atrophic testes, a normal-sized penis, sparse body hair, XY karyotype, high oestrogen level, and low 17-KS level; their conclusion is that a primary failure of androgen led to the desire for sex change. They describe a female who stopped menses at 28, developed acne, hirsutism, had a deep voice and an enlarged clitoris; their conclusion is that an elevated androgen level led to the desire for sex change.

Unfortunately for the authors' hypothesis, both these clinical pictures are typical of the anatomically normal male and female after a period on oestrogens (for the male) and androgens (for the female)!

Had the authors fully read the references they cite, they would had learned that a case to which they refer of a male transsexual with 'oestrogen-secreting testicular tumour' (Stoller *et al.*, 1960) confessed years later to having secretly taken oestrogens since puberty (Stoller, 1968).

The clinical picture of transsexualism may indeed be, in some or even all cases, contributed to by a deficiency or excess of androgen at a critical developmental period. However, before anyone other than these three authors seriously cites this report as evidence, they had better get proof that these patients were not receiving contra-sexed hormones before the study. Many transsexuals do just that, and present themselves as biologically intersexed so as to mobilize the otherwise static hand of the surgeon.

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PENILE VOLUME RESPONSES, SEXUAL ORIENTATION AND CONDITIONING PERFORMANCE

DEAR SIR,

I should like to criticize the article by Barr and McConaghy in the October 1971 issue of the *Journal* (Vol. 119, p. 377).

The method of measurement described is somewhat inaccurate because of the difficulty in standardizing the volumetric strain ratio of the average penis. Because of this one is not interested in volume change, rather in volumetric strain, i.e. $du/_v$.

A more accurate method than the use of a finger stall and tin can would be to skin glue a soft material strain gauge in the axial direction of the penis. This would then give the linear strain. Presuming that a penis has isotropic properties, the volumetric strain will be approximately three times the linear strain.

This has the advantage of digital read out, and the technique could also be used for measurement of female responses.

I wish to thank Mr. James Forfar, B.Sc., for his technical help.

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MENTAL HEALTH RESEARCH FUND LECTURE

DEAR SIR,

I should be most grateful if you would once again publish an announcement about the Fund's annual lecture.

Professor Sir Denis Hill will be giving the 1972 Sir Geoffrey Vickers Lecture at 5.30 p.m. on Wednesday, 23 February 1972, in the Edward Lewis Theatre, Middlesex Hospital Medical School, Cleveland Street, London, W.1. His title will be *The Purposes and Organization of Psychiatric Research.* Admission will be by ticket only, which can be obtained from the Secretary, Research Committee, Mental Health Research Fund, 38 Wigmore Street, W1H 9DF.

J. M. TANNER.

Mental Health Research Fund,
38 Wigmore Street,
London, W1H 9DF.

LONG-ACTING PHENOTHIAZINE PREPARATIONS IN THE TREATMENT OF SCHIZOPHRENIA

DEAR SIR,

Recent reports in the literature (1, 2) have commented upon the efficacy of long-acting phenothiazine preparations in the treatment of schizophrenia. Our experience in County Down, where we have started 250 patients on these drugs, has confirmed these impressions. All except a very few have been in-patients. Of the 200 remaining on these drugs, half are out of hospital and half are still in hospital.

The two main problems which have arisen have been extrapyramidal side-effects and depression. The extrapyramidal side-effects which have caused most trouble have been dystonic reactions such as facial spasms and grimacing. Perseverance, modifying the dosage of fluphenazine, and anti-parkinsonian medication usually deal effectively with these. We have found an increased incidence of suicidal attempts and a tendency for more violent methods to be used. Of the first 80 patients started on this treatment, a total of 18 have made suicidal attempts. Seven had made these attempts before starting treatment with fluphenazine; 14 made suicidal attempts after treatment was begun. These figures include three who made suicidal attempts both before and after treatment with fluphenazine.

There have been no successful suicides among our

patients, but three have made very serious attempts. All three required surgical treatment but have now recovered physically.

We have not been impressed by the idea suggested by Alarcon and Carney (3) that fluphenazine converts schizophrenia into an affective disorder. The patients who have made the most determined suicidal attempts have certainly shown the more obvious affective disturbance, but in general they have reverted to their former schizophrenic state.

