressed: What is meant by effectiveness and how long does it last?

Breggin (1979, p. 135; 1981, pp. 252-253) has proposed a "brain-disabling hypothesis" to explain the workings of electroshock. The hypothesis suggests that ECT "effectiveness" stems from the brain damage ECT causes. As happens in cases of serious head injury, ECT produces amnesia, denial, euphoria, apathy, wide and unpredictable mood swings, helplessness and submissiveness. Each one of these effects may appear to offset the problems which justified the use of ECT in the first place. Amnesia victims, having forgotten their problems, tend to complain less. Denial serves a similar purpose: because of their embarrassment, ECT subjects tend to discount or deny unresolved personal problems as well as ECT-caused intellectual deficits. With euphoria, the subject's depression seems to lift. With apathy, the subject's "agitation" (if that had been perceived as part of the original problem) seems to diminish. Dependency and submissiveness tend to make what may have been a resistive, hostile subject more cooperative and friendly. In hailing the wonders of electroshock, psychiatrists often simply redefine the symptoms of psychiogenic brain damage as signs of improvement and/or recovery.

Electroshock advocates themselves unwittingly provide support for the brain-disabling hypothesis. Fink, Kahn, and Green (1958) offered a good example when describing a set of criteria for rating improvement in ECT subjects: "When a depressed patient, who had been withdrawn, crying, and had expressed suicidal thoughts, no longer is seclusive, and is jovial, friendly and euphoric, denies his problems and sees his previous thoughts of suicide as 'silly,' a rating of 'much improved' is made" (p. 117). Two additional illustrations are given below; see Cleckley (cited in Thigpen, 1976) and Hoch (1948).

On the question of duration of benefit from ECT, Weiner (1984) – in one of the most important review articles on ECT published during the last decade – was unable to cite a single study purporting to show long-term, or even medium-term, benefits from ECT. Opton (1985) drew this conclusion from the Weiner review: "In this comprehensive review of the literature, after fifty years of research on ECT, no methodologically sound study was found that reported beneficial effects of ECT lasting as long as four weeks" (p. 2). Pinel (1984), in his peer commentary on the Weiner article, accepted Weiner's conclusion that "the risks of ECT-related brain damage are slight" and then added, "it is difficult to justify any risks at all until ECT has been shown unambiguously to produce significant long-term therapeutic benefits" (p. 31).

The following excerpt from an article in *Clinical Psychiatry News* reveals the short-range outlook of many ECT Users:

The relapse rate after successful treatment for affective disorders is very high, from 20% to 50% within 6 months after a *successful* course of ECT, according to Dr. Richard Abrams [a well-known ECT proponent]. "I think it is reasonable and appropriate to always initiate maintenance in the form of a tricyclic [an antidepressant drug] or lithium," he said. For patients who relapse despite adequate drug therapy, maintenance ECT [periodic single electroshocks, spaced several weeks or months apart] has been used successfully. (Klug, 1984, p. 16) [italics added]

The underlying assumption of this approach is that affective disorders are for the most part chronic and irreversible. There is a popular saying among psychiatrists, "Once a schizophrenic, always a schizophrenic." While not a maxim, "Once a depressive, always a depressive," is nevertheless a core belief among many ECT Users. It "explains" so much for them. From this perspective, there are hardly any ECT failures, only patients with recurring depressive episodes who require ongoing psychiatric treatment, intensive and maintenance by turns.

Proponents also claim, but cannot demonstrate, that ECT is effective in cases of depression where there is a risk of suicide. They often cite a study by Avery and Winokur (1976) to support their position. But this study makes no such claim, as we can see from the authors' own conclusion: "In the present study, treatment [ECT and antidepressants] was not shown to affect the suicide rate" (p. 1033). Nevertheless, Allen (1978), in the very first paragraph of his

article on ECT observed, "Avery and Winokur showed that suicide mortality in patients afflicted with psychotic depression was lower in patients treated with ECT than in those who were not" (p. 47).

Death from Electroshock

Proponents claim that electroshock-caused death is rare. Alexopoulos et al. (1989) cited studies published in 1979 and 1985 indicating that the death rate from ECT was between 1 and 3 per 10,000 persons treated (0.01%–0.03%) – considerably lower than estimates for the early years of ECT and, according to the authors, "probably related to the introduction of anesthesia and muscular relaxants" (p. 80). On the other hand, Kalinowsky (1967), who reported a death rate of up to 1 per 1,000 for the period before the premedicative drugs were being routinely used, had "the definite impression that the anesthesia techniques increased the number of fatalities" (p. 1282). Crowe (1984a, p. 164) cited a study conducted during 1972–1973 in Denmark which reported a rate of 2.9 deaths per 10,000 cases (0.029%).

Can any of these figures be relied upon? In researching my book on shock treatment (Frank, 1978, p. 153–156), I found reports of 384 electroshock-related deaths published between 1941 and 1977 in English-language sources, among which were a number of reports and studies with much higher death rates than those cited above. For example: three deaths in 150 cases – 2% (Lowinger and Huddleson, 1945); four deaths in 276 cases – 1.4% (Granlick, 1946); five deaths in 356 cases – 1.4% (Martin, 1949); two deaths in 18 cases – 11.1% (Weil, 1950); three deaths in 700 cases – 0.4% (Gaitz, Pokorny, and Mills, 1956); three deaths in 90 cases – 3.3% (Kurland, Hanlon, Esquibel, Krantz, and Sheets, 1959); three deaths in 1,000 cases – 0.3% (McCartney, 1961); two deaths in 183 cases – 1.1% (Freeman and Kendell, 1980).

