We have found the giving of one E.C.T. a week for two weeks a good practice to adopt in out-patients whose anticipated response to E.C.T. is uncertain. Also the relatives are asked to observe the patient's response to each fit. If the patient is somewhat better for 24–48 hours after each fit and then relapses, one can carry on with treatment. If, however, the patient feels worse and seems worse for 24–48 hours after a fit, but is then better again for the rest of the week, the doctor has to be very careful that he is not mistakenly treating an anxiety state with reactive depression, and so running the risk of making the patient's condition even worse if he proceeds with a full course of E.C.T. We have found this over some years now to be a most useful therapeutic test taken in conjunction with other clinical indications.

Lastly, I would deprecate the school of thought which feels that intensive E.C.T. can replace leucotomy or has any of the major beneficial effects of this operation. E.C.T. is predominantly the treatment of depression and mental retardation, and leucotomy of chronic anxiety and obsessional tension. E.C.T. often flares up conditions relieved by leucotomy, while leucotomy can precipitate such disasters as attacks of mania in patients with recurrent endogenous depressive psychoses who have had the operation instead of properly spaced E.C.T. in their attacks. While there is some overlap in patients with mixed pictures, the time has surely come when we should try to distinguish with greater certainty the respective indications for E.C.T. and leucotomy, which are generally so different, and not go from one to the other on a crude conveyor belt system of treatment.

If E.C.T. is used sparingly, selectively and cautiously, it is still one of the most valuable treatment weapons we possess. If it continues to be tried as a treatment for all types of patients who do not happen to respond to simple psychotherapy—by no means an uncommon attitude to-day—then less total suffering might result from its abolition than its continued employment in the future in routine psychiatric practice.

Intensive E.C.T.

By E. Stengel, M.D.

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In trying to contribute to this symposium one can either comment, in the light of one's own experience, on what the principal speakers say about indications in general, or one can pick out a special problem which requires clarification. I have chosen the latter course. I propose to report on some observations on the effect of " intensive E.C.T." By this I mean the administration of two to four shocks on successive days over a period of a week or two, which aims at producing a confusional state with deep clouding of consciousness. It is the method that has been advocated in this country by Milligan. Cerletti devotes a section of his report to this method. According to him, it was Bini who first employed it. He noted that it resulted in a temporary and almost complete annihilation of mental life. Cerletti calls it annihilation therapy, *l'anéantissement*. Nobody who has carried out or witnessed this treatment will deny the aptness of the term. American writers have called it

regressive E.C.T. Bini and Milligan have reported very satisfactory and lasting results in chronic neurotics who had failed to respond to other therapies. It has been claimed that it saved quite a number of patients from leucotomy. In view of these claims it is surprising how little we have heard of this powerful treatment since the first reports appeared. It may therefore be of interest to present some observations made at Graylingwell Hospital in a small group of patients treated with this method. I hope that those among you who have used it will tell us about *your* experiences. The group consisted of ten psychoneurotic patients. Except for two, who were obsessionals, they were suffering from long-standing hysterical symptoms with or without anxiety. They were treated in 1947 and early in 1948 and followed up for periods of one to three years. Compared with the results published by others, ours were disappointing. None of the patients became symptom free. In only three could one speak of a marked improvement, while in the rest the symptoms either remained unchanged or became worse. This group is, of course, too small to allow of generalizations regarding the therapeutic value of the method. I should, however, like to mention a case of a middle-aged man with a severe old-standing anxiety neurosis, who, following intensive E.C.T. at the Crichton Royal, deteriorated rapidly, developed paranoid ideas and had to be certified. Intensive E.C.T. has some interesting side effects. It has been likened to leucotomy, but I did not observe permanent personality changes similar to those following leucotomy. The patients who failed to improve continued to complain about their symptoms with the same emotional intensity as before. They showed, however, features, during and after treatment, reminiscent of those associated with a severe and diffuse head injury. There was profound clouding of consciousness, and all mental activities were blotted out between the shocks ; there was invariably retrograde amnesia (RA) and the equivalent of post-traumatic amnesia (PA). In the majority of cases the RA, which was at first very extensive, shrank gradually, but in none of the patients was it reduced to a period of less than two days. Even a year or more after treatment, recall for events which had taken place several months before treatment remained patchy. In four of the cases the RA was much more extensive. In the first of these four cases it extended over several years, and only very slowly, within about a year did it shrink to a period of several months. In the second case the solid RA was, within a year, reduced to a period of several weeks, but the memory for events which had occurred over several years preceding treatment remained patchy. In the third case, a chronic anxiety state with hysterical and depressive features, the RA extended over four months and cleared up gradually only within a year. The amnesia was a source of great distress to the patient as it had blotted out certain events which meant a great deal to him. The condition for which he had been treated had not improved.

