

THE
National Telephone Journal

JUNE, 1911.

THE SEVENTEENTH ANNUAL STAFF DINNER.

IMPORTANT SPEECH BY THE POSTMASTER-GENERAL.

THE seventeenth annual Staff Dinner of the National Telephone Company was held in the Grand Hall of the Hotel Cecil, Strand, W.C., on Thursday evening, May 25. Mr. Albert Anns (the Secretary) presided over a large gathering.

On his right was Dr. George Franklin (President of the Company) and on his left the Right Hon. Herbert Samuel, the Postmaster-General. The guests included Lord Harris, Major W. A. J. O'Meara, Mr. S. H. Sands (Vice-President), Sir Robert Hunter, Mr. W. A. Smith, Mr. A. M. Ogilvie, Sir John Gavey, Mr. G. H. Robertson, Mr. S. Z. de Ferranti (President of the Institute of Electrical Engineers), Mr. C. S. Agnew, Mr. A. Siemens (President of the Institution of Civil Engineers), Mr. G. Morgan, Mr. W. O. Danckwerts, K.C., Mr. Edward Morten, K.C., Mr. J. E. Kingsbury, Mr. G. F. Preston, Mr. J. Swinburne, Mr. H. Fedden, Mr. R. H. Claxton, Dr. R. M. Walmsley, Mr. W. Dudell, Mr. A. N. Bromley, Dr. A. Russell, Mr. W. M. Crowe, Mr. T. A. Welton, Dr. Grosvenor, Mr. A. S. Hibbard, Mr. J. F. Bond, Mr. H. Laws Webb, Mr. H. F. Anns, Mr. C. A. Baker, Mr. H. S. Carey, Mr. A. A. Clark, Mr. T. C. Jenkin, Mr. A. Ross, Mr. G. Sutton, Mr. S. Thirkell, Mr. H. T. Waddy and Mr. H. H. Gaine. The chief officers present were Mr. F. Gill, Engineer-in-Chief; Mr. S. J. Goddard, General Superintendent; Mr. W. E. Hart, Solicitor; and Messrs. C. B. Clay, J. C. Chambers, A. Coleman, W. W. Cook, F. Cowley, R. A. Dalzell, E. Hare, C. J. Phillips, R. Shepherd and F. Douglas Watson.

The following members of the staff and their friends were present:—

Messrs. W. Aitken, R. Aitken, F. Albany, A. J. Aldridge, W. Allan, H. J. Allen, O. Allen, S. O. Allen, W. W. Allen, V. Alsop, J. M. Anderson, C. Appleford, E. Armstrong, C. F. Arrowsmith, C. F. Ashby, J. Ashton, J. S. Atkinson, R. Audsley, J. C. Bacon, C. F. Baldwin, F. G. C. Baldwin, V. Baldwin, A. E. Ball, A. J. Barnes, W. Barnett, H. Barnett, F. Barr, E. C. Bates, T. A. Bates, A. H. Baxter, G. Bean, R. S. Beckwith, R. W. Bell, R. C. Bennett, J. S. Best, J. H. Bigland, W. Biles, J. A. Blackwood,

R. J. Blackwood, W. E. Blake, C. J. Bodenham, W. R. Bold, C. A. Bostock, T. S. Bowes, A. Bowers, C. H. Brandreth, J. Brentini, J. Bridger, J. W. Briggs, A. G. Bristow, H. H. Broomhead, J. L. Brown, F. B. Brown, J. R. Brown, W. Brown, W. Brown, G. Buckeridge, J. Burnside, R. B. Bumiller, E. S. Byng, J. W. Champion, A. E. M. Carey, G. M. Carr, C. W. L. Carter, H. Chambers, R. M. Chamney, A. Chanter, C. Chanter, R. Chanter, W. B. Cheetham, P. Chester, T. J. Clark, R. Clunan, P. R. Cockrem, A. J. Cohen, B. S. Cohen, M. E. Connor, A. E. Coombs, J. F. Coote, T. Cornfoot, H. G. Corner, A. E. Cotterell, W. Coulsell, W. L. Cowderoy, W. B. Crompton, T. E. Crosby, R. F. Crow, F. D. Crowe, W. Cullum, A. L. Curling, R. Curling, P. F. Currall, J. Darke, H. M. Darville, F. H. L. Davies, H. Davis, J. E. Day, H. F. Deane, A. Dearle, A. L. De Lattre, A. C. Devey, W. Dickinson, F. C. Disher, P. V. Dowson, C. E. Drabwell, A. L. E. Drummond, F. Duerth, F. P. Dumjahn, A. Du Vernet, H. Eady, T. J. Early, P. Edmond, J. F. Edmonds, C. Edwards, C. Elliott, H. Elliott, P. Erikson, L. G. Evans, C. W. Eve, J. Ewing, L. J. Farries, A. Faulkner, C. E. Fenton, J. G. Ferguson, S. S. Firth, T. Fletcher, W. S. Foale, W. M. France, E. S. Francis, F. W. Francis, D. B. Fulton, J. R. Gall, A. Garner, W. E. Gauntlett, F. W. George, E. J. Gillett, G. Gillmore, W. H. Glencross, E. H. Goodman, J. A. Gordon, A. Gray, G. H. Gray, H. C. Gray, W. J. Gray, H. Green, G. F. Greenham, W. H. Gunston, J. H. Gwyer, E. L. Hague, W. Haimes, A. C. Haley, J. W. Hambleton, T. Hann, T. E. Hanson, F. W. Hanson, R. W. Harding, W. R. Harding, A. H. Harris, T. Harrison, W. J. Hart, F. C. Hawker, P. Head, G. Hey, F. W. Hibberd, E. J. Hidden, S. F. Hill, F. G. Hives, J. Holden, G. W. Hook, E. Hooper, G. Hooper, L. T. Horne, W. Howe, C. Hughes, H. Hyde, S. H. Ings, R. W. Jackson, J. James, E. J. Jarrett, J. H. Jenkins, F. K. Jewson, E. J. Johnson, G. Johnson, J. A. Johnson, R. Johnson, J. E. Jones, T. W. Jowett, Major Kennedy, A. M. Kidd, F. G. A. Kiff, J. King, W. H. King, H. Kingsbury, P. P. Kipping, W. H. Kirk, J. H. Kirkham, W. C. Knapman, E. A. Laidlaw, A. R. Lamb, F. D. Latimer, O. G. Lee, T. F. Lee, W. Lee, J. Lemon, L. H. Lewis, H. P. Lloyd, R. W. Lloyd, W. U. Lonnon, F. A. B. Lord, J. N. Lowe, L. H. Lowe, A. Lynn, S. Maber, D. Macadie, W. Macauley, H. S. McCashin, G. A. McDonald, F. G. McGinness, D. McIntosh, K. McKenzie, A. G. Mackie, J. McLeish, N. McLeod, A. Maclean, H. J. Maclure, G. M. Maddock,

A. Magnall, G. Mahn, J. B. Mairs, W. J. Marsh, A. Martin, J. Mewburn, W. J. Miller, H. C. H. Minns, S. Moody, C. E. Morgan, R. Morgan, L. F. Morice, C. F. Moorhouse, W. V. Morten, A. K. Murray, J. K. Murray, W. Napier, J. Newland, E. W. Newton, G. E. Nichols, A. K. Noakes, W. Noble, A. A. Notley, J. J. O'Connor, F. Oliver, W. C. Owen, W. Padget, E. T. Payne, G. A. Payton, C. T. Peacock, J. R. Peacock, W. V. Pegden, E. A. Pearson, H. M. Pease, A. Perkins, T. Pettigrew, S. J. Pharo, C. H. Phillips, H. Phillips, C. W. Piggott, H. S. Plymen, S. H. Pook, J. Poole, G. Pratt, P. H. C. Prentice, L. Price, E. L. Preston, T. A. Prout, A. Pugh, J. D. Pugh, T. F. Purves, A. R. Pulford, J. E. Pullen, R. B. Rae, C. G. Ransley, E. J. Rathbone, C. E. Redhead, C. H. Redhead, H. Reid, C. Remington, T. C. Rhodes, W. F. Rhodes, T. Richardson, A. Roberts, F. Roberts, D. Robertson, T. Rodger, E. Rowan, A. E. Ruddock, C. W. Salmon, N. A. Saltmarsh, H. G. Savage, J. Scott, W. D. Scutt, W. R. Senior, J. M. Shackleton, J. Shea, F. W. Shorrocks, C. H. Sibley, F. E. Sims, A. M. Sinclair, A. W. Smith, F. M. Smith, J. T. M. Smith, S. J. Smith, J. Sneath, A. Spargo, C. F. Spears, A. Speight, E. R. Spence, G. F. Staite, B. Standen, O. W. Stevens, J. D. W. Stewart, W. D. Stewart, O. S. Stiles, W. E. Stiles, J. Stirling, E. E. Stockens, J. H. Storrie, C. F. Street, D. Stuart, C. H. Summers, F. Summarsell, H. B. Sutcliffe, J. H. Swain, J. W. Swithinbank, A. O. Tame, J. T. Tattersall, W. Taylor, F. C. Taylor, F. D. Taylor, F. W. Taylor, W. F. Taylor, J. S. Terras, J. Thirkettle, H. S. Thompson, H. H. Thomson, W. Thyne, J. E. Tinker, R. Tucker, A. T. Turney, J. W. Ullett, W. A. Valentine, B. Waite, G. Walker, J. C. Walker, J. H. Wall, D. Wallace, G. S. Wallace, A. S. Wallis, W. E. Walton, N. F. K. Ward, S. R. Warren, F. E. Waters, J. K. Waters, J. H. Watkins, A. M. Watt, A. Watts, P. Wayne, S. W. Weatherburn, W. E. Weston, C. E. Wetton, J. W. Wheeler, S. F. Whetton, J. T. Whitelaw, H. H. Wigg, F. Wilkins, R. H. Williams, E. Williamson, R. Williamson, A. B. Willis, G. K. Wilson, J. H. Wilson, L. E. Wilson, F. Winchcombe, C. S. Wolstenholme, E. J. Woods, F. A. S. Wormull, C. C. Worte, A. R. Wran, C. G. Wright, J. Wrigley and S. A. Young.

The following newspapers were represented:—*The Times*, *Standard*, *Daily Telegraph*, *Daily News*, *Daily Mail*, *Electrician*, *Electric Engineer* and *Electrical Review*.