In the broadest and most informative study on ECT-related deaths, Impastato (1957) reported 254 deaths: 214 from published accounts and 40 previously unpublished. Most of the fatalities had received unmodified ECT. He estimated an overall death rate of 1 per 1,000 (0.1%) and 1 per 200 (0.5%) in persons over 60 years of age. Impastato was able to determine the cause of death in 235 cases. There were 100 "cardiovascular deaths" (43%), 66 "cerebral deaths" (28%), 43 "respiratory deaths" (18%), and 26 deaths from other causes (11%) (p. 34).

Impastato's estimate of an ECT death rate among elderly persons five times higher than the overall death rate – coupled with his finding that cardiovascular failure was responsible for 43% of the deaths – should be very troubling in light of the growing tendency toward shocking the elderly. To justify this practice, Users usually point to the serious risks of cardiac complications and death involved in treating the elderly depressed – particularly

those with heart disease – with antidepressant drugs. In current standard psychiatric practice, these drugs constitute basically the only alternative to electroshock.

Whether ECT or antidepressants offer less risk of fatality for these persons remains an open question, but Users assume ECT is less risky. In addition to the Impastato findings, other evidence suggests that Users are underestimating the dangers of using ECT on the elderly. Freeman and Kendall (1980) found that of 183 persons subjected to ECT in 1976 at the Royal Edinburgh Hospital in Scotland, two women aged 69 and 76 had died 24 and 48 hours respectively after each had received her 13th electroshock. Autopsies revealed myocardial infarction in both cases (p. 10). A more recent study (Gering and Shields, 1982) also calls attention to the risks of ECT for elderly persons with heart problems. Of 42 persons undergoing modified ECT during a one-year period (1975–1976) at the Payne Whitney Clinic in New York City, 17 (40%) had presented with heart disease. Twelve of the 17 (70%) developed heart complications. Eleven of the 12 were over age 60. Nine of the 12 developed arrhythmias. “Four of the complications in this series were life-threatening. . . . Patient E.S. sustained a cardiopulmonary arrest 45 minutes after her fifth treatment” and died (pp. 140–141).

The Impastato findings have embarrassed the electroshock camp. As a result, this essential research has been largely neglected in the literature on electroshock since then. Thus, in three key review books authored or co-authored by Kalinowsky (Kalinowsky, 1959; Kalinowsky and Hippus, 1969; Kalinowsky and Hoch, 1961), the Impastato study was nowhere mentioned, although Impastato’s other works were frequently cited. Kalinowsky is not alone in this regard. Crowe’s (1984a) ECT-review article – because it was published in the influential *New England Journal of Medicine* – must be considered among the most important of the 1980s. Citing a paper by Maclay (1953), Crowe wrote that “the largest reported series of deaths included 62 from the years 1947–1952” (p. 164), but Crowe neither referred to the Impastato study in his ECT mortality section nor cited it among his 80 references.

Weiner’s (1984) extensive ECT review article, cited above, was accompanied by comments from 22 professionals (almost all of whom were favorably disposed to ECT) and more than 350 references. Weiner discussed, briefly and dismissively, autopsy reports of ECT-related brain damage. The Impastato study, however, was nowhere cited. A study published in 1957 and reporting 66 “cerebral deaths” in 235 ECT-related deaths was certainly relevant to Weiner’s review (titled, “Does Electroconvulsive Therapy Cause Brain Damage?”), despite the fact that respiratory assistance and muscle relaxants were not routinely used until the 1960s. The relevance of the Impastato study to Weiner’s review was further borne out by his inclusion of two other less incriminating and much smaller studies from the same time period (p. 7).

These clinical studies and review works, along with the following considerations, suggest that the psychiatric profession is overlooking, downplaying and underreporting ECT deaths:

1. Users are reluctant to report such deaths because they reflect unfavorably upon their own professional competence, and may invite lawsuits and public criticism of the psychiatric profession.
2. Users, because of personal commitment, professional pride, and financial interest, are sometimes unwilling to recognize deaths almost surely related to ECT.
3. Psychiatric journals – in order to maintain the status of the profession and avoid discord within its ranks – may not be printing some of the ECT death reports submitted to them. Published reports fell off sharply soon after publication of the Impastato (1957) study. For the 1960–1977 period, I was able to find reports of only 24 ECT deaths, compared with 360 for the 1941–1959 period (Frank, 1978, pp. 153–156). In addition, there have been very few death-survey articles published since 1960. In general, according to Grimm (1978), “there has been a dramatic drop in the number of published accounts of any problems with the practice of ECT, especially deaths. There is an eerie silence in a literature that hitherto was substantial and extremely useful in questions of morbidity and mortality” (p. 30).
4. Post-mortem reports are often inconclusive. It is difficult to establish a causal relationship between ECT and a subsequent death. What one coroner regards as causal, another might see as only contributory or irrelevant.
5. ECT review articles—almost always undertaken by ECT proponents—underestimate ECT death rates by citing as corroborative evidence the studies and estimates most favorable to their position.
6. Family members – due to grief, guilt, or other reasons – sometimes do not allow autopsies to determine cause of death following ECT or other psychiatric treatments.

Brain Damage from Electroshock

One does not need a medical degree to recognize the destructive potential of passing 100 to 150 volts of electricity through the human brain. The same amount of current used to produce a seizure in ECT, if applied to the chest, would be fatal (Task Force, 1977, p. 1).