In the fourth case, a middle-aged hysterical woman, the RA was even more severe. She had forgotten not only the events of her whole previous life, but also much that she had learned from childhood. Everything seemed new to her. She enquired about the significance and the names of familiar objects like a child of three. She had forgotten her parents, her husband and her illness. Unfortunately her symptoms soon reappeared. The patient who was treated

in 1947 is still in hospital unimproved, her RA having shrunk to a period of three years. This patient, like the others, has had a good deal of psychotherapy. Hypnosis and narcoanalysis have also been employed in her case.

In all cases the equivalent of a PA could be demonstrated. As you know, the duration of the PA following head injury is a measure of the severity of the injury (Symonds and Russell). The duration of the PA could be established in five cases treated with intensive E.C.T. It extended over periods of four days to about two weeks. PA of similar duration has been recorded after severe head injury. In none of the cases did the amnesia following treatment show a tendency to undue extension, and its duration can be regarded as being in accordance with the severe traumatic interference with brain functions such as this method produces.

Six of the ten patients could be tested adequately by the late Dr. Brody who used the R.M.P.A. battery of tests, which he had himself introduced in collaboration with Dr. Hutton and others. In only one case, the third of the four cases with extensive RA, were signs of intellectual impairment similar to those which follow brain injury discovered, and they were not quite specific. None of the patients showed the clinical features of the organic amnesic syndrome, apart from amnesia.

The most outstanding side effect of the treatment was, therefore, a massive RA, exceeding anything that has been observed after ordinary E.C.T. and anything that has been reported after intensive E.C.T. RA following ordinary E.C.T. is, of course, well known. It has been studied by Flescher, Mayer-Gross and others. Mayer-Gross remarked on its resemblance to the RA following head injury. As a rule it is not a symptom of practical importance and in E.C.T. it rarely extends over more than one minute. It is not surprising that after intensive E.C.T. it should extend over much longer periods. It may be argued that a permanent RA of even a few days, or a week or two, though indicative of a severe and prolonged cerebral trauma, would not in itself be disturbing, especially if not accompanied by other lasting signs of cerebral damage. However, the four cases I mentioned were incapacitated the patients to varying degrees. They were all hysterics and there can be no doubt that the prolonged RA was of the type of a severe hysterical symptom which had formed round an " organic nucleus." It was due to a mechanism often observed after head injuries. Obviously, the unconscious availed itself avidly of the disability produced by the treatment. Here we have an impressive example of what has been called organic compliance. None of the patients had previously had periods of hysterical amnesia. The RA was in these cases not an artefact produced by repeated testing. Care was taken not to arouse undue interest in the examination, and in two of the four patients the symptom was discovered many months after the conclusion of the treatment. Retentive memory and learning were unimpaired. Even in the hysterical patients therefore the basic pattern of the memory disorder was of the " organic " type following head injury.

It is interesting that massive RA extending over long periods has not been observed following ordinary E.C.T., not even in hysterical patients, although complaints of general memory impairment are, of course, not uncommon.

My observations suggest that in treating hysterical patients by the annihilation treatment of Bini and Milligan we are taking the risk of producing a new symptom which it may be difficult to remove. I therefore regard it as contraindicated in such cases. Considering the frequency of hysterical features in all neurotic conditions, the scope of this method in the treatment of psychoneurotics seems very limited. Possibly intensive E.C.T. has a place in certain chronic schizophrenic states, but my experience with it in that type of patient is too small to allow me to express an opinion.

Indications for Shock Therapy.

By E. C. Dax, B.Sc., M.B.,
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It is time the term "shock therapy" was dropped. Its meaning is not clear, we constantly attempt to avoid shock to our patients, it is not always therapy and the term does not do us much good in the eyes of our colleagues or the public.

The various forms of treatment usually referred to in this way will be considered in turn. The attitude towards convulsions has had to change. The effect of insulin comas has been attributed to the convulsions which may occur, but precautions are now taken to avoid the fits. Electrical convulsion therapy is just as effective when the muscular contractions are eliminated with curare; convulsions are avoided in prolonged narcosis though the results have been attributed to an induced epileptic state. We have shown that section of the lower portions of the frontal lobes in leucotomy operations is in many cases more effective than the upper incisions, though by this means the subsequent convulsions are practically eliminated.

There is much to be said for examining the role of consciousness in the effects of these treatments and the part played by the diencephalon in psychiatric disturbances. Too great an importance has been paid to the motor rather than to the receptor side in association with its affective relations, and we have, I believe, much to learn from the study of the effects of the various physical treatments approached from this angle. The epileptic manifestations may be simply the end products of a more fundamental diencephalic disturbance from which the therapeutic effects are obtained.

In retrospect it may well be shown that the so-called shock therapies have passed their day and that we are beginning to embark upon a new era of applied pharmacology which is growing with added understanding from the advancement of these empirical treatments. It is, however, still unpredictable as to whether the use of drugs exerting their actions on one or other portion of the nervous system will be as effective as other means of stimulating the brain centres to the production of biochemical changes within the body.

Arising from such considerations as these the distinctions between electrical convulsive therapy and leptazol (metrazol, cardiazol) become of interest. We have generally used leptazol in preference to electrical convulsive therapy

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