After the usual loyal toasts had been duly honoured, the CHAIRMAN, in proposing the toast of "The National Telephone Company," said:

Mr. Herbert Samuel and Gentlemen,—This is a memorable occasion, not only because it must of necessity be the last of these annual gatherings during the official existence of the Company, but because it is our happiness and our good fortune to have with us to-night, for the first time, His Majesty's Postmaster-General. (Cheers.) I need hardly say how warmly we welcome him, or how much we appreciate his presence, and that of the other representatives of that great Department of the State, the General Post Office. (Hear, hear.) Time will not permit of my referring to the many services which are so ably and efficiently rendered by the Post Office, and I must content myself with merely mentioning the greatest of those services, that is the collection and delivery of letters, in which it is pre-eminent among the nations of the world. When you talk of the Post Office you naturally think of the Parliamentary chiefs who have presided over the destinies of the Department during the period of the existence of the National Telephone Company; and when you remember that the position of Postmaster-General has been filled, as it is at the present time, by able and distinguished men, and that behind the Government is Sir Robert Hunter, you will appreciate how strenuously the Directors have fought, in cricket parlance, to keep our end of the wicket up, and it is not at all improbable that on the 1st January, 1912, we may still be "not out." (Laughter and cheers.) You will recollect that when we met last year we were lamenting that so many loyal servants of the Company, through no fault of their own, but for reasons of which you are all well aware, were being forced to leave the Company's service and to seek employment elsewhere. It was a great relief to all of us, and one that we received

with much thankfulness, when the President with the hearty concurrence of every member of the Board declared that, no matter at what cost, these dismissals should cease, and, Gentlemen, they have their reward in the monthly returns which show the ever-increasing prosperity of the Company? (Cheers.) Then there was another matter about which you were very unhappy, and as to which I know you are still much worried, and that was with regard to your future as servants of the Crown. I was hoping, and I had good grounds for my hopes, that the President would have been able to-night to indicate to you that a satisfactory arrangement had been made regarding your future as servants of the State. But the consummation of my hopes is not yet, the good tidings seem to loiter by the way, and I am still nursing my optimism that all will come right in time. After your splendid services to the State, for your services have been rendered to the State—for are you not licensees of the Postmaster-General and have you not contributed enormously to the revenues of the State—and having regard also to the recommendation of the Select Committee of 1905 that no servant of the Company should suffer on the transfer, I say that it is not right—it is not just that you should have this cruel anxiety with regard to your future prospects as servants of the State. If the rules and regulations of the Civil Service do not adapt themselves to the present state and condition of affairs, then I submit very respectfully that those rules and regulations should be amended so that justice—and you are asking for nothing more—should be done to every member of the staff. (Hear, hear.) I know this is a matter on which you all feel very keenly, and I cannot trust myself to say anything more on the subject except to reiterate my firm conviction, which I have stated on previous occasions, that in the end you will all receive fair treatment. Since the last dinner you have started on the colossal work of making an inventory of the multitudinous items which are called our plant. Recently there has been the numbering of the people—what we ordinarily call taking the census—and it has been a great task, but as far as details are concerned I do not think it will compare with the work which you have now in hand and which is being done by the Inventory staff. It is quite true that in the papers which we had sent to us in respect of the census we were requested to state our ages, but we were not asked to state what our expectation of life was, what our unexhausted capacity was, or on what basis we were making provision for the depreciation which is taking place in each one of us day by day. (Laughter.) And when one realises the magnitude of the task which is now on your shoulders, is it to be wondered at that a doubt has arisen in the minds of some of us whether all this work and great expenditure ought to be necessary in order to determine the value of our undertaking. But Parliament in its wisdom has declared that it is, and all we have to do now is to carry out loyally the terms of the Agreement of 1905. A great deal has been said and written with regard to the flat and measured rate methods of charging for the telephone service. Why it is called the flat rate I never could understand, for it seems to me it was the sharp ones who took advantage of it. (Laughter.) But I think a great deal can be said for the subscribers on the flat rate system, who have been supporters of the Company from the very beginning, and who, like a man who puts his money into a mining venture, is content to take the risks and to wait and hope for success. But that is no reason why those who come in afterwards, when success is assured, should not pay the full price for the benefits they receive. Now may I give you a few figures to show the extent and magnitude of the Company's business? On Dec. 31, 1910, you had opened 1,570 exchanges, you had connected up over 530,000 stations, and you had spent on capital account about sixteen millions of money. With regard to the last item I want to point out that in view of the uncertainties of 1911 the Directors' policy has always been to charge the capital account as lightly as possible, and to let the heavier burden fall on revenue account. By this I mean that had we been a continuing company such, for instance, as a railway company, the capital account would have been swollen—and very properly swollen—to quite a considerable extent. But I must be careful not to let out too many secrets or I may be cashiered before the "appointed day." (Laughter.) But I think I have said enough to make you understand that the capital account does not represent the full amount you have spent on this business, in the same way as the revenue

account does not disclose the true profits to be derived from this undertaking. Then the gross revenue was over £3,400,000, and as you know the first charge on this revenue is the Government tax, which last year was about £330,000, and which will, before the end of the licence, amount to about three and three-quarter millions of money. In other words, you will have made the nation a present, in the shape of royalties, of an amount nearly equal to the value of two Dreadnoughts. Well, on the top of these royalties you have rates and taxes—last year about £150,000—taxation without representation, and these royalties and these rates and taxes make you appreciate the position of poor Sinbad the Sailor with the Old Man of the Seas round his neck trying to stifle the life out of him. (Laughter.) But despite all these burdens you showed a net profit of over £1,100,000, surely a very fine achievement. (Hear, hear.) And as regards the staff, of which I am proud to be a member, and which numbers at the present time about 18,000 men and women, I must fall back on the words used by the President at recent meetings of the Shareholders when he told them that for efficiency and for loyalty it was second to none of any of the companies with which he was associated or had any knowledge of. And thank goodness, with regard to the staff there is no question of its suitability or of its being necessary to conduct the business which you have hitherto carried on so successfully. And what is to be paid for this great business and this wonderful organisation? Well, you are not to receive anything for the business, you are not to receive anything for the organisation. The proposal is that you shall be paid only for a portion of your plant, land and buildings, and that at a depreciated value. Now when you consider these terms and the advantages and benefits that pass to your successors, I am sure you will endorse what I said, I think last year, that it will be a transaction without a parallel in the commercial history of the world. With all these facts before it, I cannot and will not believe that the Government will approach the settlement, either as regards the staff or as regards the shareholders, in what I might call a niggardly spirit. (Hear, hear.) When Benjamin Disraeli, with that foresight so noticeable in members of the gifted race of which he was such a brilliant example, acquired the Khedive's shares in the Suez Canal, the advantages which accrued to this country were great, but I venture to think that they will be as nothing compared to the benefits which will come to us from a social, domestic and commercial point of view, when this telephone business passes into the hands of the State—or some authority—that has a free hand, which we never had; unlimited capital, which we never had; and statutory powers to enable it to do the work in the quickest and most economical manner, which, again, we never had. By this I do not mean to suggest that you have not done well. On the contrary, I think you have every reason to be proud of the magnificent business which you have created and established in spite of the almost insurmountable obstacles and difficulties that have been placed in your way by Government, by local authorities, and by individuals. You have been the pioneers of this great industry, you have borne the heat and burden of the day, and, like the settlers of old, you have cut a path through a veritable jungle of difficulties and obstructions and you leave a broad and a safe way for those who come after you. This is not the time or place in which to remind you of the inconsistent treatment which has been meted out to the Company by successive Governments, nor dare I refer to the Agreement of 1905, which hitherto we have called the purchase agreement, but which for the future I suppose we shall refer to as the objectionable agreement. And when the true history of the Company, the inner history, comes to be written, as I hope it may be some day, and the whole truth is known, I am confident that the verdict of posterity will be that the National Telephone Company deserved well of the nation. (Cheers.) It may be that, for some of us, the next few months will bring us to the parting of the ways, and we may have to say goodbye to loved and loyal comrades with whom we have worked in such happy fellowship for so many years. For some it may mean making a new start in life, perhaps in that great land which is sometimes called the New World, and where energy and intelligence so often meet with a full reward. But when the end does arrive I confidently anticipate that the President, as voicing the sentiments and feeling of the Board of Directors, will send to each and every one of you the

message, "Well done, thou good and faithful servant." And now, for the last time, I have to ask you to wish the National Telephone Company, during the few remaining months of its existence, a continuance of that bright prosperity which is at present shining upon it, and with this toast I couple the name of one who has been a just chief and a dear friend to every one of us—our esteemed President, Mr. George Franklin. (Loud cheers.)

Mr. GEORGE FRANKLIN (the President), who was accorded a very hearty reception, said: Mr. Chairman, Mr. Samuel, and Gentlemen, it is with a feeling of considerable pleasure that I rise to respond to the toast which the Chairman has proposed so ably, and which you have welcomed so enthusiastically. The Chairman has referred to this as our last annual dinner. All I can say is that if this is a funeral feast, and if the meats of which we have partaken are the baked meats which accompany such an occasion, we have every reason not to be downhearted—at all events I see no signs of downheartedness on the part of the audience. (Hear, hear, and laughter.) I am able to assure the Postmaster-General tonight, as I have assured his predecessors, that among all the assets—the valuable assets—which he will take over with the property of the National Telephone Company, he will have none of greater value than the able and devoted staff of this Company. (Cheers.) I have been asked by Lord Hartis, who has been commanded by the King to attend His Majesty's Court, to apologise to you on his behalf for his slipping away rather early in the evening. Other of my colleagues are here, and will be able to bear testimony to the feeling which the Board of Directors have with regard to the staff, as to which I wish more particularly to refer hereafter. The Chairman has reminded us in his speech that the year 1911 has arrived, and he has also reminded us that 31 years ago, or thereabouts, this National Telephone Company was born of the Post Office. Therefore, we may say that the Post Office stands in the position of parent to the Company. The Scriptures say that "man is born unto trouble." Certain it is that the Company has been born unto a succession of troubles. (Laughter.) Year after year, since it came into existence, the Company has been the object of a series of attacks, and whether in that we recognise a form of parental discipline, or look upon them as affection which is only concealed, I think we shall recognise that, perhaps, after all the spirit of our parent was the spirit of the Spartan mother who, on offering to her son his shield, said, "Either this or upon this." I imagine that when a Postmaster-General gave a license to the Company it was given in the spirit of that Spartan mother. (Laughter.) Now, parents, I am told, often find their children a source of expense, but in this case it is the child that has found the parent a great source of expense. (Laughter.) No less than 23 per cent. of the Company's net earnings, or 10 per cent. of the gross earnings, have been absorbed by its parent, the Postmaster-General, and have been exacted for the full term of 31 years, or thereabouts, and that for no consideration at all. I suppose that on the demise of the offspring, which is to take place shortly, the latent affection of the parent, which has been but concealed from our eyes all this time, will be revealed and become more manifest, in which case many of the difficulties which appear to confront the lawyers and surveyors to-day will be things of the past. Two years ago the late Secretary to the Postmaster-General, Sir Henry Babington Smith, speaking on the occasion of your annual dinner, referred to the relations between the Post Office and the Company as those having reference to an engagement in marriage, and he hinted at difficulties in regard to settlements. Unfortunately, I am unable to say that those difficulties have disappeared, but I venture to think that with a clear-sighted view which is permissible even in telephone questions, it is possible that those difficulties which loom large to-day may be smaller by and bye. The Chairman has referred to figures, which, after all, are more eloquent than facts. (Laughter.) At all events it is said they prove a great deal more. You have this solid fact with regard to the National Telephone Company's business, that, whether it be on the flat rate or measured rate, putting all the messages together, we find that the number transmitted during the past year numbered something like 1,500 millions. That is a record of which I think any company can be proud. (Hear, hear.) The Chairman has