Fifteen years before the Impastato study (1957) which reported 66 “cerebral deaths,” and four years after the introduction of ECT, Alpers and Hughes (1942) commented on their findings in an autopsy performed on a woman who had died following electroshock:

The foregoing case is the first reported instance, so far as we now, of hemorrhages in the brain attributable to electrical convulsion treatment. . . . [T]he importance of the

case lies in that it offers a clear demonstration of the fact that electrical convulsion treatment is followed at times by structural damage of the brain. (p. 177)

Hoch (1948), a well-known ECT proponent, likening electroshock to lobotomy, claimed that the brain damage each produced was beneficial:

This brings us for a moment to a discussion of the brain damage produced by electroshock. . . . Is a certain amount of brain damage not necessary in this type of treatment? Frontal lobotomy indicates that improvement takes place by a definite damage of certain parts of the brain. (pp. 48-439)

Psychiatrist and neurophysiologist Pribram commented in a 1974 interview:

I'd much rather have a small lobotomy than a series of electroconvulsive shocks. . . . I just know what the brain looks like after a series of shocks – and it's not very pleasant to look at. (p. 9)

The American Psychiatric Association's (1978) ECT survey, cited earlier, reported that 41% of the psychiatrist-respondents agreed with the statement, "It is likely that ECT produces slight or subtle brain damage." Only 26% disagreed. In their review of the literature, Templer and Veleber (1982) concluded "that ECT caused and can cause permanent brain pathology" (p. 65). Sament (1983), a neurologist, published his views on ECT's brain-damaging effects in a letter to the editor of a professional journal:

I have seen many patients after ECT, and I have no doubt that ECT produces effects identical to those of a head injury. After multiple sessions of ECT, a patient has symptoms identical to those of a retired, punch-drunk boxer.

After one session of ECT the symptoms are the same as those of a concussion (including retrograde and anterograde amnesia). After a few sessions of ECT the symptoms are those of a moderate cerebral contusion, and further enthusiastic use of ECT may result in the patient functioning at a subhuman level. (p. 11)

Sackeim (1986) also describes in a straightforward manner the effects of ECT:

The ECT-induced seizure, like spontaneous generalized seizures in epileptics and most acute brain injury and head trauma, results in a variable period of disorientation. Patients may not know their names, their ages, etc. When the disorientation is prolonged, it is generally referred to as an organic brain syndrome. (p. 482)

Heath (1984), in his commentary on the Weiner (1984) review, quoted with disapproval a prominent psychoanalyst who often stated publicly that "ECT fried the brain." In the next paragraph, however, Heath himself wrote that "Electroconvulsive therapy has a shotgun effect on the brain" (p. 28). Also, in their commentary on the Weiner review, ECT proponents Small and Small (1984) suggested this explanation for the increasing use of ECT:

“ECT may . . . have gained in popularity because of the increasing recognition of long-lasting and sometimes irreversible impairments in brain function induced by neuroleptic drugs. (In this instance the evidence of brain damage is not subtle, but is grossly obvious even to the casual observer!)” (p. 34). We have here both an acknowledgement that ECT causes “subtle” brain damage and a rationale for continuing its use based on evidence that brain damage from one of its chief competing treatments, the neuroleptics, is “grossly obvious.”

Despite evidence of ECT-caused brain damage, most fully documented by Breggin (1979), proponents continue to claim that ECT does not cause brain damage. Here are some recent examples:

The good news is that no evidence of brain damage [from ECT] has been found. (Crowe, 1984b, p. 13A)

There is no scientific evidence of irreversible brain damage. (“Electroconvulsive therapy,” 1987, p. 3)

The possibility of brain damage is absolutely refuted by brain scans, by neuropsychological studies, by autopsies, by animal studies, and by analysis of cerebrospinal fluid and blood chemicals. (Peterson, cited in Rymer, 1989, p. 71)

I can't prove there's no brain damage [from ECT]. I can't prove there are no other sentient beings in the universe either. But scientists have been trying for thirty years to find both, and so far they haven't come up with a thing. (Fink, cited in Rymer, 1989, p. 71)

In a recent 216-page document, *The Practice of ECT: Recommendations for Treatment, Training and Privileging*, the Task Force on ECT (APA, 1989) dismissed the critical issue of electroshock-caused brain damage with two sentences. The first, “Cerebral complications are notably rare” (p. 63), is false. The second, which concluded the Task Force’s recommendations for information to be provided in the formal consent document for ECT – “In light of the available evidence, ‘brain damage’ need not be included as a potential risk” (p. 77) – is falsely premised. From this latter statement we see that the report’s authors not only denied the possibility of ECT-caused brain damage, but found the very notion of such damage so *unthinkable* that they placed the term in quotation marks.

Memory Loss from Electroshock

The most serious and common effect of electroshock as reported by survivors is memory loss. The loss stretching backward in time from the treatment period is called retrograde amnesia and may cover many months or years. The memory loss from the treatment period forward in time is called anterograde amnesia and usually covers several months, often including the

treatment period itself. The amnesia may be global or patchy; some memories return, others are permanently lost. These losses affect one's entire personality and are often experienced as a diminution of self. They not only impair one's ability to function in everyday affairs but also in higher realms of spiritual and creative activity.

Herskovitz (cited in Philadelphia Psychiatric Society, 1943) reported finding memory defects among 174 people treated with ECT at the Norristown State Hospital, Pennsylvania, "to be rather general and often prominent. Therefore, patients whose occupation requires intellectual ability are selected for treatment with caution" (p. 798). In 1972, at the age of 48 Marilyn Rice (cited as Natalie Parker, a pseudonym, in Roueché, 1974) underwent a series of eight ECTs at the Psychiatric Institute of Washington. Soon afterwards, ECT-caused disability forced her into early retirement from her job as an economist. She described her return to work following electroshock:

I came home from the office after that first day back feeling panicky. I didn't know where to turn. I was terrified. All my beloved knowledge, everything I had learned in my field during twenty years or more was gone. I'd lost the body of knowledge that constituted my professional skill. . . . I'd lost my experience, my knowing. But it was worse than that. I felt I'd lost myself. (pp. 95-96)

Andre (1988) described her memory losses following a series of 15 ECTs at New York Hospital in New York City in 1984 when she was 24 years old:

My behavior was greatly changed; in a brain-damaged stupor, I smiled, cooperated, agreed that I had been a very sick girl and thanked the doctor for curing me. I was released from the hospital like a child just born. I knew where I lived, but I didn't recognize the person I lived with. I didn't know where I had gotten the unfamiliar clothes in the closet. I didn't know if I had any money or where it was. I didn't know the people calling me on the phone. . . . Very, very gradually — because you can't know what you don't remember — I realized that three years of my life were missing. Four years after shock, they are still missing. (p. 2)

Between February 1977 and October 1978 Freeman and Kendell (1980) interviewed 166 patients who had ECT during either 1971 or 1976 in Edinburgh. Of this group, 64% reported "memory impairment" (25% "thought symptom severe," 39% "thought symptom mild") [p. 13]. Twenty-eight percent agreed with the statement that "ECT causes permanent changes to memory" (p. 14). Squire (1982, 1983) reported findings of his three-year follow-up study of 35 people who had received an average of 11 bilateral ECTs (see next section). Of the 31 people available for interview, 18 (58%) answered "no" to the question, "Do you think your memory now is as good as it is for most people your age?" All but one of the 18 attributed their memory difficulties to ECT (1982, p. 1221).

Abrams (1988a) summarized his chapter on memory functioning after ECT

as follows: "A remarkable amount has been learned in the past decade about the effects of ECT on memory, and the day is now past when the physician administering bilateral ECT can blithely assure his patient that 'the memory-loss will only be temporary' " (p. 153). Abrams favors unilateral ECT, claiming that it causes little or no "memory disturbance" and that "whatever dysmnesia does occur will be transient and probably undetectable 6 months later" (p. 154).

Over the years, ECT Users have tried to discount the significance of amnesia reports from electroshock survivors. Kalinowsky and Hoch (1952) gave an early explanation: "All patients who remain unimproved after ECT are inclined to complain bitterly of their memory difficulties" (p. 139). Implicit in this remark is the suggestion to Users that an ECT series should continue until the subject's memory "complaints" cease. In the same vein, the APA's 1978 report on ECT lent its weight to the notion that ECT "might lead many individuals . . . to have persistent illusion of memory impairment" (p. 68).

More recently, Users have been arguing that the culprit responsible for memory problems is more likely to be the depression, not the electroshock (Crowe, 1984a). They assert that memory loss is a component of depression. Where the ECT subject is elderly, Users are likely to regard reports of memory loss as a normal sign of the aging process and, in the more severe cases, as symptomatic of senility. It is interesting to note that the Janis (1950) study – which concluded that ECT caused persistent amnesia (p. 372) – included very few depressed persons (only 3 of 30 subjects). More significantly on this point, the control group of 19 "depressed patients" who had not undergone ECT in the Squire (1983) study, cited above, "reported no memory problems at all at follow-up" (p. 6).

Electroshock Modifications

In recent years, to allay growing public fears concerning the use of electroshock, proponents have launched a media campaign, claiming among other things that with the introduction of certain modifications in the administration of ECT the problems once associated with the procedure have been solved, or at least substantially reduced. These techniques center around the use of anesthetics and muscle relaxants, changes in electrode placement, and the use of brief-pulse electrical stimulation. However, investigation and common sense indicate that while these modifications may offer some advantages – for example, muscle relaxants prevent the subject's thrashing about, thereby greatly reducing the risk of bone and spinal fractures and making the procedure less frightening to watch – the basic facts underlying the administration of electroshock have not changed at all. The nature of the human brain and that of electricity are no different today than they were more than 50 years

ago when ECT was introduced. Whatever may be the ameliorating factors of the newer delivery techniques, when a convulsogenic dose of electricity is applied to the brain, there is going to be a certain amount of brain damage, some of which will be permanent. There is even evidence that the drug modifications make ECT more destructive than ever, for, as central nervous system depressants, anesthetics and muscle relaxants raise the subject's convulsive threshold, which in turn makes it necessary to apply a larger dose of electricity to set off the convulsion. And, the more current applied, the more amnesia and brain damage. As Reed (1988) noted, "The amnesia directly relating to ECT depends on the amount of current used to trigger the generalized convulsion" (p. 29).

Other problems are associated with the use of premedications in ECT. In his study of 254 ECT deaths, Impastato (1957) reported that 13 of 66 persons from the "cerebral death" group had received muscle relaxants and that these "appear to play a major role in the death of some of these patients" (p. 42). There were also five other patients who died immediately after receiving muscle relaxants but before being given the electric shock. These figures are from a period when muscle relaxants were not widely used. More recently, Ulett (1972) concurred with Impastato on the danger of muscle relaxants in ECT: "The objection to the use of muscle relaxants is that, although decreasing the rate of fracture complication, they unquestionably increase the chance of fatal accident" (p. 284). Given the paucity of ECT-death studies in recent years, it is difficult to gauge the extent of this problem in current practice.

Another modification, unilateral ECT, has received much attention since its introduction in the late 1950s but has not replaced — and is not likely to replace — bilateral ECT as the standard technique. According to the APA survey on ECT (1978, p. 6), 75% of the Users reported using bilateral electrode placement exclusively. In bilateral ECT the electrodes are placed on the subject's temples so that the current passes through the brain's frontal lobe area. In unilateral ECT one electrode is placed on a temple and the other just above the back of the neck on the same (usually the nondominant) side of the head. Unilateral placement, proponents claim, results in less memory loss. But proponents of bilateral ECT assert that unilateral ECT is less effective and therefore requires more treatments (Gregory, Shawcross, and Gill, 1985). Cleckley (cited in Thigpen, 1976) offered this explanation for the ineffectiveness of unilateral ECT: "My thought about unilateral stimulation is that it fails to cure. I think this failure to cure is in direct proportion to the avoidance of memory loss" (p. 40). During his interview with Abrams (1988b), Kalinowsky made this comment about unilateral ECT: "My experience is completely negative and if patients improve at all, it's probably due to the repeated anesthesia induction with methohexital" (p. 38). Given the need for "somewhat more current to produce a seizure" in each treat-

ment session (Fink, 1978, p. 79) and for more treatment sessions per series, unilateral ECT may be more brain damaging in some cases than bilateral ECT.

