We wish also to record our appreciation to Messrs. Eli Lilly for supplies of penicillin-V potassium (" V Cil K "), and to Messrs. Lederle for supplies of tetracycline (" achromycin "), and to both firms for a grant towards the expenses of the trial. To Messrs. Eli Lilly we express our thanks for their invaluable assistance in the preparation, bottling, and distribution of the capsules in code numbers to the participating chest clinics. It is a particular pleasure to thank all the chest physicians, their staffs and health visitors, the bacteriologists, and general practitioners for their tireless co-operation.

The names of the participating chest physicians are given below, together with the clinics and hospitals at which the investigation was carried out.

Ashford: Dr. P. Baldry, Dr. D. B. Rook. Barrow: Dr. J. R. Edge, Dr. J. C. P. Weber. Birmingham: Yardley Green Hospital, Dr. H. J. T. Ross. Bournemouth: Dr. W. H. Tattershall, Dr. A. T. Hendry. Bristol: Tower Hill, Dr. A. T. M. Roberts, Burton-on-Trent: Outwoods Hospital, Dr. M. B. Paul. Camberwell: Dr. K. Marsh. Camborne: Dr. B. A. Gwynne Jenkins, Dr. E. W. Hughes, Dr. R. L. Ray. Cambridge: Dr. M. J. Greenberg, Dr. R. Bruce. Cardiff: Dr. S. H. Graham, Dr. H. A. Evans. Croydon: Dr. R. H. J. Fanthorpe, Dr. J. F. Heffernan. Doncaster: Dr. F. N. C. Holden. Dudley: Dr. M. Sheldon. Dundee: Dr. R. N. Johnston, Dr. R. T. Ritchie. Ealing: Dr. H. Climie. Edmonton: Dr. R. S. Francis. Epping: Dr. V. U. Lutwyche. Epsom: Dr. S. A. C. Hunter. Farnworth: Dr. J. L. Armour, Dr. F. R. Glover. Finchley: Dr. B. Butterworth. Glasgow: Belvidere Hospital, Dr. R. S. Kennedy; Knightswood Hospital, Dr. G. Johnston; Southern General Hospital, Dr. R. J. Cuthbert. Hammersmith: Dr. Peter Stradling, Dr. D. G. Massey. Ipswich: Dr. Charles Stewart, Dr. P. Embleton, Dr. D. van Zwanenberg. Islington: Dr. J. Wallace Craig. Kingston, Surrey: Dr. S. R. Wilson, Dr. C. O. Edwards. Lewisham: Dr. Mary Farquharson. Leicester: Regent Road, Dr. C. M. Connolly; London Road, Dr. M. C. Brough. Liverpool: N. Liverpool, Dr. W. D. Gray; S. Liverpool, Dr. F. E. Crawley. Mansfield: Ransome Hospital, Dr. D. Davies, Dr. J. J. Glowinski. Merton and Morden: Dr. E. Sanders. Newcastle: upon Tyne: Dr. P. O. Leggat, Dr. L. W. Carstairs. Nottingham: Dr. J. V. Whittaker. Oxford: Dr. F. Ridehalgh, Dr. N. J. England, Dr. J. M. Black, Dr. W. S. Hamilton, Dr. D. O. Lewis. Paddington: Dr. J. A. Keeping, Dr. Z. M. Hall. Reading: Dr. A. J. Karlish. Sheffield: Dr. D. H. Anderson, Dr. R. H. Townsend. Southend: Dr. E. G. Sita Lumsden, Dr. J. D. Stevens. Sunderland: Dr. A. B. White, Dr. G. H. N. Bates. Sutton: Dr. H. F. Harwood. Swansea: Dr. T. W. Davies, Dr. G. L. Lewis. Tonbridge: Dr. S. J. Sutton, Dr. R. G. May. Uxbridge: Dr. J. Nicol Roe. Warrington: General Hospital, Dr. R. M. White. Walthamstow: Dr. Hugh Ramsay. Willesden: Dr. C. H. Toussaint, Dr. J. R. Mikhail. Wimbledon: Dr. F. J. H. Walters. Wrexham: Dr. E. Clifford Jones, Dr. J. E. Wilson, Dr. J. F. Durrans, Dr. M. K. Dhole.

The bacteriologists who carried out the sputum examinations are listed below, together with the names of the peripheral laboratories concerned (see text).