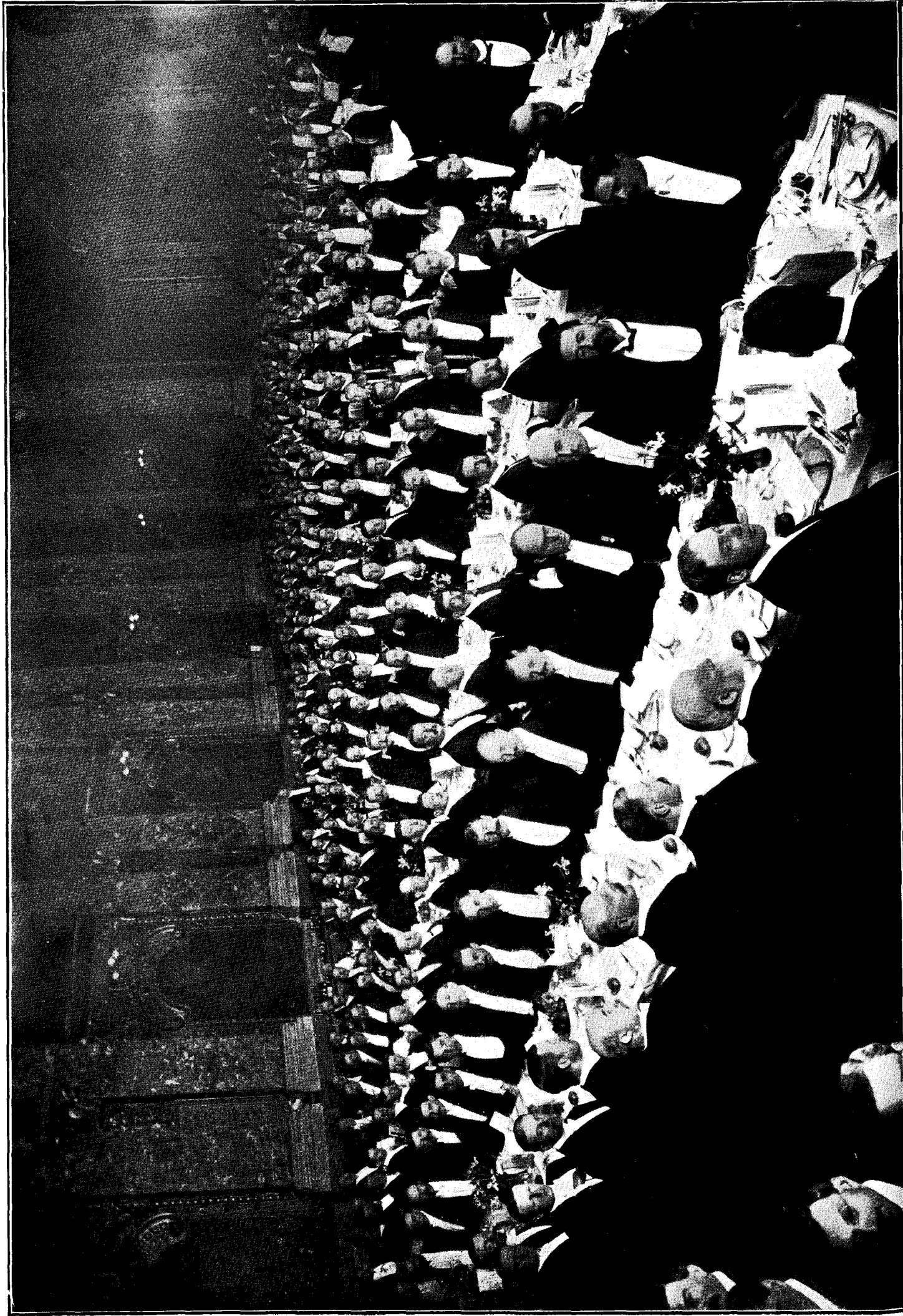
also referred to the gross income of the Company of some three and a half millions, and to the number of the Company's stations of some 550,000. Those figures are eloquent of the fact that, notwithstanding the difficulties which have been imposed upon us, the Company have endeavoured, as Englishmen do as a rule, to grapple with them and turn them to the best account possible. At all events those figures constitute a record of which this Company may be and are justly proud. Now, this brings me to the position of the staff. The Board feel very great pride in the work which has already been accomplished, and that reminds me that during the past year there has been placed upon the staff a very great additional burden by reason of the inventory now being prepared for the benefit of the Postmaster-General. The inventory is occupying a period of something like fifteen months, and a very large staff are engaged upon it. But the point I want to make is that the Board are full of appreciation of the way in which the staff generally have responded to the call made upon them in connection with the taking of the inventory. They are full of appreciation of the admirable way in which that inventory has been so far made; they are full of appreciation of the fact that without any attraction at all the officers of the Company responded most willingly to the heavy call made upon them in reference to that work. I have said so much with regard to the Inventory staff, but a not less meed of appreciation ought to be given to those who are stopping at home and largely doing the work of those who have gone on the Inventory staff. (Hear, hear.) That is a little less heroic, perhaps, but it is no less serviceable, and it is none the less appreciated by the Directors. (Hear, hear.) My colleagues and I have fully appreciated the fine spirit which has been displayed by the staff throughout, and as to the arrangement for the staff on the transfer of the undertaking to the State, let me say that the policy and desire of the Board is that no officer of the Company shall be prejudiced by reason of his transfer. This was the recommendation of the Select Committee of 1905, a recommendation which I have no doubt will have full weight with His Majesty's Postmaster-General, who has given us the pleasure of his company here to-night. (Cheers.) Those of us who have seen and watched with keen interest the attitude which the present Postmaster-General assumes on questions affecting the large staff under his authority may, I think, feel sure that he will not be unmindful of his duty to the staff he is about to take over from this Company, or of the recommendation of the Select Committee of 1905. (Cheers.) To give effect to that recommendation it is just and necessary that all members of the Company's Pension Fund staff shall be placed upon the establishment of the Post Office under conditions not less favourable than they are at present enjoying. So much with regard to the Pension Fund staff; with regard to the remainder of the Company's staff, a large number will, I understand, be placed on the establishment of the Post Office, and in all cases the Directors will endeavour to obtain fair and equitable treatment. That such treatment should be meted out to them appears to the Directors not only what justice dictates, but what the best and truest interests of the Post Office dictate. One question of very great interest to the staff is the method of dealing with the Pension Fund. Without professing to go into the legal technicalities, I understand it is not provided in the Pension Fund Trust Deed that the Fund should be closed and wound up on the expiration of the Company's license. The Directors of the Company and the trustees of the Fund, however, feel that it is very desirable in the interests of the staff that the Fund shall be closed on Dec. 31 next, and the assets distributed as quickly as possible thereafter. The Central Committee of the Staff Transfer Association have asked that steps shall be taken to have the Fund wound up on Dec. 31. This can only be done by the consent in writing of a majority of the members of the Fund, and I am advised that the position of existing pensioners must not be adversely affected. Further progress with the proposal awaits the result of negotiations as to the future position of the staff in the Post Office service. On this question I can say nothing now, but whenever it is settled the Board and the trustees will gladly co-operate in winding up and distributing the Fund at such date as may be agreeable to the staff. Those are the arrangements which are the necessary sequence of the termination of the Company's license, and, although I am unable at

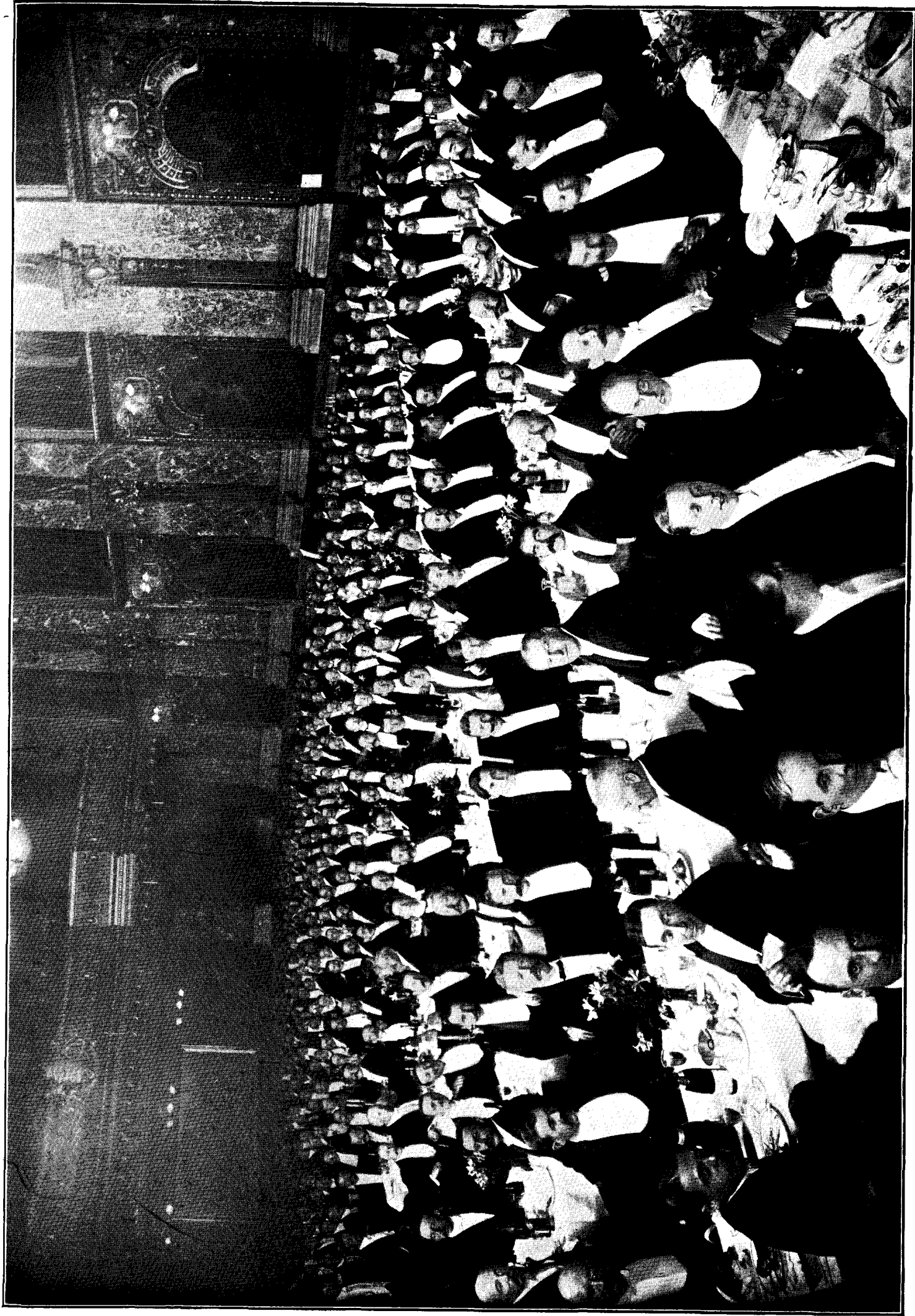
the moment to carry the matter further, there is one gentleman here who may be able to do so, and if we can convince him, as I think we can, that the taking of any other course than that I have indicated with regard to the Pension Fund staff will bring about an injustice, then I am sure that the present Postmaster-General is the very last man to wish to do anything of that nature. (Hear, hear.) May I, before I sit down, repeat on behalf of my colleagues, our warm appreciation of the valuable services which have been rendered by the staff in the years which have gone by, and our great appreciation of the admirable way in which the peculiar difficulties of the position have been met by them. The Company's difficulties could never have been surmounted but for the vigilance and accuracy and uprightness of the staff, and therefore the concluding words which I wish to speak at what is probably your last annual dinner are to express appreciation of your services and to assure you that our desire is to try and enforce upon those who are to follow that a measure and meed of justice should be given to those who have served the Company so well. (Loud cheers.)