The problems associated with brief-pulse stimulation, another innovation in ECT administration, are similar to those associated with unilateral ECT. While brief-pulse stimulation may cause less amnesia than the routinely used sine-wave stimulation, the newer technique "may be insufficient to induce an adequate generalized seizure" (Reed, 1988, p. 29). What Ulett (1972) wrote about unidirectional current stimulation (a supposed advance in ECT technology introduced by Liberson [1948]) may also apply to brief-pulse stimulation, and to unilateral ECT as well: "[I]t is often necessary to give a greater number of these milder treatments to achieve the desired therapeutic result" (p. 287).

Electroshock and Brainwashing

The term "brainwashing" came into the language during the early 1950s. It originally identified the technique of intensive indoctrination developed by the Chinese for use on political dissidents following the Communist take-over on the mainland and on American prisoners of war during the Korean War. The method involves the systematic application of sleep and food deprivation, prolonged interrogation, brow-beating, and physical punishment to force captives to renounce their beliefs. Once "brainwashed," they are reprogrammed to accept the beliefs of their captors.

While electroshock is not overtly used against political dissidents, it is used against cultural dissidents, social misfits and the unhappy, whom psychiatrists diagnose as "mentally ill" in order to justify ECT as a medical intervention. Indeed, electroshock is a classic example of brainwashing in the most meaningful sense of the term. Brainwashing means washing the brain of its contents. Electroshock destroys memories and ideas by destroying the brain cells in which memories and ideas are stored. A more accurate name for what is now called electroconvulsive therapy (ECT) would be electroconvulsive brainwashing (ECB).

Sometimes the confusion [following intensive ECT] passes rapidly and patients act as if they had awakened from dreaming; their minds seem like clean slates upon which we can write. (Kennedy and Anchel, 1948, p. 381)

This recent memory loss [from standard ECT] could be compared to erasing a tape recording. (Arnot, 1975, p. 500)

I do not know of any formal use of [shock treatment] in brain washing [sic] but it seems possible it could be so used. One can conjure up an image of large groups of dissidents in a police state being kept in a contented state of apathy by shock treatment. (Peck, 1974, p. 35)

Given this potential for social control, electroshock was almost destined to gain the attention of certain government agencies charged with "national

security” responsibilities. On August 2, 1977 *The New York Times* carried a front-page story about the Central Intelligence Agency’s [CIA] MKULTRA “mind control” project which had been set up secretly in the early 1950s. During the late 1950s, CIA funding for one of the programs went to psychiatrist D. Ewen Cameron, a former president of the American Psychiatric Association, who directed the Allan Memorial Institute in Montreal. The program centered around what Cameron named “depatterning treatment” and “psychic driving.” Between 1956 and 1962 he published detailed descriptions of these methods in leading psychiatric journals (Cameron, 1956, 1957, 1960; Cameron, Lohrenz, and Handcock, 1962; Cameron and Pande, 1958).

In the lead section of the first article on depatterning Cameron and Pande (1958) wrote: “We are presenting a method of treatment [for “chronic paranoid schizophrenia”] which we have found to be more successful than any hitherto reported” (p. 92). The procedure combined drug-induced continuous sleep, intensive ECT, and large doses of the neuroleptic Thorazine. Cameron used the Page-Russell method of ECT administration (Page and Russell, 1948) in twice-daily sessions. Each session consisted of six 150-volt electroshocks of one-second duration, spaced so closely together that “the clonic phase [of the convulsion] does not become established until the end of the sixth electrical impulse” (Cameron et al., 1962, p. 68). The intention was to continue the sessions until the subject reached “the third stage” of depatterning, which happened after between 30 and 40 sessions (between 180 and 240 electroshocks). The shocks were then continued on a progressively reduced scale till the subject was discharged from the hospital, and once a month thereafter during a two-year follow-up period (pp. 68–69).

Cameron (1960) described the subject’s condition in the third stage of depatterning: “He lives in the immediate present. All schizophrenic symptoms have disappeared. There is complete amnesia for all events of his life” (p. 27). Years later, Macdonald (1988) – who underwent depatterning in 1963 at the age of 23 – confirmed Cameron’s observation:

I have no memory of existing prior to October 1963, and the recollections I do have of events of the following years until 1966 are fuzzy and few. . . . My parents were introduced to me. . . I did not know them. [My five] children came back from wherever they had been living. I had no idea who they were. (pp. 206–209)

A “period of reorganization” followed the third stage (Cameron et al., 1962). Marks (1980) described the “psychic driving” technique which Cameron used during this period. “Once Cameron had produced the blank mind, he could then program in new patterns of behavior,” or so he claimed. It was this aspect of depatterning that the CIA was most interested in. Psychic driving entailed bombarding the subjects with tape recorded, emotionally loaded messages repeated 16 hours a day. For this purpose, Cameron installed speakers under

pillows in "sleep rooms" where his subjects were kept. Several weeks of negative messages were followed by two to five weeks of positive ones. Cameron established the effect of the negative tapes by "running wires to [the subjects] legs and shocking them at the end of the message" (pp. 136–137). Cameron's brainwashing methods – about which the psychiatric profession had detailed information at the time – became a scandal only after public disclosure of the CIA's financial involvement.