Some of our patients had been in hospital for many years and had failed to show much response to the usual physical methods of treatment, including E.C.T., insulin coma, leucotomy and exhibition of phenothiazines and other drugs in substantial dosage. Quite unexpectedly, some of these patients have done well on intramuscular fluphenazine, to such an extent that they have been discharged from hospital. The suspicion is raised, of course, that these patients had not in fact taken the oral drugs prescribed for them.

To summarize, intramuscular preparations of fluphenazine appear to be an effective method of treatment for schizophrenia; particularly so for relapsed schizophrenics who have previously responded to oral phenothiazines and in cases where relapse has been associated with failure to take oral medication. The severity of extrapyramidal side-effects occasionally prohibits the use of fluphenazine, but severe depressive reaction, with the attendant risk of suicide, remains the biggest drawback. Our three most serious attempts occurred while the patients were in hospital, and it is difficult to see how they could have been prevented.

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1. *Drugs and Therapeutics Bulletin*, Vol. **8**, No. 18.
2. 'Annotation'—*British Medical Journal* (1971), *i*, 189.
3. ALARCON, R. DE, and CARNEY, M. W. P. (1969). *British Medical Journal, iii*, 564.

COMBINED THERAPY OF E.C.T. AND AMITRIPTYLINE AND L-TRYPTOPHAN IN THE TREATMENT OF SEVERE DEPRESSION

DEAR SIR,

Further to the report on L-tryptophan in cases of depression (1 Coppen, 1963; 2 Cocheme, 1970). I would like to report a case of severe depression associated with disturbed liver function, refractory to E.C.T. and tricyclic antidepressant drugs, who benefited by combined therapy of E.C.T., amitriptyline-L-tryptophan and pyridoxin.

A man of 64 years of age addicted to alcohol was on several occasions admitted to hospital between 1955 and 1962. From 1962 there were episodes of depression but less alcoholism. Previous treatment was with anti-depressants and Parentrovite. He is a publican by trade.

The present admission began in November 1970 with an episode of severe depression which was not relieved by tricyclic antidepressants and a course of E.C.T. (6) as an out-patient.

On admission he was very depressed and a further course of E.C.T. and amitriptyline were given with little effect. At that stage it was also discovered that his serum uric acid level was raised (12 mg./100 ml.; urea 86 mg./100 ml.) and his liver function test findings were slightly abnormal (as A.T. (G.O.T.) 202 μ/ml.; L.D.H. 230 μ/ml., Alk. phosphatase 25 μ/100 ml.; cholesterol 302 mg./100 ml.; ammonium sulphate turbidity 3·0 units; zinc sulphate turbidity 5·0 units). He was put on allopurinol for his raised serum uric acid. His condition deteriorated to the extent of refusing all food and medication over the period of a month. His speech was feeble and muttering and he was unable to answer simple questions. At this stage his general condition was so poor that there were fears for his life. In order to relieve his retardation and permit feeding, sodium amytal 250 mg.–300 mg. was tried intravenously with good effect but which lasted for less than 24 hours. On 9 February 1961, L-tryptophan 7 gm. daily was commenced in a chocolate mixture, additionally pyridoxin 50 mg. daily and amitriptyline was given with a transitory effect lasting only for three days.

A further course of E.C.T. (8) and amitriptyline 50 mg. 3 times a day was tried with L-tryptophan 7 gm. daily in divided doses and pyridoxin 50 mg. daily.

A marked improvement after the 3rd E.C.T. (4.3.71) was noticed. The improvement was maintained on the above drugs, the patient became happy, sociable and enjoyed voluntary work in the hospital involving calculations, and was discharged home on 2 April 1971 in the above improved condition. The improvement has been maintained until the present time.

The special interest of this case lies in the failure to respond to E.C.T. and tricyclic anti-depressants over an extended period, but immediate improvement once L-tryptophan was added. It is tempting to speculate that due to his liver disease there was a deficiency in tryptophan which had prevented his response to

1 Alec Coppen, David Murray Shaw, John P. Farrell, *Lancet*, 12th January 1963, p. 79.

2 M. A. X. Cocheme, Alan D. Broadhurst, *Lancet*, 27th June 1970, pp. 1392–3.