MR. STANLEY J. GODDARD: Mr. Chairman, Mr. Herbert Samuel and Gentlemen, the toast, which I have the honour to propose to you to-night is that of "Our Guests." It seems to me that hospitality is more or less inbred in the human specie. If you think for a moment, you will remember that you have often seen even small children sharing a crust of bread with one another, and I think perhaps that is the inception of hospitality. That the National Telephone Company's staff is not without this blessing or this grace cannot be denied. I know for myself that I have experienced the hospitality of the staff in all parts of the country, and that I have suffered from it in Scotland. (Laughter.) My suffering has arisen from the pipes and the haggis. (More laughter.) I am sitting among some Scotsmen now, so I shall not dare to try and dissect the haggis. I have tasted it, and I sincerely hope I shall never taste it again. (Laughter.) Now, Gentlemen, we have to-night with us a lot of distinguished guests. We are more blessed in that respect than we have ever been before. It would be an impossible thing for me to go through their virtues and to tell you their leading traits, and I am only going to mention a few. First of all I will mention, and couple with this toast, the name of the Postmaster-General, Mr. Herbert Samuel. (Cheers.) We welcome him to-night, I think, in two capacities which are almost identical, but are really divided. We welcome him in his capacity as one of the Cabinet Ministers of His Majesty King George V, and we also welcome him as being the representative of that great Department which has always been so intimately connected with the telephone service, and which will in future be still more intimately connected with it. We welcome him as representing those members of his staff with whom we each of us in our several spheres are continually brought into contact day by day, and in welcoming him we welcome them. (Hear, hear.) Another of the guests I am going to couple with this toast is Mr. Ferranti, who is, as you know, the President of the Institute of Electrical Engineers. The name of Mr. Ferranti makes one travel back a long period, because he has indirectly for some time past been connected with telephone men. I well remember that the late President of the Company, Mr. J. S. Forbes, was chairman of the London Electric Supply Corporation, with which Mr. Ferranti was connected in his early career, and of which Mr. H. F. Lewis, known to many of you in connection with the Western Counties and South Wales Telephone Company, was the manager. We have also with us to-night our Directors whom we are always pleased to see, because we know that they have the interests of the staff entirely and always at heart. Then we have Mr. Alexander Siemens, President of the Institution of Civil Engineers. We have also Mr. Dudell, the inventor of that most extraordinary apparatus which enables us to see delineated on paper the effect of one's own voice—the oscillograph. We also have a lot of our friends with us, men we have known for years and whom we are always pleased to see. Among them let me mention the name of one or two. There is Mr. Claxton here to-night. (Cheers.) He is indeed an old friend, and has borne a great deal of the heat and burden of the day. Then we have another old friend in Mr. Preston, and when we look at his beaming face and ever-expanding form, it makes it extremely hard

The National Telephone Company's Seventeenth Annual Staff Dinner.

HOTEL CECIL, LONDON, MAY 25, 1911.





Photos by Fratelle & Young, London

to believe that the service of the Post Office is more onerous than that of the National Telephone Company. (Laughter.) Well, we honour and welcome all these guests, and, as I have before stated, we especially welcome the Postmaster-General and Mr. Ferranti, whose names I couple with the toast of "Our Guests"—a toast which I ask you to drink with enthusiasm. (Cheers.)

The Right Hon. HERBERT SAMUEL, M.P., the Postmaster-General: Mr. Chairman and Gentlemen, I appreciate, I need hardly say, very greatly the honour which you have conferred upon me in including me in your list of guests at the Staff Dinner to-night of the National Telephone Company, and I must thank you for the invitation you have extended to me so kindly and for the welcome you have given me with such cordiality. On my own behalf, and on behalf of my fellow guests, I thank you very warmly. There are, it is true, certain divergences of interest between the Post Office and the National Telephone Company which are now in process of more or less amicable settlement. The settlement certainly is being conducted, and I think will be conducted, without any bitterness. The points at issue which remain for decision arising out of the execution of the policy decided upon between the two parties six years ago will be decided, I feel sure, with good feeling on both sides; and the presence at this board to-night of so many of the heads, both of the Company and of the Post Office, is a happy proof of the good feeling shown on both sides. You gather here to-night at what you have been told, by previous speakers, is the last dinner of the National Telephone Company's staff. You will naturally feel some sentiment of regret at the severance of a connection which has lasted for so many years between yourselves and the Company, a well-managed Company which has built up a great business with profit to its shareholders in spite of those onerous exactions on which the President dwelt—(laughter)—with advantage to the British public at large, and with, I trust, advantage to those whom I see around me to-night. This is a domestic gathering, my presence at which, I feel, almost might be regarded as an intrusion. (No, no.) You here, I am afraid, may look on the Postmaster-General as a portentous shadow falling across the brightness of this festive gathering. (Laughter.) I do not know whether any of you are acquainted with the beautiful poem of him whom I regard as the greatest of our living poets, William Watson. He, in one of his poems, uses these words:

Ah! but the apparition, the dumb sign,
The beckoning finger, bidding us forego
The fellowship, the converse, and the wine,
The song, the festal glow;
And ah! to know not while with friends we sit,
And while the purple joy is passed about,
Whether 'tis ampler day divinelier lit
Or homeless night without.

Well, if I am to be regarded as the apparition, the dumb sign, the beckoning finger, I can assure you there is every probability you will find, not homeless night, but ampler day divinelier lit when you go over to the other world which the Post Office opens out to you. (Cheers.) I can assure you that throughout the interests of the staff of the Company have been fully considered and will be fully considered, and that it is not merely my desire, but my determination, and the determination of the heads of my Department, to see that full justice is done to all and to each of the members of the staff of the National Telephone Company on their transfer to the State. (Cheers.) You are aware of the general lines upon which, so far as the staff is concerned, the transfer will be effected, for they were declared to the House of Commons by the then Postmaster-General, Lord Stanley, in a Memorandum read to that House in 1905. I should tell you to-night that it has been thought advisable in certain particulars to modify certain conditions then expressed, but I may relieve your minds by saying that

all those modifications are favourable to the members of the staff (Cheers). Lord Stanley then said that the Postmaster-General, whoever he might be—and, as we all know, Postmasters-General are a fleeting race—(laughter)—and he foresaw, no doubt, with some certainty that he would not be, when 1911 came, holding the position he then occupied—but he announced, and his pledge is binding on his successor, that whoever in 1911 should be Postmaster-General would take into the service of the Post Office the members of the National Telephone Company's staff who were not clearly disqualified and who were not in the fortunate position of being in receipt of great salaries, to whom continued employment would of course be a matter of entire indifference. (Laughter.) But the rest of the staff who had not less than two years' service would, Lord Stanley stated, be taken into the employment of the Post Office. But I have since been able to announce that not only those who have more than two years' service, but the whole of the staff, irrespective of the length of their service, with some very few and exceptional cases, would be taken into the service of the Post Office, and we are looking forward to having the advantage of the assistance of that highly trained and highly efficient body of men, almost all of whom will be taken into our employment if they so desire, although their service with the Company has been less than the specified period of two years. (Cheers.) Secondly, it was announced that no medical examination would be imposed on the staff as a condition of their admission into the Civil Service of the Crown, a medical examination which would otherwise be necessary. Not only will that pledge be adhered to—it was qualified by possible exceptions in cases where the sick leave of individuals had been quite abnormal—but the other examination, the literary examination which is necessary for ordinary entrance into the Civil Service, will be waived in the case of the employees of the National Telephone Company. Another paragraph in the Memorandum dealt with circumstances relating to the employees of the Company who had subscribed to the Company's Pension Fund, and it was declared that if it could be shown that by the closing of the Company's Pension Fund, and by the substitution of a system of Civil Service Pensions, the general body of the staff would be placed in a substantially less favourable position, then the Postmaster-General would consider the expediency of allowing members of the staff to add two years to their service with the State for superannuation purposes. On further consideration I have determined, after consultation with the Treasury, that it is not necessary to impose the condition that was mentioned by Lord Stanley, and we shall not embark upon any enquiry whether or not the general body of the staff are disadvantaged by the transfer in respect of pensions, but we shall grant a general allowance of two years' additional service to those who desire to claim it. After all it does not seem to be a very fair thing that individuals should suffer merely on the ground that the general body of the staff do not suffer. The condition in itself is not really consistent with abstract principles of justice. But there is a further provision which will be found in the Telephone Transfer Bill, which it will be my duty to introduce into the House of Commons in a few weeks' time, and I think this has not yet been publicly announced. We propose to allow an option to all those who now contribute to the Company's Pension Fund to assign their share in the Fund, if they so desire, to the Postmaster-General when the Fund is wound up, and in exchange they will be allowed to count all the years which they have spent in the service of the Company, and during which they have contributed to the Fund, as though they were years spent in the service of the State, for pension and superannuation purposes. (Cheers.) Those who have been original members of the Pension Fund, who were in the service of the Company before the Pension Fund was established, will be allowed to count all the years they have spent in the service of the Company