While electroshock cannot, of course, be used to reshape reality, it – like brainwashing – can and has been used to reshape the subject's perception of reality. Warren (1988) reported on interviews with ten married women 26–40 years old, from the San Francisco Bay Area who had undergone ECT between 1957 and 1961. The salient feature of ECT for these women was memory loss: "Troubling life-events and relationships commonly forgotten by these women included the existence of their husbands and children, their own names, and their psychiatrists" (p. 292). Some of the husbands, Warren reported, "used their wives' memory loss to establish their own definitions of past situations in the marital relationship." Other relatives found they "could freely re-define past situations without challenge" (p. 294). Warren comments: "When the recollections of one [marital] partner are to some degree erased, the dynamic reconstruction of reality shifts a little, or a lot" (p. 297).

Those who define reality usually control it. What had shifted here was power – away from the electroshock survivor. Without referring to brainwashing as such, Warren shows that electroshock and brainwashing serve similar ends. Electroconvulsive brainwashing is psychiatry's cleansing ritual; its method for controlling painful, unhappy memories and false or unpopular beliefs by destroying them.

Conclusion

Mystification and conditioning have undoubtedly played an important role in shaping the public's tolerant attitude toward electroshock. But it is not only the uninformed and misinformed public that has stood by silently during the electroshock era. There has hardly been a voice of protest from the informed elite – even when one of its own has been victimized.

While undergoing a series of involuntary electroshocks at the famed Mayo Clinic in 1961, Ernest Hemingway told visitor A.E. Hotchner, "Well, what is the sense of ruining my head and erasing my memory, which is my capital, and putting me out of business? It was a brilliant cure but we lost the patient. It's a bum turn, Hotch, terrible. . ." (cited in Hotchner, 1967, p. 308). A few days after his release from the Mayo Clinic following a second course of ECT, Hemingway killed himself with a shotgun. With all that has been written about him since his death, no recognized figure from the world of

literature, academia, law, religion or science has spoken out against those responsible for this tragedy. As might have been expected, the psychiatric profession has also been silent. Not only did the psychiatrist who electroshocked Hemingway escape the censure of his colleagues, but a few years later they elected him president of the American Psychiatric Association.

Since ancient times physicians have been trying to cure epilepsy. One might therefore think that they would object to the use of artificially-induced seizures as a method of treatment. But no such objection has been forthcoming. On the contrary, the medical profession's passive acquiescence to the use of electroshock has recently turned to active support:

The AMA [American Medical Association] has endorsed the use of electroconvulsive therapy (ECT) "as an effective treatment modality in selected patients, as outlined by the American Psychiatric Association. . . ." [The AMA] recognized ECT as "a safe procedure in proper hands." (ECT, Animal rights, 1989, p. 9)

ECT User Robert Peck titled his book *The Miracle of Shock Treatment* (1974). Antonin Artaud (cited in Sontag, 1976), the French actor and playwright, who was electroshocked in the early 1940s, wrote afterwards: "Anyone who has gone through the electric shock . . . never again rises out of its darkness and his life has been lowered a notch" (p. 530). In which perspective – or at what point between these two perspectives – is the truth to be found? This is no trivia question. For some, it will be the gravest question they will ever have to answer.

References

- Abrams, R. (1988a). *Electroconvulsive therapy*. Oxford: Oxford University Press.
- Abrams, R. (1988b). Interview with Lothar Kalinowsky, M.D. *Convulsive Therapy*, 4, 25–39.
- Accornero, F. (1988). An eyewitness account of the discovery of electroshock. *Convulsive Therapy*, 4, 41–49.
- Alexopoulos, G.S., Young, R.C., and Abrams, R.C. (1989). ECT in the high-risk geriatric patient. *Convulsive Therapy*, 5, 75–87.
- Allen, M.R. (1978). Electroconvulsive therapy: An old question, new answers. *Psychiatric Annals*, 8, 47–65.
- Alpers, B.J., and Hughes, J. (1942). The brain changes in electrically induced convulsions in the human. *Journal of Neuropathology and Experimental Neurology*, 1, 173–180.
- American Psychiatric Association. (1978). *Electroconvulsive therapy*. Task Force Report 14. Washington, D.C.: American Psychiatric Association.
- American Psychiatric Association. (1989, December 18). *The practice of ECT: Recommendations for treatment, training and privileging*. Task Force on ECT. Washington, D.C.: American Psychiatric Association.
- Andre, L. (1988, May 13). ECT: The politics of experience. Testimony given before the Quality of Care Conference, Albany, New York.
- Arnot, R.E. (1975). Observations on the effects of electric convulsive treatment in man – psychological. *Diseases of the Nervous System*, 36, 449–502.
- Avery, D., and Winokur, G. (1976). Mortality in depressed patients treated with electroconvulsive therapy and antidepressants. *Archives of General Psychiatry*, 33, 1029–1037.