Dr. Elizabeth L. Batchelor, Southern General Hospital, Glasgow. Dr. H. R. Cayton, Public Health Laboratory, Bristol. Dr. P. B. Crone, Public Health Laboratory, Sunderland. Dr. J. M. S. Dixon, Public Health Laboratory, Ipswich. Dr. E. H. Gillespie, Public Health Laboratory, Sheffield. Dr. E. G. Gordon, Wordsley Hospital, Worcester. Dr. D. M. Green, Bacteriology Department, University of St. Andrews. Dr. G. J. G. King, Public Health Laboratory, Boscombe. Dr. W. Kwantes, Public Health Laboratory, Swansea. Dr. H. Lederer, Royal Infirmary, Glasgow. Dr. H. Loewenthal, Chase Farm Hospital, Enfield. Dr. N. S. Mair, Public Health Laboratory, Leicester. Dr. G. B. Manning, Royal Infirmary, Bolton. Dr. T. D. M. Martin, Royal Berkshire Hospital, Reading. Dr. A. J. Oliver, Fazakerley Hospital, Liverpool. Dr. R. A. M. Oliver, Mayday Hospital, Thornton Heath. Dr. E. W. Price, Yardley Green Hospital, Birmingham. Dr. H. C. Purdie, Knightswood Hospital, Glasgow. Professor D. T. Robinson, Public Health Laboratory, Liverpool. Dr. J. A. Rycroft, Westcliff Hospital, Southend-on-Sea. Dr. B. J. Stephens, St. David's Hospital, Cardiff. Dr. J. M. Talbot, Kingston Hospital, Kingston-upon-Thames. Dr. M. Thomas, Public Health Laboratory, Edmonton. Dr. J. E. Tinne, Royal Infirmary, Glasgow. Dr. R. L. Vollum, Public Health Laboratory, Oxford. Dr. A. E. Wright, Public Health Laboratory, Newcastle upon Tyne.

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A TRIAL OF PHENETHICILLIN IN CHRONIC BRONCHITIS

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Phenethicillin is the potassium salt of 6-(α-phenoxypropionamido)penicillanic acid. Knudsen and Rolinson (1959) have shown that when given by mouth the serum concentrations are at least twice those obtained with equivalent doses of potassium salt of penicillin V (phenoxymethylpenicillin) and at least equal to those obtained from the intramuscular injection of approximately equivalent weights of the sodium salt of crystalline penicillin G. Garrod (1960) has emphasized that the antibacterial action of these newer penicillins is not identical with that of penicillin G and considers their place to be doubtful apart from staphylococcal infections. The British Tuberculosis Association (1960) report on chemotherapy in chronic bronchitis indicated that penicillin V, 312 mg. twice daily, was as effective as tetracycline, 250 mg. twice daily, in reducing absence from work.

The Investigation

We record here a double blind controlled trial in a group of 40 patients who were selected on standards similar to those used in the British Tuberculosis Association (1960) report. Patients were wage-earning males between the ages of 30 and 65, working at the time, but with a history of bronchitis over the past three years and at least two certified absences from work due to this complaint. The patients selected were considered to be co-operative and likely to persevere with treatment. Excluded from the trial were those with predominant wheezing, those with any pulmonary lesion other than emphysema, and those with a history of heart failure or any other condition likely to affect their working capacity.

Patients were allotted at random to group A, receiving phenethicillin, or group B, receiving a similar placebo tablet containing dicalcium phosphate and sucrose. In addition to clinical assessment, preliminary examination included a postero-anterior radiograph of the chest, a 24-hour collection of sputum in a graduated flask, two morning sputum specimens for laboratory examination, an estimation of the peak flow rate (mean of three readings) using the Wright peak flow meter (Wright and McKerrow, 1959), and the resting and exercise ventilations, using the Wright respirometer. The exercise test was measured when ten steps had been climbed four times at a standard rate of 116 a minute, controlled by a metronome. (" Normal " values for the last three procedures were obtained by carrying out these tests under identical conditions on twenty men of similar age whose chest radiographs were normal and who had no history of previous bronchitis or present respiratory symptoms.) Patients were given a diary in which to record their general condition as " better," " no change," or " worse," and also the colour of the sputum. Each Sunday a

24-hour sputum collection was measured and the volume entered in the diary. The almoner interviewed each patient and recorded days lost from work owing to bronchitis in the preceding three years and verified by the Ministry of Pensions and National Insurance.