as though they were years spent in the service of the State, for the purpose of a pension. (Cheers.) They will count as though they had been years spent in the service of the State in the offices to which these officers are transferred in the service of the Post Office. Those are the more important modifications which will be proposed, all of which, as I have said, will be to the advantage, and some of them greatly to the advantage, of members of the Company's staff. There are other minor ones on which I need not dwell. Comparisons are always odious, and certainly this is not the occasion on which to embark on any comparison of the conditions of service which you will enjoy in the Post Office and those you have enjoyed with the Company, but I may perhaps mention only one fact. Many of those whom I see around me will, so I am informed, when they come into the employment of the Post Office, in their subsequent years, have the benefit of one week's more leave in the year on full salary. (Laughter and Cheers.) That alone, I think, will be a powerful attraction on the part of the new love compared with the old. (Laughter.) One week in each year, spent wherever it may be—on the South Coast, in Devonshire, in Wales, on the Continent—will, I trust, be largely devoted to singing the praises, morning, noon, and night, of the admirable arrangements of the Post Office Department. (Laughter.) Gentlemen, I know there has been in your ranks some anxiety for some time past as to the conditions that may await you in the new service to which you are going. There have been fears that the Telephone Company's staff may be, so to speak, thrown into the mass of the 200,000 employees of the Post Office, and find themselves lost there, that they will become mere cogs in the wheels of official routine, that their specialised skill may be unrecognised, that personal zeal and merit may be ignored among the great mass of the employees of the Post Office Department. Gentlemen, that will not be so. The Post Office is not ignorant of matters relating to telephony. It is well aware that it is a highly specialised, highly technical industry. We have passed the stage of the engineer of whom I have heard, who for years fervently entertained the belief that the difference between a telegraph wire and a telephone wire was that the telegraph wire was solid and the telephone wire was hollow. (Laughter.) You will not find engineers of that kind when you come to the Post Office. We have learned much with respect to telephony. We know how difficult a business it is, how carefully every development needs watching, how vitally important it is that all the details of management should be conducted by men of zeal, capacity and efficiency—men who have a real interest in their task; and I can assure you that your knowledge and experience will not be allowed to be wasted when you come into the service of the State. The telephone work under the Post Office will be kept, in a very large measure, distinct from other Post Office work. (Hear, hear.) There will be a much larger measure of differentiation than in the case of the telegraphs, for example, from the remainder of Post Office work, and we feel sure by that means we shall best promote the interests of the public and best please the great commercial interests to whom the telephone service is becoming year by year of greater importance. Further, we shall follow the wise policy, as I regard it, that has been adopted by your Company of allowing a wide measure of discretion to local officers. (Cheers.) We are aware of the danger of over-centralisation. The tendency in the Post Office in these days is decentralisation, and we do not propose to fall into the error of over-concentrating at headquarters the management of telephone business throughout the country. We are quite alive to the importance of doing what, I believe, your Directors have consistently endeavoured to do, and that is to encourage a high standard of scientific and technical attainment on the part of all officers of the staff, and every encouragement will be given in that direction.

Nor need you fear that promotion in the Post Office will be determined by mere dead routine rules of seniority in which merit will not be taken account. It may be that in earlier years that was one of the faults of the Post Office system. It does not exist to-day, and although seniority must be always an element in the choice of officers for promotion, it is never regarded in the Post Office nowadays as the chief element, but merit, capacity, efficiency, zeal, these are the main considerations in the selection of officers for the higher posts. (Cheers.) As it is in the other branches of the postal service, so it will be in the telephone branch, and zealous officers of the Company—and I know many of you are keen men, anxious to do your duty, your very best—need not fear when they come into the service of the State that their individual characteristics will be overlooked. They may feel sure that each man's personality shall count. (Cheers.) Well Gentlemen, I know, for I have kept in touch with the movements that have been proceeding among the staff of the Telephone Company, that there has been some measure of anxiety among the officers, and it is not strange that men should feel uneasy if they think that their lives are going to be swung this way or that by great external forces far beyond their control. It will be indeed a satisfaction to me if anything which I have said to-night and what is more important than words, if the deeds which will follow later, may, in some degree, relieve any uneasiness that has existed in your minds. I trust that the new will grow out of the old without any shock; with the minimum of hardship to individuals whose lives are affected, and, indeed, with great advantage to large numbers of them; and with the minimum of disturbance to the public at large whom this great and prosperous corporation has served for so long. (Prolonged cheers.)

Mr. S. Z. DE FERRANTI: Mr. President, Mr. Goddard and Gentlemen, following on the very accomplished speaker, who has first responded to this toast, I feel there is very little left for me to say. As however you have honoured me by coupling my name with the toast I cannot do less than thank you on behalf of the guests here this evening for the kindness which you have extended to us in giving us this great hospitality. You have heard much of what will happen, or is likely to happen, in your future, much of what has been done by your great Company in the past. I cannot help, being here, feeling a great degree of sadness at the passing away, shortly to take place, of this great commercial undertaking. It is going to be merged, or rather absorbed, in the Post Office, but still, as I say, there is this passing away of your great industrial concern. This business has been conducted under much the same conditions as have prevailed with the early electric light companies in this country. I have had to do with them in the past, and I know what it is to live and work under those exceedingly difficult conditions, conditions which greatly retard the progress and development of any industry. I know what it has been in the past to get wayleaves before one could give a supply. I fully appreciate, from my experience of that in London years ago, what the business of the National Telephone Company has been in many cases, and I can only feel sorry that such a great enterprise as the telephone should have been handicapped by such an unfortunate necessity. There are many other difficulties, as you on the staff well know, which your Company has had to contend with. Those, however well you have been able to meet them, have largely absorbed your time and energies, and have taken you from the greater development which you might have accomplished if the Company had lived under more genial conditions. (Hear, hear.) The incentive to do well, I think, very largely depends upon what we are going to get out of the results we accomplish, and I must say that I regret that this transfer is being made to the Government, because in the service of the Government you can hardly expect to be working for a profit, and therefore one of the great human inducements is removed for doing the best work, for working for the highest efficiency and making the greatest progress—namely, the greater reward that greater services will bring. (Cheers.) Now you have heard this evening, what many of you already knew, of the immense development of this Company under these circumstances, or in spite of

these circumstances, in this country. You have installed for the public more than half a million stations, an enormous and wonderful result. What have we in the United States—truly, a country of more than double the population—well, let us compare. Are they better people than we are, more enterprising? Do they deserve a better service? The fact is that they have seven million stations. And why is it they have gone ahead more, prospered more, and done more for the service of the community? It is because they have not had to sacrifice themselves, or to be sacrificed, for the benefit of the nation. (Hear, hear) You, Gentlemen, have been handicapped in your work, and your great Company is coming to an end. Why? For the greater benefit of the State and the individuals composing that State. That is at least what we are told, but is it really so? I only wish I could think that that will be the result which will be brought about. Gentlemen, I must again thank you for your hospitality to us, your guests, this evening. I wish you, I am sure, on behalf of the guests, every happiness and prosperity in the new position you will find in the future, and I must congratulate you upon falling into such sympathetic and able hands as those of the Postmaster-General who will soon be your chief. (Cheers.)

Mr. F. DOUGLAS WATSON, in proposing the health of the Chairman, said that he feared he was hardly worthy of the confidence felt in his ability to do justice to the toast, but he knew they would drink their Chairman's health with the greatest enthusiasm. Mr. Anns had been the Chairman at those annual gatherings on several occasions, and they had enjoyed his urbanity in the chair, as on many other occasions elsewhere. There was in that gathering something what they in Scotland would call a "greetin' meetin'," and there was a certain pathetic interest attaching to it as the last staff dinner. He was sure they were all pleased to have had Mr. Anns in the chair at that dinner. (Cheers.)

The CHAIRMAN having briefly responded, the programme of the evening concluded.

During dinner a programme of music was performed by Pitman's Blue Imperial Orchestra, and subsequently at intervals during the evening songs were sung by Miss Mabel Manson, Miss Dorothy George and Mr. Peter Dawson. Mr. Nelson Jackson entertained the company with amusing selections from his *repertoire*.

THE NATIONAL TELEPHONE COMPANY v. THE POSTMASTER-GENERAL.

JUDGMENT.

JUDGMENT in these proceedings, which are briefly summarised on page 57, was given by Mr. Justice LAWRENCE on the 29th May as follows:—

This case raises important questions under the Agreement of Feb. 2, 1905, for the purchase by the Postmaster-General of the National Telephone Company's system. That Agreement was come to under these circumstances:

The Company under a license from the Postmaster-General had established a large business, and had in doing so afforded a great public convenience. This license would expire upon 31st Dec., 1911.

The Postmaster-General had in 1901 commenced to afford a telephonic service.

This business had not in 1905 assumed its present dimensions. Since 1911 postal telephones have greatly increased.

The agreement provided for the transfer of the whole system of the Company to the Postmaster-General at the expiration of the license; it was to be transferred as a going concern, but on what are called "tramway terms"; the property to pass under the agreement was to be "all brought into use with the sanction of the Postmaster-General and in use on Dec. 31, 1911." Stores and spare plant of all descriptions were to be included, provided they were reasonably necessary for the purposes of the business of the Company.

Clause 3 of the Agreement gave the Postmaster-General power to exclude from the purchase plant which he considered would be "unsuitable" for the postal service. He was to do this by a notice to be given to the Company not later than Jan. 1, 1911.

The Clause provided that if the Company do not agree with the view taken by the Postmaster-General they must obtain from this Court, before June 30, 1911, a decision that the plant objected to is "suitable," otherwise the Postmaster-General's objection is to prevail and the plant objected to be excluded from the sale. It will therefore remain the property of the Company.

There is a further provision enabling the Postmaster-General in the event of any plant being excluded from the purchase, to enter and substitute other plant for the unsuitable plant. The Postmaster-General has given seventeen notices of objection under this section. These notices are said to be bad in whole or in part, and we have to determine whether this is so.

It became evident at an early stage of the argument that the parties took different views of the meaning of the word "unsuitable"; for the Postmaster-General it was contended that he could object to any plant that he did not want. The point is raised by the application in paragraph 9 and the answer in

paragraph 8. For the Company it was said that the clause had no such meaning, that it gave power to object only on the ground of the quality or character of the particular plant. At our suggestion this question was argued first.

The first thing that strikes one upon it is that the word "unsuitable" points more aptly to quality than to quantity; next it is surprising that a vendor who has to keep his plant in use in order that it should be sold at all, should agree to leave it in the hands of the purchaser to provide as much other plant as he pleases, which will thus exclude his property from even "tramway terms." The Agreement seems to protect the Postmaster-General from having any excessive plant imposed upon him in very clear language—see the provisions as to stores, spare plant and new exchanges in Section 2.

It is quite true that the Company was a licensee only, whose property would be put out of use by the expiration of the licence. But he was a licensee who had performed a great public service and who was ready to agree to tramway terms. What is now being done in providing new plant and new exchanges to take the place of the Company's plant is practically to "scrap" the Company's plant in the condemned exchanges. This does not seem to me to be just and I should require clear words to induce me to hold that such a power was intended to be conferred upon the one party to the Agreement by the other. The words do not seem to me to be clear; on the contrary, when all are read and each receives its natural meaning they fail to support the argument. It is quite true the words "actual requirements" in some collocations might mean real needs, but the telephone is a highly specialised instrument, and electrical science and its applications are constantly developing and producing new and ingenious devices, and I think the words "suitable to the actual requirements" of the service seven years hence may very well apply to the quality and character of the particular plant and not to the sufficiency of some other and different plant, viz., to the Postmaster-General to perform the functions of the Company's plant.

The argument for the Postmaster-General first assumed that "any kind" of plant meant plant of any quality, and not plant of any description or variety. Having made this assumption it proceeded to treat this as showing that the word "requirements" meant "needs" for "kind" had already dealt with quality. It then said the test of these needs must be what the Postmaster-General would want for the combined business of the Post Office and the Company. It thus arrived at the conclusion that any plant of the Company could be excluded from the purchase if the Postmaster-General had become possessed of the other plant of a similar description sufficient to serve the purpose. So that however necessary the plant objected to may have been to the service of the Company,

however high its quality and modern its type, the Postmaster-General could reject it. This seems to me a not very wise or very likely bargain for even a licensee to make, seven years before the expiration of his license; but, laying that consideration aside, it is not the construction at all. When individual words may have two or more meanings you must not begin by assuming one meaning because it happens to suit you and disregard all others.