- Ayd, F.J., Jr. (1963). Guest editorial: Ugo Cerletti, M.D. 1877-1963. *Psychosomatics*, 4, A6-A7.
- Bender, L. (1955). The development of a schizophrenic child treated with electric convulsions at three years of age. In G. Caplan (Ed.), *Emotional problems of early childhood* (pp. 407-425). New York: Basic Books.
- Black, D.W., Wilcox, J.A., and Stewart, M. (1985). The use of ECT in children: Case report. *Journal of Clinical Psychiatry*, 46, 98-99.
- Breggin, P.R. (1979). *Electroshock: Its brain-disabling effects*. New York: Springer.
- Breggin, P.R. (1981). Disabling the brain with electroshock. In M. Dongier and E.D. Wittkower (Eds.), *Divergent views in psychiatry* (pp. 247-271). Hagerstown, Maryland: Harper & Row.
- Cameron, D.E. (1956). Psychic driving. *American Journal of Psychiatry*, 112, 502-509.
- Cameron, D.E. (1957). Psychic driving: Dynamic implant. *Psychiatric Quarterly*, 31, 703-712.
- Cameron, D.E. (1960). Production of differential amnesia as a factor in the treatment of schizophrenia. *Comprehensive Psychiatry*, 1, 26-34.
- Cameron, D.E., Lohrenz, J.G., and Handcock, K.A. (1962). The depatterning treatment of schizophrenia. *Comprehensive Psychiatry*, 3, 65-76.
- Cameron, D.E., and Pande, S.K. (1958). Treatment of the chronic paranoid schizophrenic patient. *Canadian Medical Association Journal*, 78, 92-96.
- Cerletti, U. (1956). Electroshock therapy. In A.M. Sackler, M.D. Sackler, R.R. Sackler, and F. Marti-Ibanez (Eds.), *The great physiodynamic therapies in psychiatry: An historical reappraisal* (pp. 91-120). New York: Hoeber-Harper.
- Crowe, R.R. (1984a). Electroconvulsive therapy: A current perspective. *New England Journal of Medicine*, 311, 163-167.
- Crowe, R.R. (1984b, April 7). Shock-therapy controversy needs look at the research. *Des Moines Register*, p. 13A.
- Darnton, N. (1989, July 31). Committed youth. *Newsweek*, pp. 66-72.
- Drop, L.J., and Welch, C.A. (1989). Anesthesia for electroconvulsive therapy in patients with major cardiovascular risk factors. *Convulsive Therapy*, 5, 88-101.
- ECT, animal rights among topics discussed at AMA's Dallas meeting. (1989, January 20). *Psychiatric News*, p. 9; 23.
- Edelson, E. (1988, December 28). ECT elicits controversy - and results. *Houston Chronicle*, p. 3.
- Ehrenberg, R., and Gullingsrud, M.J.O. (1955). Electroconvulsive therapy in elderly patients. *American Journal of Psychiatry*, 111, 743-747.
- Electroconvulsive therapy. (1987, December). *Harvard Medical School Mental Health Letter*, 4, 1-4.
- Fink, M. (1978). Electroshock therapy: Myths and realities. *Hospital Practice*, 13, 77-82.
- Fink, M., Kahn, R.L., and Green, M. (1958). Experimental studies of electroshock process. *Diseases of the Nervous System*, 19, 113-118.
- Frank, L.R. (1976). The Frank papers. In J. Friedberg, *Shock treatment is not good for your brain* (pp. 62-81). San Francisco: Glide Publications.
- Frank, L.R. (1978). *The history of shock treatment*. San Francisco: Frank.
- Freeman, C.P.L., and Kendell, R.E. (1980). ECT: I. Patients' experiences and attitudes. *British Journal of Psychiatry*, 137, 8-16.
- Gaitz, C.M., Pokorny, A.D., and Mills, M. (1956). Death following electroconvulsive therapy. *Archives of Neurology and Psychiatry*, 75, 493-499.
- Gerring, J.P., and Shields, H.M. (1982). The identification and management of patients with a high risk for cardiac arrhythmias during modified ECT. *Journal of Clinical Psychiatry*, 43, 140-143.
- Gordon, H.L. (1948). Fifty shock therapy theories. *Military Surgeon*, 103, 397-401.
- Gralnick, A. (1944). Psychotherapeutic and interpersonal aspects of insulin treatment. *Psychiatric Quarterly*, 18, 177-196.
- Gralnick, A. (1946). A three-year survey of electroshock therapy: Report on 276 cases; comparative value of insulin-coma therapy. *American Journal of Psychiatry*, 102, 583-593.
- Gregory, S., Shawcross, C.R., and Gill, D. (1985). The Nottingham ECT study: A double-blind comparison of bilateral, unilateral and simulated ECT in depressive illness. *British Journal of Psychiatry*, 146, 520-524.
- Grimm, R.J. (1978, January). Convulsions as therapy: The outer shadows. *Psychiatric Opinion*, 15, 30-31; 45-47.

