

each dose is absorbed before the next one is taken, and very little, if any, will ever reach the duodenum to be acted on by the trypsin in the way Dr. Martin has described.

THE ADMINISTRATION OF CERTAIN DRUGS BY ELECTRICITY.

DR. ARTHUR HARRIES (Pall Mall) writes: In your report of Dr. Cagney's paper on this subject, read on November 7th at the Harveian Society, there are certain statements which are so much at variance with my experience, both in the experimental and therapeutic applications of the cataphoric method, that I feel sure it must include some unintentional errors.

From a fair number of observations with various drugs, I have arrived at the conclusion that electrodes of suitable metal padded with several layers of flannel, are best for working purposes. The positive electrode should correspond in size and shape to the area which it is desired to influence, while the negative electrode should preferably though not essentially be larger. The solution of the drug need not be used at both poles, for reasons which appear in the course of this letter, but it is absolutely necessary that the solution in question should saturate the positive electrode, not the negative as stated in the report. The reasons for this, as I stated to my class in a lecture on the physiological action of the continuous current, delivered on December 5th,¹ are:

a. The direction of mechanical transference of fluids by cataphoresis is always that of the current, namely, from positive to negative.

b. Repeated experiments with a 10 per cent. solution of hydrochlorate of cocaine have distinctly shown that the region covered by the negative electrode, so far from being anaesthetised by the drug, is actually rendered much more sensitive to pain than before the application, while the area covered by the positive electrode becomes insensitive to the passage and action of a needle used to electrolise hair.

The time mentioned in the report, ten to fifteen minutes, was not long enough to give the tests for iodide of potassium in the urine when that salt was used, neither was that period anything like long enough to produce anaesthesia of the skin when cocaine was employed. The report states that the current should be reversed every minute. May I ask why? Possible polarisation does not necessitate these reversals, for as long as a galvanometer in circuit gives evidence of sufficient current strength, that element, polarisation, is negligible. Further, the results referred to under note b, show very clearly that reversals, so far from being of service, actually interfere with the conditions necessary for efficient cataphoresis.

After what I have stated, it is manifest that if a needle be used at all, it must not be in connection with the positive pole, as the report states, but with the negative pole. The chief advantage of such a method is, of course, the reduction of resistance, but there are strong reasons against its employment; chief among these are:

1. Pain. 2. Electrolytic action. 3. The ease with which less painful methods can be used. It would take up too much of your space to discuss these points further at present, but I hope shortly to record a somewhat extensive series of observations, made in conjunction with Mr. Newman Lawrence, not only experimentally but therapeutically, upon which we have for some time been engaged.

I may be permitted perhaps, with reference to the President's remarks, to say that we found a current strength of 10 to 15 milliampères applied for thirty minutes, by means of the pads described above, quite sufficient to pass iodide of potassium into the kidneys in quantity large enough to give distinct chemical tests in the urine. And, for the reasons stated, polarisation is decidedly not desirable when we wish to employ cataphoric medication, which by the way, as far as the iodide of potassium is concerned, is not by any means a new process.

I agree that cataphoric medication has a great future, but I trust, sincerely that its near future may be based only on careful observations and accurately ascertained data.

COMMUNICATIONS, LETTERS, etc., have been received from:

Mr. R. M. Beachcroft, London; Surgeon I.M.S.; Dr. V. Sinclair, London; Dr. Steele, Baling; Physician and Surgeon; Dr. R. Stockman, Edinburgh; Professor H. Krause, Berlin; Dr. W. Blair, Jedburgh; Mr. C. W. S. Barrett, Hinchley; Dr. D. H. Barley, Leeds; Mr. J. Poland, London; Mr. W. C. Finch, Salisbury; Dr. E. M. Skerritt, Clifton; Lieutenant-Colonel J. N. Dean, Ardwick; Mr. F. C. Larkin, Liverpool; Dr. W. McGowan, Maghera; Our Liverpool Correspondent; Dr. Halliburton, London; Mr. F. Churchill, London; Dr. Ward Cousins, Southsea; Mr. Adams Frost, London; Mr. Towers-Smith, London; Dr. J. B. Haycraft, Edinburgh; Dr. C. R. Illingworth, Accrington; Dr. J. Rouvier, Bayreuth; Dr. W. Collier, Oxford; Mr. T. Holmes, London; Dr. W. Sykes, Mexborough; Dr. R. Saundby, Birmingham; Dr. T. H. Bickerton, Liverpool; Dr. J. Wilding, Bristol; Clarke's Wafer Co., London; Messrs. J. Wright and Co., Bristol; Dr. C. R. Drysdale, London; Mr. A. Cooper, London; Dr. J. Brown, Bacup; Dr. G. J. H. Evatt, Quetta; Dr. A. D. MacDonald, Liverpool; Dr. J. Adams, Eastbourne; Mr. J. McElfatrick, Kilrea; Dr. D. Buxton, London; Dr. C. B. Taylor, Nottingham; Mr. J. A. Sharp, Derby; Surg. F. G. P. Lewis, Cork Harbour; Dr. T. C. Raiton, Manchester; Mr. J. Whitehouse, Sunderland; Surgeon-Major J. C. H. Peacocke, Karachi; Mr. A. T. Nisbet, Newton Abbot; Mr. H. Smith, Northampton; Dr. G. Thin, London; Messrs. Hazell, Watson, and Viney, London; Dr. Leslie Phillips, Birmingham; Mr. N. Stevenson, London; Dr. W. J. Cummins, Cork; Dr. Myers, London; Dr. Rentoul, Liverpool; Mr. Johnson Smith, London; Sir Spencer Wells, London; Mr. G. Fischer, Jena; Surgeon E. J. E. Risk, Gravesend; Dr. H. Handford, Nottingham; The Secretary of the Epidemiological Society of London; Dr. R. Jones, Redhill; C. S. Evans, M.B., Shaftesbury; Mr. W. Jones, Liverpool; Mr. T. Blair, Leeds; Dr. H. Woods, London; Mr. R. G. Ellis, Shipley; Mr. J. Barker, Shorne; Dr. Henry Tomkins, Leicester; Common Sense;

5th Lecture of Course on Elementary Electro-physiology and Therapeutics, at The Institute of Medical Electricity, 24A, Regent Street.

Mr. M. H. Bleakley, Birkenhead; Mr. G. Smith, London; Dr. F. Beach, Dartford; Dr. P. M. Deas, Exeter; Mrs. T. Green, Bordighera; Mr. S. Clogg, Looe; Dr. F. E. Clarke, Boyle; Dr. R. R. Davidson, Cork; Mrs. Sansom, St. Denys; Dr. A. D. Keith, Aboyné; Mr. E. E. Moore, Downpatrick; Dr. A. Robertson, Glasgow; Dr. F. W. L. Hodder, Grouville; Mr. H. A. Lawton, Poole; Mr. B. Hollander, London; Sir Thomas Longmore, C.B., Woolston; Dr. R. Fegan, Blackheath; Mr. G. C. Jack, London; Dr. Lowe, London; Mr. C. W. Harris, London; Mr. J. B. Martin, Ventnor; Mr. W. Bernard, Londonderry; Surgeon-Major R. Vacy-Ash, Brighton; R. Kirkpatrick, M.B., Edinburgh; Dr. H. Corby, Cork; Mr. J. E. Bennett, Liverpool; Our Newcastle-on-Tyne Correspondent; M.B., C.M.; Dr. A. Ashby, Reading; Dr. Williams, Dolgelly; The Secretary of the Hospitals Association, London; F.R.C.P.; Dr. G. Revington, Manchester; Dr. E. Symes Thompson, London; Mr. R. C. Harrison, Ealing; Mr. H. Quilter, London; Mr. C. J. Evans, Northampton; Dr. Alder Smith, London; Dr. T. P. Gostling, Worcester; Dr. F. C. Turner, London; J. W. Eustace, M.B., Dublin; J. Altham, M.B., Penrith; Mr. G. P. Atkinson, Pontefract; Mr. F. Marsh, Birmingham; Mr. H. Wickham, Rufford; Dr. Thorne Thorne, London; M.D. Lond. Honours; Dr. Cardew, Cheltenham; Mr. E. Cresswell Baber, Brighton; Dr. W. A. Carline, Lincoln; Our Manchester Correspondent; T. Bell, M.B., Worcester; Dr. R. T. Smith, London; Dr. W. M. Harman, Winchester; Dr. D. MacRitchie, Huntingdon; Dr. Willoughby, London; Mr. L. A. Barrow, Aston; Dr. T. W. Hime, Bradford; Mr. A. H. Benson, Dublin; Mr. A. Whyte, Brecon; Mr. G. Cadogan, Masterman, Stourport; Dr. A. H. Hassall, San Remo; Dr. G. Sims Woodhead, Edinburgh; Dr. J. Davies, Maesteg; A. Middlesbrough Practitioner; G. P. O.; Mr. G. A. Johnston, Ambleside; Mr. C. P. Hemmings, Bishop's Waltham; Alpha; Fleet-Surgeon M. F. Ryan, Devonport; Mr. P. J. O'Donnell, Cadoxton; Mr. R. H. Baxter, Bristol; Dr. G. W. Crowe, Worcester; A. E. Maylard, M.B., Glasgow; Mr. J. Hutchinson, London; Mr. W. H. Haley, Wakefield; Dr. Balding, Royston; A Member, Mr. G. S. Johnson, London; F. M. Pope, M.B., Leicester; Dr. H. Campbell Pope, London; Mr. Henry Smith, Northampton; Dr. T. Churton, Leeds; Dr. I. Burney Yeo, London; Dr. A. Sheen, Cardiff; Mr. C. A. Senn, London; Mr. M. C. Rimmer, London; J. Edgar, M.B., Glasgow; etc.