Further, you must not treat as pedantic and technical a reference to the exact meaning of other words in the sentence merely because they render your assumption impossible. This is what the argument does. It says the "actual requirements of telephone service of the Post Office on Dec. 31, 1911," means the prospective needs of the combined business of the Company and the Post Office on the following day. No reason is vouchsafed why this transposition should be made, but allusions to the public purse and the propriety of economy are gracefully substituted. With this provision the words of Section 9 (1) of the London Agreement should be compared; there the date taken is "after" the determination of the license, not before; even then I do not think that any idea of excluding duplicate or surplus plant is visible, but there is in the section now in dispute a clear change of language, and this should in itself have some intention attributed to it unless this can be clearly negated by reference to other parts of the Agreement.

It was admitted that as applied to sub-clause (A) "suitable" referred to quality and not to quantity and this is clearly so, for in non-competitive areas, however excessive its quantity, all plant must be taken over if made according to schedule, *i. e.*, according to the "requirements" as then formulated. No explanation was offered satisfactorily to my mind why if this were so under (A) there should be a grouping of (A) and (B) together and an application of the same words but with a different meaning to (B); such grouping is only sensible and proper when it is made in order to apply one and the same proposition to both branches of the group. It is clear that when the parties to the Agreement had in mind any question of a surplus quantity they knew how to express their intentions in the plainest language—see Section 2 (1) (D) as to stores and (2) as to spare parts.

There was an argument based on the use of the words "suitable to the requirements" in Section 7 of the London Agreement which deserves notice, for it seemed to me for a time to have some plausibility. It was urged that in that section these words had precisely the meaning sought to be placed upon them here and that this Agreement was based upon that one. Upon consideration I think that the meaning attributed to the words in that section is reached by limiting the application of the word "necessary" which precedes them, and by ignoring the fact that the difference between one route and another is a matter of quality of route and not one of quantity or amount of anything.

The next matter for consideration is alleged invalidity of the notices of objection served upon the Company by the Postmaster-General. It was urged for the Company that these notices were wholly bad on the ground of vagueness and generality, and we were asked to amend the prayer of the application by deleting the words of exception therein contained. I think it would not be proper to make this amendment, both upon the general principles applicable to the amendment of pleadings and also because I think that the exception in question is well founded. The notices are not wholly bad. There is no prescribed form of notice, and a notice is only bad upon the face of it when

it fails to perform the functions for which it was required by the Statute or Agreement.

The purpose which a notice was in this Agreement designed to serve was to inform the Company that the Postmaster-General considered certain property unsuitable, and that he proposed to exclude it from the purchase. The mere notice effected its exclusion, unless the Company within six months obtained an award that it was suitable.

Any form of words which would enable the Company to take into consideration the question, and to decide whether it agreed with the Postmaster-General or differed from him would be sufficient. For if it agreed with him it could make arrangements for the sale of excluded property, and its removal in due course, and for the substitution by the Postmaster-General of other effective plant; or if it differed from the Postmaster-General it could proceed to have the matter decided by this Court. So long as the notice was sufficiently specific to enable the Company and the Court to come to a conclusion upon the matter it would be sufficient.

That the property which it is proposed to exclude should be identified by the notice seems to me to follow from the fact that it is a part which it suggests should be excluded from the whole; and this is supported by the language used in Clauses 3 (1) and 3 (2). It is "such plant," etc., "as he considers will be unsuitable," and the award is to deal with that which has been "specified in the notice of objection."

The London Notice, Part 1, seems to me to comply with these requirements, though it may be that, before the question of fact as to whether the property mentioned therein is or is not suitable, some further particulars might be necessary. The same thing is true of the Abergavenny notice and of other notices. But when I turn to Part 2 of the London Notice, in so far as it purports to apply to plant other than that included in Part 1, it seems to me to be bad: it does not give one any idea of what plant it is, or where it is situate, except that it is in the London area. What it does is to give grounds of objection without stating the property to which they are alleged to apply. It is one thing to specify a piece of property to which you object, and another to specify a quality to which you object. Whether any particular piece of property is open to one or more of these grounds of objection, is a matter about which opinions differ, and until the property is identified the question can neither be considered nor determined.

The notice relating to the non-competitive areas is bad for these reasons. It is no answer to say that it would have been difficult and troublesome to give a notice mentioning the plant objected to. The difficulty of duly exercising a power is no excuse for not doing so if the rights of other parties are affected thereby. Here the Company disputes that any of its property is open to these defects. This form of notice would exclude it all from the purchase unless and until the Company proved to the Court that each particular part had not the defect. This is to change the onus in a manner not justified by anything in the Agreement, and to read "such plant as he considers unsuitable" as satisfied by a notice which is so framed because he does not know the facts and does not desire the trouble of considering them. This, although the Postmaster-General has the right under the Agreement to make the Company furnish him with all the information he may reasonably require.

Mr. GATHORNE HARDY entirely agreed in this judgment, Sir JAMES WOODHOUSE dissenting.

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TELEPHONE MEN.

LXII.—DAVID BOWIE FULTON.

DAVID BOWIE FULTON is a Scotsman, having first seen the light at Kilmarnock, in Ayrshire. After receiving an education at the Grammar and Academy Schools in that town he entered the Telephone Company's service in November, 1889, as a Junior Clerk, whose duties in those days seem to have included assistance in the work of the switchboard.

In 1890 Mr. Fulton was appointed Instrument Inspector, and, as the district was a small one, part of his time was devoted to the keeping of the books. He continued at this work until his transfer to Cork as Second Clerk in July, 1897, and found the grounding he obtained in the Company's system of bookkeeping, from the work of keeping the postage and cash books up to that of making out all the returns, an extremely useful experience. During the same period he obtained a knowledge of the work of the Electrical Department.

In October, 1897, Mr. Fulton was promoted from Cork to Limerick as Local Manager, and, while he was in the latter town, exchanges were opened at Tralee, Galway, Castleconnell, Roxborough and Ennis.

In September, 1899, Mr. Fulton was transferred to Dublin as Engineer, and assisted in the reconstruction work then in progress there. A further transfer awaited him in August, 1902, when he was appointed Engineer at Belfast, and Local Manager the following year. While in this capacity he carried out extensions of the original underground scheme, and, on the

electrification of the city tramways, dealt with a big reconstruction of the Company's Londonderry system when an underground scheme was laid down and common battery board installed.

In March, 1906, he received further promotion, being appointed District Manager at Gloucester. The Company's business was extended considerably during his stay in this district, twelve new exchanges being opened and underground schemes completed at Hereford and Evesham. In February, 1909, Mr. Fulton was promoted to the staff of the Engineer-in-Chief, and after more than a year's work at Head Office was selected as one of the Divisional Officers on the Inventory staff. Resourceful and determined, with an excellent sense of proportion, Mr. Fulton in this latest task again demonstrates his ability to organise and carry out important work successfully.

Mr. Fulton has excelled in more than one branch of athletics, having played Association football for such well-known clubs as Queen's Park, Kilmarnock and Dublin Bohemians. He is the holder of a number of Scottish and Irish medals, has played in Inter-Provincial matches, and has been selected as reserve for International contests. He also plays bowls, and has won the

Gloucestershire Club championship and other honours. As a Scotsman he is, of course, interested in golf, but does not at present find much time for that pastime.



LIST OF GRANTS TO LOCAL TELEPHONE SOCIETIES IN RESPECT OF THE 1910-11 SESSION.

	£	s.	d.
Dundee Telephone Society	4	10	6
Greenock Telephone Society	4	0	0
Paisley Telephone Society	4	6	6
Glasgow Telephone Society	4	6	0
Glasgow Operators' Telephone Society	5	0	0
Edinburgh Telephone Society	5	0	0
Newcastle Telephone Society	3	16	6
Sunderland and South Shields	3	14	0
Hull Telephone Society	3	16	6
Leeds Telephone Society	4	16	6
Bradford Telephone Society	2	5	0
Blackburn Telephone Society	3	6	0
Bolton Telephone Society	5	0	0
Oldham Telephone Society	1	0	0
Manchester Telephone Society	3	13	6
Liverpool and Birkenhead Telephone Society	4	9	0
Liverpool and Birkenhead Operators' Telephone Society	4	8	0
Douglas Telephone Society	4	10	6
Sheffield Telephone Society	4	1	0
Sheffield Operators' Telephone Society	4	7	6
Nottingham Telephone Society	4	4	0
Leicester Telephone Society	3	11	6
Birmingham Operators' Telephone Society	4	1	0
Wolverhampton Telephone Society	4	14	0
Coventry Telephone Society	4	14	0
Northampton Telephone Society	4	3	6
Brighton Telephone Society	3	3	0
Hastings Telephone Society	4	1	0
Dover Telephone Society	3	5	0
Tunbridge Wells Telephone Society	2	6	0
Luton Telephone Society	4	18	6
Southampton Operators' Telephone Society	3	16	0
Bournemouth Telephone Society	3	10	0
Weymouth Telephone Society	4	5	6
Portsmouth Telephone Society	4	1	0
Plymouth Telephone Society	4	10	0
Truro Telephone Society	5	0	0
Exeter Telephone Society	4	1	6
Torquay Telephone Society	4	8	0
Bristol Telephone Society	4	15	0
Bristol Operators' Telephone Society	5	0	0
Bath Telephone Society	5	0	0
Gloucester Telephone Society	4	17	6
Cheltenham Telephone Society	5	0	0
Cardiff Telephone Society	4	4	6
Cardiff Operators' Telephone Society	3	18	6
Swansea Telephone Society	4	13	0
Swansea Operators' Telephone Society	4	17	6
London Operators' Telephone Society	5	0	0
London Telephone Society	3	15	6
London Southern Telephone Society	3	11	6
London Western Telephone Society	3	7	0
London North-Eastern Telephone Society	3	6	0
Belfast Telephone Society	1	12	0
Dublin Telephone Society	3	8	0
Cork Telephone Society	4	7	0
Nottingham Factory Telephone Society	5	0	0

AWARDS FOR SUGGESTIONS AND INVENTIONS.

	£	s.	d.
H. Woodland, Bristol, overtime payments	2	2	0
W. Bailey, London, improved wiring clamp	2	2	0
H. Hall and J. Hateley, London, aerial rings	2	2	0
J. Johnson, London, method of testing subscribers' earth connections	2	2	0
P. J. Mantle, London, fitting of green opals on supervisory lamps	2	2	0
G. F. Staite, Manchester, alteration to ticket clips	2	2	0
J. H. Stewart, London, automatic counter for register testing	2	2	0
J. Hawney, Liverpool, alteration to Form No. 1,489	2	2	0

INVENTORY OF PLANT.

The following additions have been made to previous lists:—

TRAVELLING STAFF.			
Riley, J.	Local Manager	.. .. .	Neath.
Tipping, P. N.	Jointer	.. .. .	Swansea.
Partington, J.	Instrument Inspector	.. .. .	Liverpool.
Boniface, G. E.	Faultfinder's Overseer	.. .. .	Metropolitan.
Beaumont, J. C.	Draughtsman	.. .. .	West Yorks.
Wigg, H. H.	Local Manager	.. .. .	Norwich.
Deletions—Nil.			