- Heath, R.G. (1984). An overdue comprehensive look at a maligned treatment: Electroconvulsive therapy. *Behavioral and Brain Sciences*, 7, 27-28.
- Hoch, P.H. (1948). Discussion and concluding remarks. *Journal of Personality*, 17, 48-51.
- Horrocks, N.M. (1977, August 2). Private institutions used in C.I.A. effort to control behavior. *New York Times*, pp. 1; 16.
- Hotchner, A.E. (1967). *Papa Hemingway*. New York: Bantam.
- Impastato, D. (1957). Prevention of fatalities in electroshock therapy. *Diseases of the Nervous System*, 18 [supplement], 34-75.
- Janis, I.J. (1950). Psychologic effects of electric convulsive treatments (1. Post-treatment amnesias). *Journal of Nervous and Mental Disease*, 3, 359-381.
- Jones, T. (1988, June). Letter. *Dendron* [Eugene, Oregon], p. 2.
- Kalinowsky, L.B. (1959). Convulsive shock treatment. In S. Arieti (Ed.), *American handbook of psychiatry* (Volume II, pp. 1499-1520). New York: Basic.
- Kalinowsky, L.B. (1967). The convulsive therapies. In A.M. Freedman and H.I. Kaplan (Eds.), *Comprehensive textbook of psychiatry* (pp. 1279-1285). Baltimore: Williams & Wilkins.
- Kalinowsky, L.B., and Hippus, H. (1969). *Pharmacological, convulsive and other somatic treatments in psychiatry*. New York: Grune and Stratton.
- Kalinowsky, L.B., and Hoch, P. (1952). *Shock treatments, psychosurgery and other somatic treatments in psychiatry*. New York: Grune and Stratton.
- Kalinowsky, L.B., and Hoch, P. (1961). *Somatic treatments in psychiatry*. New York: Grune and Stratton.
- Kennedy, C.J.C., and Anchel, D. (1948). Regressive electric shock in schizophrenics refractory to other shock therapies. *Psychiatric Quarterly*, 22, 317-320.
- Klug, J. (1984, June). Benefits of ECT outweigh risks in most patients. *Clinical Psychiatry News*, p. 16.
- Kurland, A.A., Hanlon, T.E., Esquibel, A.J., Krantz, J.C., and Sheets, C.S. (1959). A comparative study of hexafluorodiethyl ether (Indoklon) and electroconvulsive therapy. *Journal of Nervous and Mental Diseases*, 129, 95-98.
- Levy, S.D., and Albrecht, E. (1985). Electroconvulsive therapy: A survey of use in the private psychiatric hospital. *Journal of Clinical Psychiatry*, 46, 125-127.
- Liberson, W.T. (1948). Brief stimuli therapy: Physiological and clinical observations. *American Journal of Psychiatry*, 105, 28-39.
- Lowinger, L., and Huddleson, J.H. (1945). Results of electric shock therapy in the first 150 cases at the Veterans Facility, Northport, New York. *Military Surgeon*, 97, 271-277.
- Macdonald, L. (1988). Breakthrough. In B. Burstow and D. Weitz (Eds.), *Shrink resistant: The struggle against psychiatry in Canada* (pp. 206-210). Vancouver, British Columbia: New Star Books.
- Maclay, W.S. (1953). Death due to treatment. *Proceedings of the Royal Society of Medicine*, 46, 13-20.
- Marks, J. (1980). *The search for the "Manchurian Candidate": The CIA and mind control*. New York: McGraw-Hill.
- Martin, P.A. (1949). Convulsive therapies: Review of 511 cases at Pontiac State Hospital. *Journal of Nervous and Mental Disease*, 109, 142-157.
- McCartney, J.L. (1961). Private psychiatric practice since the end of World War II. *Diseases of the Nervous System*, 22, 547-554.
- Opton, E.M., Jr. (1985, June 4). Letter to the members of the panel. National Institute of Health Consensus Development Conference on Electroconvulsive Therapy.
- Page, L.G.M., and Russell, R.J. (1948, April 17). Intensified electrical convulsion therapy in the treatment of mental disorders. *Lancet*, pp. 597-598.
- Peck, R.E. (1974). *The miracle of shock treatment*. Jericho, New York: Exposition Press.
- Philadelphia Psychiatric Society. (1943). Symposium: Complications of and contraindications to electric shock therapy. *Archives of Neurology and Psychiatry*, 49, 786-791.
- Pinel, J.P.J. (1984). After forty-five years ECT is still controversial. *Behavioral and Brain Sciences*, 7, 30-31.
- Pribram, K. (1974, September-October). From lobotomy to physics to Freud: An interview with Karl Pribram. *The APA Monitor*, p. 9.
- Ray, M.B. (1942). *Doctors of the mind: The story of psychiatry*. Indianapolis and New York: Bobbs-Merrill.

- Reed, K. (1988). Electroconvulsive therapy: A clinical discussion. *Psychiatric Medicine*, 6, 23-33.
- Roueché, B. (1974, September 9). As empty as Eve. *The New Yorker*, pp. 84-100.
- Rymer, R. (1989, March-April). Electroshock. *Hippocrates*, pp. 65-72.
- Sackeim, H.A. (1986). Acute cognitive side effects of ECT. *Psychopharmacology Bulletin*, 22, 482-484.
- Sament, S. (1983, March). Letter. *Clinical Psychiatry News*, p. 11.
- Sargant, W. (1957). *Battle for the mind: A physiology of conversion and brainwashing*. Baltimore: Penguin.
- Small, J.G., and Small, I.F. (1984). Current issues in ECT practice and research. *Behavioral and Brain Sciences*, 7, 33-34.
- Sontag, S. (Ed.). (1976). *Antonin Artaud: Selected writings*. Berkeley, California: University of California Press.
- Squire, L.R. (1982). Memory and electroconvulsive therapy [Letter]. *American Journal of Psychiatry*, 139, 1221.
- Squire, L.R. (1983). Electroconvulsive therapy and complaints of memory dysfunction: A prospective three-year follow-up study. *British Journal of Psychiatry*, 142, 1-8.
- Task Force of the Colorado Psychiatric Society. (1977, October). *Report and recommendations of a Task Force of the Colorado Psychiatric Society*.
- Templer, D.I., and Veleber, D.M. (1982). Can ECT permanently harm the brain? *Clinical Neuropsychology*, 4, 62-66.
- Thigpen, C.H. (1976). Letter. *Convulsive Therapy Bulletin*, 1, 40.
- Thompson, J.W. (1986). Utilization of ECT in U.S. psychiatric facilities, 1975 to 1980. *Psychopharmacology Bulletin*, 22, 463-465.
- Ulett, G.A. (1972). *A synopsis of contemporary psychiatry*. St. Louis: C.V. Mosby.
- Viscott, D. (1972). *The making of a psychiatrist*. Greenwich, Connecticut: Faucett.
- Warren, C.A.B. (1986). Electroconvulsive therapy: "New" treatment of the 1980s. *Research in Law, Deviance and Social Control*, 8, 41-55.
- Warren, C.A.B. (1988). Electroconvulsive therapy, the self, and family relations. *Research in the Sociology of Health Care*, 7, 283-300.
- Weil, P.L. (1950). "Regressive" electroplexy in schizophrenics. *Journal of Mental Science*, 56, 514-520.
- Weiner, R.D. (1984). Does electroconvulsive therapy cause brain damage? *Behavioral and Brain Sciences*, 7, 1-22 [peer commentary section, pp. 22-54].