tablet—by ascorbic acid, followed by three months of gradual withdrawal of ascorbic acid and eighteen months observation of the patients. The constituent of the replacement tablet was known only to the pharmacist, another consultant and the author.

Ascorbic acid tablets (50 mg.) were chosen instead of inert placebo tablets for the following reasons: Ascorbic acid is one of the essential vitamins, has an obvious taste, is available in tablets different in size from other drugs, has no known serious side effects, and is cheap.

For this trial we selected a hospital which houses 220 severely mentally retarded males, mostly middle aged and elderly, and included all 57 patients who were on tranquillizers. The IQs of the patients varied from 11 to 57 (mean 27·4) and their chronological ages ranged from 20 years 10 months to 63 years 10 months (mean 45 years 9 months). The length of treatment with various tranquillizers, before the trial, varied from 4 months to 13 years 8 months (mean 6 years 7 months). Anti-epileptic, anti-hypertensive drugs and drugs for other physical illness were unchanged throughout the trial.

The results of the trial and our observations are as follows:

1. On 1 January 1970, at the end of the two-year trial, 30 (52·6 per cent) of the 57 patients on tranquillisers before the trial remained off tranquillizers.

2. No side effects were noted throughout the trial.

3. During the two years, 46 patients lost weight (mean 8·9 lb.); 29 patients off tranquillisers lost, on an average, 11·6 lb. and 17 put back on tranquillisers lost, on an average ,5·7 lb. Loss of weight on placebo tablets was noticed in a previous drug trial in the same hospital (Jancar, 1962).

4. Patients put back on drugs had been receiving tranquillizers for an average of 8 years and 4 months before the start of the trial and patients remaining off tranquillizers for an average of 5 years and 4 months.

5. The two periods when the highest number of patients were put back on tranquillisers were during the second month of the trial and at the end of the withdrawal of ascorbic acid.

6. In the group of patients put back on tranquillizers, 20 had physical disorders or mental illness superimposed on mental retardation, while of those who remained off tranquillizers, 9 only were similarly afflicted.

7. There is no significant statistical difference in the IQs and chronological ages between the group still receiving tranquillizers and the group off tranquillizers, but there is an appreciable difference in the length of treatment before the trial ($P = <0{\cdot}01>0{\cdot}002$) and a noticeable difference in loss of weight ($P = <0{\cdot}05>0{\cdot}01$) after the trial.

8. The frequency of fits in the epileptic patients was not affected throughout the trial.

9. There was a saving on the purchase of drugs during the two years.

From the experience and the results we obtained from this trial we are conducting similar trials in other hospitals in the Stoke Park Group. The findings will be compared and reported at a later date.

J. Jancar.

Stoke Park Hospital,
Stapleton,
Bristol BS16 1QU.

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RONYL (PEMOLINE) IN OVERACTIVE MENTALLY SUBNORMAL CHILDREN

Dear Sir,

Mentally handicapped children who show abnormally active behaviour are often admitted to hospital because they are unmanageable at home or in day centres. If their misdirected activity can be controlled, these children will often respond to teaching and training so that they can return home.

The British National Formulary, 1968, suggests that amphetamine is a useful drug for the treatment of troublesome overactivity in children with autism and mental subnormality. The apparently paradoxical effect of amphetamine, a stimulant drug, in such children, prompts the thought that other stimulant drugs might be worthy of a trial. Should alternative drugs be successful, their use would be preferable to amphetamine if they are safer and less likely to be abused.

Pemoline, 5 phenyl-2 imino-4 oxo-oxazolidine is a mild stimulant of the central nervous system. Twelve overactive severely mentally subnormal in-patients, 3 females, 9 males, aged from 7 to 17 years, with Terman Merrill intelligence quotients ranging from 20 to 40 were given pemoline in a double blind trial. They had been in hospital for periods of 2 to 13 years. Five of the patients suffered from epilepsy. Anticonvulsant and major tranquillizing drugs which the patients were receiving were continued unchanged during the trial. There was one case each

of tuberous sclerosis, Down's syndrome, hydrocephalus, De Lange's syndrome, and mongol mosaicism in the series, another boy was mentally retarded after pneumococcal meningitis, and in the remaining six children the mental retardation was of uncertain cause.

The patients continued to follow their usual programme of activities during the trial. They were randomly divided into two groups of six; one group received dummy tablets, the other group pemoline 20 mg. t.d.s.; after 13 weeks the groups were changed over. During each stage the patients' progress was assessed at weekly intervals on a basis of the daily report and clinical observations. A zero score was used for no improvement, an improvement scored one point, a considerable improvement two points. The points for each patient were totalled up for each period of 13 weeks. Eight of the twelve patients showed an apparent improvement on pemoline. The difference between the average score for patients on pemoline (5·75) compared to their score on the placebo (4·92) was statistically significant at the 10 per cent level ($p \leqslant 0{\cdot}07$).

The result of this pilot study suggests that pemoline may be a drug of value in the treatment of overactive mentally subnormal children.

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D. A. SPENCER.

Westwood Hospital,
Cooper Lane,
Bradford 6.