THE TELEPHONE EXCHANGES OF LONDON.

By G. H. BRYANT.

(Continued from page 54.)

The passing away of the testroom and the innovation of the apparatus room and other changes that have been made, can be followed from the next figure, No. 7, which sets forth in tabular form some features of the Company's Metropolitan exchanges. The exchanges are arranged in the order in which they were transferred to C.B. working as will be seen by the second column. From the third column it will be noticed that there are sixteen No. 1, three No. 9, one No. 10 and one Kellogg, making a total of 21; the difference between the four patterns we will consider later from skeleton diagrams of the principle of their working. The next two columns show that only three exchanges are provided with test boards, and the remainder with main frames. The design of the main frame has not been altered, but it will be seen from the three sub-headings under main frame that the outside cables terminate on the horizontal tabs at the earlier exchanges, and at the later on the arrestors, also that line fuses now form part of the main frame equipment. Where the outside cables terminate on the arrestors the switchboard cables are connected to the horizontal tabs and vice versa. At Brixton and Paddington, although line fuses are fitted, the outside cables terminate on the horizontal tabs, and therefore although the line fuse would sever a faulty circuit at the arrestor the main frame jumper would remain connected to the line. At subsequent exchanges the outside cables terminate on the line fuses, so that the switchboard equipment including the lightning arrestor is entirely disconnected by the blowing of the line fuse.

Intermediate distribution frames are fitted at all the exchanges excepting No. 9's, and the design has not been varied except in the addition of alignment straps and the disposing of the miscellaneous circuits nearest the floor line.

Six of the exchanges have, it will be seen, power rooms; the remainder accommodate their power plants in a room together with the HF, IDF, relay racks, coil racks and fuse panels, hence the name of apparatus room. This centralising of the apparatus tends to lessen the cost of maintenance, and no doubt decreases the first cost of the equipment.

Comparison of Circuits.—Fig. No. 8 shows the skeleton connections of the five line circuits in use at the Company's Metropolitan C.B. exchanges. Commencing with Fig. 8—A, which indicates the pioneer, it will be observed that the "A" line is connected through the contacts of the cut-off relay marked CO to the line relay marked LR and thence to earth; and that the "B" line is connected to a resistance lamp to the negative of the battery via the cut-off relay.

The next stage is shown in Fig. No. 8—B, and it differs from A inasmuch that the line relay is connected to the second cell of the battery instead of earth. The result is that an earth on the "A" line would cause the line relay to operate, due to the 4-volt battery, and a permanent glow at the switchboard results, notifying a fault.

Fig. No. 8—C indicates the latest circuit; you notice that the line relay has been transferred to the "B" line while the "A" line is direct to earth, and the "B" line lamp intended to indicate an earth "B" has been dispensed with. The resistance of the line relay on all No. 1 boards is 60 ohms, but in the case of No. 10 boards, see C, the resistance is 1,000 ohms and the relay has been considerably reduced in size.

No. 9 boards, see Fig. 8—D, are fitted are fitted with 500-ohm eyeball signals in lieu of line relays and lamps; and the break jacks serve the purpose of cut-off relays.

The Kellogg line circuit, see Fig. 8—E, is similar to A excepting that a resistance takes the place of the "B" line lamp, and that a two-point jack is used. The only Metropolitan exchange of its kind is Battersea. The five line circuits account for the Company's Metropolitan C.B. exchange lines in the following proportions:—

A	...	...	...	31.0	per cent.
B	...	...	...	50.0	" "
C	...	...	...	13.0	" "
D	...	...	...	2.5	" "
E	...	...	...	3.5	" "

hook, sufficient current will not be passing through the releasing coil RC, and therefore the bell at the subscriber's will ring until the receiver is lifted from the hook, when the releasing coil will attract its armature, disconnect the mechanical clutch, and so automatically sever the ringing and complete the speaking circuit. A tripping device is provided so that the operator can restore the key to normal after disconnecting from an uncompleted call.

You observe in Fig. 10—B circuit, that the key is held down magnetically, the outline in large dots shows the retaining circuit, and on the key being depressed you notice that the two inner springs of the key—providing the plug is connected to a line—would complete the magnetic clutch circuit and so connect the ringing circuit—shown by small dots—to the plug and thence to line. The key is released by the tripping relay TR, which does

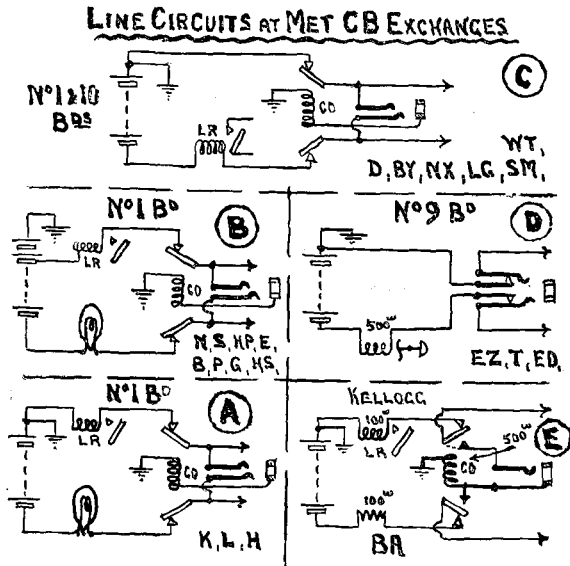


FIG. 8.

The releasing coil was originally in the earth side of the circuit, which enabled the subscriber's bell circuit on magneto instruments to be worked without a condenser: the circuit being: "A" line through bell to earth and "B" line dis., but this arrangement at the subscriber's did not long prevail and condensers were fitted. I have shown the generator connected direct to the release coil; actually there is a resistance lamp in between these points, one lamp per four or five circuits; also the return to earth

not actuate until the subscriber lifts his receiver from the hook. When the tripping relay does actuate you observe that the magnetic clutch circuit is broken and as a result the ringing key returns to normal and completes the speaking circuit. If a call is not completed the key releases when the operator removes the plug from the required subscriber's jack, because the retaining circuit is completed via the bush of the jack to earth through the cut-off relay. This type of key is used at seventeen of the London

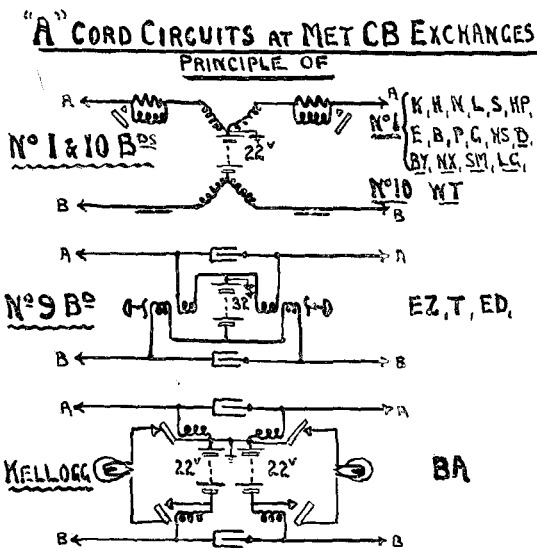


FIG. 9.

from the key is via the battery, and further the ringing interrupter is omitted. Neither of these points is material to the principle which it is my object to outline.

The possibility of party line development no doubt led to the designing of the key shown in B, for the reason that a single key per cord circuit of the type shown in A accounts for the available key space per cord circuit, while five keys per cord circuit of the type shown in B can be accommodated on the key shelf.

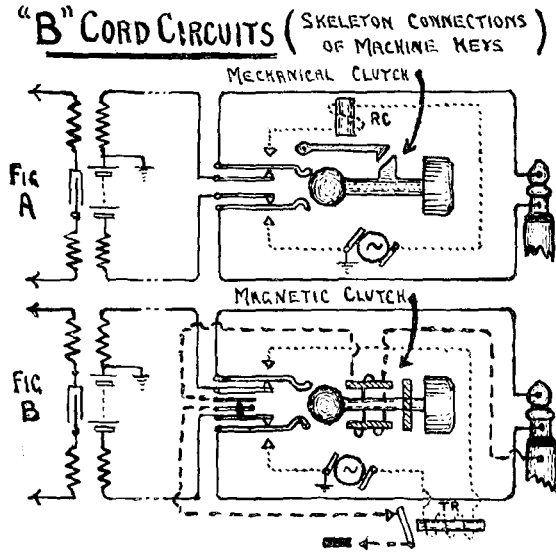


FIG. 10.

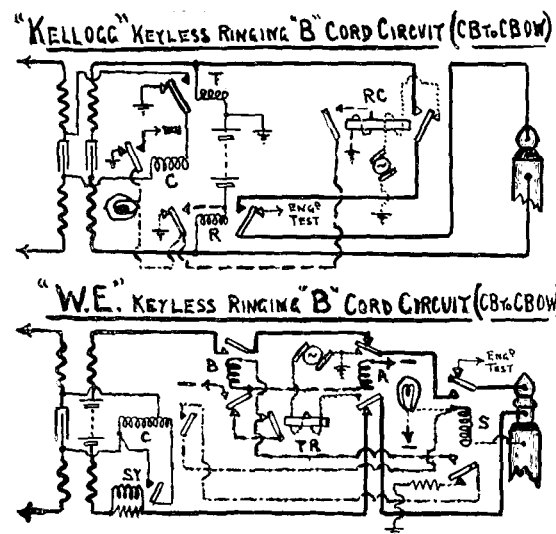


FIG. 11.

exchanges. At eight of these exchanges the circuit on O.W. junctions is so arranged, by means of an additional 40-ohm relay, that although the "B" operator depresses the key on allotting and connecting, the ringing does not pass out to line and so call the subscriber until the distant "A" operator takes up the junction.

It will be observed that each of these circuits entails the "B" position operator depressing the ringing or machine key as it is called, and therefore the ringing is not strictly automatic.

There are, however, three exchanges in the Metropolitan area which have purely automatic, that is keyless ringing circuits, Bartholomew House, a sub-exchange to London Wall, Woolwich, a differential system exchange—the only survivor in London—and Battersea, the Kellogg system exchange. The latter was the second C.B. exchange to be opened in London, and the "B" positions there are provided with a keyless ringing cord circuit, which means that the operators at those positions have not to attend to ringing keys. After becoming familiar with this system, when and for some time after the equipment was installed, I was struck by the many advantages of a keyless ringing cord circuit, and as a result endeavoured to find out why such circuits were not used more extensively; the chief obstacle I gathered was the party line possibility, and it would seem that to the realm of possibilities that obstacle is still confined, for party lines in London are conspicuous by their rarity.

Keyless ringing circuits on "B" positions are, however, now making their appearance in this country, and two-party line working is arranged for by utilising two numbers on the multiple (per party line) and reversing the jumper of one of them.