TO CORRESPONDENTS.

OUR correspondents are reminded that prolixity is a great bar to publication, and, with the constant pressure upon every department of the JOURNAL, brevity of style and conciseness of statement greatly facilitate early insertion. We are compelled to return or hold over a great number of communications chiefly by reason of their unnecessary length.

BOOKS, ETC., RECEIVED.

Geographical Mechanism. By J. Spottiswoode Cameron, C.B. London and Manchester: John Heywood.
Practical Guide to the Demonstration of Bacteria in Animal Tissues. By Dr. H. Kuhne, Wiesbaden. Translated and edited by Vincent Dörner Harris, M.D. London: Baillière, Tindall, and Cox. 1890.
The Year Book of Treatment for 1890. London: Cassell and Co. 1890.
The Science of Metrology, or Natural Weights and Measures. By the Hon. E. Noel. London: Edward Stanford. 1889.
A German-English Dictionary of Medical Terms. By Frederick Treves, F.R.C.S. Eng., and Hugo Lang, B.A. London: J. and A. Churchill. 1890.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE "BRITISH MEDICAL JOURNAL."

Seven lines and under	...	...	...	£0	3	6
Each additional line	...	...	...	...	0	4
A whole column	...	...	...	...	1	15
A page	...	...	...	...	5	0

An average line contains seven words.

When a series of insertions of the same advertisement is ordered, a discount is made on the above scale in the following proportions, beyond which no reduction can be allowed.

For 6 insertions, a deduction of	...	...	10 per cent.
" 12 or 13 "	"	"	20 "
" 26 "	"	"	25 "
" 52 "	"	"	30 "

Special terms for occasional change of copy during series:

20 per cent. if not less than 26 pages be taken	...	...	or their equivalent
25 "	52 "	"	in half or
30 "	104 "	"	quarter pages.

For these terms the series must, in each case, be completed within twelve months from the date of first insertion.

Advertisements should be delivered, addressed to the Manager at the Office, not later than noon on the Wednesday preceding publication; and, if not paid for at the time, should be accompanied by a reference.

Post-Office Orders should be made payable to the British Medical Association at the West Central Post-Office, High Holborn. Small amounts may be paid in postage-stamps.

NOTICE.—Advertisers are requested to observe that it is contrary to the Postal Regulations to receive at Post-Offices letters addressed to initials only.