Treatment was started on October 17, 1960, and was continued for six months. Each month the patients were seen at a special evening clinic when the following were recorded: clinical progress; any exacerbation of bronchitis (defined as an exacerbation of cough and sputum in which the latter was more purulent); the number of days off work; the grade of dyspnoea (Fletcher, 1952); the peak flow reading; resting ventilation and exercise ventilation tests; present number of cigarettes smoked daily; any toxic effects from the tablets; any omission of the tablets; and whether any chemotherapy had been prescribed by the patient's own doctor. The number of tablets remaining in the bottle was counted and a new bottle issued. The 24-hour specimen of sputum collected the previous day was brought for examination to check the patients' own record in the diary. The almoner interviewed all patients who were away from work. At the final review in April we recorded, in addition, the patient's own assessment of his condition throughout the winter, repeated the postero-anterior radiograph of the chest, and sent a further two morning sputum specimens to the laboratory. No concentration or liquefaction techniques were employed in the examination of the sputum. Antibiotic sensitivities were measured for the principal pathogens.

Results

Four patients were withdrawn from the trial. One in group A was withdrawn because he was unfit for work when the trial began and has remained unemployed throughout, and another, also in group A, because he proved unreliable and failed to attend regularly. In group B a patient failed to co-operate and another ceased taking his tablets because of gastric upset. Mild toxic symptoms were noted in a further three patients —one (group B) had transient nausea and anorexia, one (group A) had occasional vomiting, and another (group A) complained of headaches and reduced the dose to one-half for ten days. On counting the remaining tablets, all, except one to two patients each month, were found to have the correct number remaining. As the numbers of patients are small it is important to test the comparability of the two groups (Table I).

TABLE I.—*Preliminary Assessment*

	Group A	Group B	
Number of patients remaining	18	18	
Average age	55 years	56 years	
Average work days lost per patient in previous winter	33	34	
Cigarettes per day (1 patient in each group reduced)	6 (20→5)	8 (15→5)	
Initial grade of dyspnoea	2·2	2·2	
Initial peak flow reading (litres/min.)	193	188	N=447
Initial resting ventilation (l.)	25·28	24·34	N=19·3
,, exercise ,, ,,	18·39 (av. of 15)	18·07 (av. of 14)	N=16·5
,, sputum volume	1·25 oz. (35 g.)	1·59 oz. (45 g.)	
Sputum initially mucopurulent	10	10	

The results are shown in Table II. Comparison of the number of days lost from work per patient shows that the observed difference is less than twice the standard error; "t"=1.75; alternatively, P>0.6. No significant difference has therefore been demonstrated. There were no appreciable changes in grade of dyspnoea, or in the peak flow reading, resting ventilation, and exercise ventilation tests during the period of study. The principal pathogens isolated from the sputum initially were *Haemophilus influenzae* in four patients, *Streptococcus pneumoniae* in two, and *Staphylococcus pyogenes* in three; at the end of treatment the respective numbers were one, one, and four. Sensitivity tests showed that the four *H. influenzae* organisms isolated initially were all penicillin-resistant (two in each group), while one of the *Staph. pyogenes* organisms was also penicillin-resistant. Two patients had acquired penicillin-resistant staphylococci by the end of the trial.

TABLE II.—*Results*

	Group A	Group B
Average work days lost per patient	19·5	31
Mean days off per 100 exposed to risk	10·7	17
No. of patients never off work (allowing up to 2 days' absence)	8	10
Number of "exacerbations" in each group (>2 days off work)	9	11
Patient's assessment:		
Improved	10	8
No change	4	6
Worse	4	4

Conclusions.—This double blind trial employing phenethicillin, 250 mg. twice daily and a placebo, in a group of 40 patients with moderately severe chronic bronchitis, failed to show any significant benefit from the treatment.

We gratefully acknowledge our indebtedness to Dr. E. T. Knudsen, of Beecham Research Laboratories, for the "broxil" and placebo tablets used in this trial, to Dr. W. A. Wilson, of the department of social medicine, Queen's College, Dundee, for advice on the statistical analysis; and to Nurse E. Stuart, Nurse G. Taylor, Mrs. P. Brough, and Mr. D. Allan for the help they gave.

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The two Middlesex audiology clinics at Heston and Tottenham have been functioning for some time. Any child residing in the county who needs a full investigation of his hearing can be referred to these clinics through the Area Medical Officers concerned. The Tottenham clinic recently moved to a new building which contains a large acoustically treated and air-conditioned room for clinical examination and testing. A new building was planned some time ago for the Heston unit and this is now in course of erection. The centre will have a large room for clinical examination and testing and one for the various audiometric tests (pure tone and speech audiometry), both fully sound-proofed and air-conditioned. There will also be a room for the teacher of the deaf (auditory training), a room for the psychologist (for intelligence testing), and a room for making impressions from ears for hearing-aid inserts. The staff room will also serve as an observation room, with two one-way viewing windows for purposes of instruction. Visitors will be able to observe the clinical examination and testing and the various audiometric tests. It is hoped that the new unit, which will be called the Hearing Centre, will be completed in six months' time.