Fig. 11 shows the Battersea keyless ringing circuit, and also the circuit which is being fitted at some of the Company's provincial exchanges. The ringing portion of the circuits is shown in small and the retaining in large dots. The Kellogg circuit acts as follows: When the "B" position operator assigns a junction, the corresponding plug is inserted by her in the required subscriber's line providing it is disengaged, and, owing to the 500-ohm relay on the "B" of the subscriber's jack, relay R actuates, disconnecting the "A" of the plug from the engaged test circuit and connecting it to the generator *via* the back contact of the relay RC. The subscriber's bell circuit consists of the usual condenser and bell in series, and the ringing that passes through relay RC to the "A" line, back over the "B" line to earth through the cut-off and relays, is insufficient to actuate relay RC until the subscriber lifts his receiver, when relay RC operates and its armature locks, owing to the retaining circuit being completed by its own movement; for relay R was actuated by the insertion of the plug.

When relay RC has operated and so disconnected the ringing, relay T is in a position to respond to movements of the called subscriber's switch-hook, and by connecting relay C across the line towards the distant exchange, instead of to earth off the "B" line as it was previously, the distant "A" operator's supervisory relay is controlled.

Relay C is held up by the distant exchange's cord circuit battery, and completes the clearing lamp circuit (shown by the dotted line) on releasing; also if the "A" operator takes up an incorrect junction you notice that the clearing lamp would glow. When a connection is taken down you observe that RC would release owing to the retaining circuit being severed by relay R ($C = 100\omega$, $R = 100\omega$, $T = 100\omega$, $RC = 500\omega \times 500\omega$).

The Western Electric's keyless circuit operates thus: when the plug is inserted in the required subscriber's jack, relay S actuates, and provided that the distant "A" operator has taken the line, which means that relay C will have operated, there will be a path for current to flow through the 40 ω relay A, back contact of 40 ω relay B to armature of TR relay to its back contact, and thence, through contacts of relays S and C through the coil of relay S to bush of jack to earth, incidentally shunting the clearing lamp. The actuation of relay A connects the generator to line through the tripping relay marked TR, which will not operate until the subscriber lifts his receiver, but when he does so the relay B is momentarily un-short-circuited by the chattering of TR relay's armature; this results in the actuating and locking of relay B, which in turn short-circuits relay A and thereby causes it to release and so sever the ringing and complete the speaking circuit; after which the supervisory relay SY is free to throw the 27-ohm winding of relay C across the line, and so operate the distant "A" operator's supervisory relay ($C = 12,000\omega \times 27\omega$, $SY = 30\omega/70\omega$, $A = 40\omega$, $B = 40\omega$, $TR = 200\omega$, $S = 83\frac{1}{2}\omega$). The clearing signal is given by the releasing of relay C, which unshunts the clearing lamp and also severs the retaining circuit of relay B. The guard lamp circuit can be easily traced by the large and small dotted lines. It should be noted that the subscriber is not called unless the "A" operator takes up the line, also that the ringing can be re-started by the

"A" operator momentarily removing her plug from the junction. An additional 40 ω -relay in lieu of the machine key is the difference between the apparatus in this circuit and that fitted at the recently opened Metropolitan exchanges.

The "WE" circuit is very ingenious, but it has, I consider, no special advantage over the Kellogg, and is, if anything, more complex.

As shown in the diagram, the Kellogg circuit does not provide for the ringing to be inoperative until the "A" operator takes up the line, but this could be arranged without additional apparatus by utilising the spare contacts of relay C for breaking the generator circuit.

We will now return to Fig. 7. The columns headed "Subscriber's line circuit," "Supervisory relay," "Repeaters," and "'B' position ringing" should be studied in conjunction with Figs. 8, 9, 10 and 11a.

The equipments arranged for party line working are shown in the next column; there are, I believe, only three or four party lines working in London so far as the Company is concerned. You observe that anti-side-tone induction coils are fitted at sixteen exchanges; Kensington, London Wall and Holborn have this pattern coil fitted on the positions which have been added since the original equipment was installed.

The Post Office do not use this type of coil, and arrive at an anti-side-tone result by connecting the third winding of a three-winding induction coil across the receiver. This arrangement was tried recently at Holborn and London Wall with success, and the question of its general adoption is, I believe, under consideration.

Steel conductor cords, it will be noticed, are not fitted at some of the recently opened exchanges.

Some details of the power plants can be observed from the last seven columns. Kensington is the only exchange where two batteries are provided for use alternately; in practice this is not satisfactory, and the batteries are worked in parallel; also at this exchange the charging generators are coupled to the motors by belt.

Only two gas-engine charging sets are fitted, one at London Wall and the other at East; in each case the running expenses are much lower than those of the motor sets. And I anticipate that in a few years' time it will be more economical to install well-designed direct-drive gas engines—of the vertical multi-cylinder type—instead of motors at large exchanges.

Three exchanges are provided with recording ammeters. I consider that a recording instrument is a useful adjunct to a power plant, and that a systematic handling of the battery can be more effectively made when such an instrument is fitted.

(To be concluded.)

PRESENTATION TO MR. W. A. VALENTINE, GLASGOW.

In the Contract Department office on Friday, June 9, after business hours, Mr. W. A. Valentine, the District Manager, was presented by the staff with a very handsome solid silver coffee service to mark the completion by him of 25 years' telephone service. Mr. Valentine was accompanied by Mrs. Valentine, and there was a large and representative attendance of the Glasgow staff. The presentation was made in happy vein by Mr. F. Douglas Watson, Superintendent for Scotland. There was a well-worn saying current amongst Englishmen, he said, to the effect that when a Scotsman took up a position in England he never returned to his native land. Mr. Valentine, however, was a living falsification of that statement, as going from the North of Scotland to Manchester he returned from the latter city to Glasgow in 1895. Mr. Watson referred to the strenuous thirteen years' service given to the Company, to its complete satisfaction, by Mr. Valentine in Glasgow, during which period the system had been practically reconstructed twice over, the business had grown amazingly, and the lively and historical fight with the Glasgow Corporation had taken place. He complimented Mr. Valentine on the completion of 25 years' telephone service, and on his own behalf as well as on behalf of the members of the Glasgow staff he welcomed Mrs. Valentine amongst them on that occasion. In handing over the gift Mr. Watson expressed the hope that Mr. and Mrs. Valentine would be long spared to use it.

Mr. Valentine, on behalf of Mrs. Valentine and himself, eloquently thanked the staff for the gift and Mr. Watson for his kind words in presenting it. He gave an interesting *résumé* of his telephone "life," and dealing with his past thirteen years' service in Glasgow said that he had been indeed fortunate during the whole of that period in having under him a staff upon whom he could always absolutely rely; if that had not been so the Company could not have occupied the creditable position in Glasgow which it did to-day.

On the motion of Mr. J. R. Brown, Contract Manager, a hearty vote of thanks was accorded Mr. Douglas Watson for so adequately voicing the sentiments of the staff on that occasion.

TELEPHONE WOMEN.

XCIV.—ADA GERTRUDE BUCKWELL.

MISS BUCKWELL, the Clerk-in-Charge of Battersea, entered the service as an Operator at Westminster on June 21, 1895. This exchange then consisted of something less than 300 subscribers. A new switchboard was fitted in February of the following year, and this brought into use the head-gear operating sets. Just at first they were not regarded very favourably by the girls; since then, however, their opinion has altered, and Miss Buckwell feels certain that every girl would admit that the present instrument eclipses in comfort and quickness the old style. In January, 1903, Miss Buckwell was promoted to Gerrard Exchange as a Supervisor, and continued in that capacity until January, 1907, when she was placed in charge of sub-Gerrard, a temporary additional exchange which it was necessary to open until the new building was completed and the original exchange transferred to the central battery system on one floor. In November, 1907, Miss Buckwell was again at Westminster, amid old scenes and familiar faces, this time with the promotion to Clerk-in-Charge. At this period the exchange had been much enlarged, having some 1,500 subscribers. After two years at Westminster, Miss Buckwell was promoted to her present position at Battersea, where she found and appreciated a more up-to-date equipment. She is strongly of the opinion that improved equipment is not the only or even chief means of rendering good service, and feels, if the staff is trained to take a personal interest in the exchange and to work in this spirit, the best results must



ADA GERTRUDE BUCKWELL.

follow. This, Miss Buckwell has, without doubt, endeavoured to engender in her staff individually, exercising, at the same time, kindness and firmness in her rule. She is an enthusiastic member of the committee of the London Telephone Operators' Society, and also of its papers sub-committee. Owing to no particular hobby, she spends most of her spare time in reading and music.

XCV.—MINNIE FRANCES BUTLER.

THE Clerk-in-Charge of Kensington entered the service of the United Telephone Company in June, 1883, when there were only thirteen exchanges in London, accommodating at most 6,000 subscribers. Her first experience was at Cornhill, and on presenting herself to the clerk-in-charge she was given the usual list of exchanges, showing the numbers allotted to each. When she had



MINNIE FRANCES BUTLER.

mastered these she was told a few details of the work and set to operate. Supervision was then unknown, operators were left entirely to their own resources, and if anything out of the ordinary routine occurred they had to decide for themselves how best to deal with the matter.

Miss Butler is singular in her experiences of the various exchanges. From Cornhill she went to Coleman Street; back to Cornhill; from thence to Avenue (then in East India Avenue), and next to Queen Victoria Street. She was at the latter exchange at the time of the transfer to the first multiple board. Subsequently she was employed at Hop, Clapham, Battersea, Hop again, and Avenue. In 1896 she was promoted to be a Supervisor at Gerrard Exchange, where, however, Miss Butler states she did more clerical work than supervision. In 1898 she was made Clerk-in-Charge at London Wall, at the time of the change-over from boy operators. It is interesting to learn that there were then only about 200 subscribers, especially when one remembers the present London Wall Exchange, which has roughly 8,600 direct lines. The subscribers at this exchange increased rapidly, and a new exchange was built, fitted with central battery equipment, and opened in March, 1902. In the following July this was completely burnt out, the conflagration commencing about eight o'clock, just before the day operators went off duty, and in twenty minutes only the bare walls were standing. Fortunately no lives were lost and no one was injured in any way, the staff behaving with admirable coolness and courage. Temporary

boards were rapidly fitted in the offices next door and all subscribers' lines were re-connected in a very short time.

Miss Butler continued her peregrinations even as Clerk-in-Charge, and has served in that capacity at Westminster, Holborn, London Wall, Bank and North, being transferred to her present position at Kensington in July, 1910. As one of the senior clerks-in-charge with greatest length of service Miss Butler is able to appreciate to the full all that has been done in recent years to improve the comforts and conditions of work for the operating staff. It is safe to say that in each of the many exchanges in which she has worked Miss Butler's buoyant disposition and even temper have gained her the sincere affection of her staff, and her chiefs have always appreciated her keenness and enthusiasm, which have marked her work throughout her long service as a "Telephone Woman."

THE NATIONAL TELEPHONE COMPANY IN COUNTRY DISTRICTS.

BY W. H. GUNSTON.

So much has been heard of late of the introduction of what, for want of a better name, are known as "farmers' telephones," and so much has appeared in the Press regarding the extension of the benefits of telephone service to rural places that an impression is apt to be created that the National Telephone Company and its parent companies (the true pioneers of telephony in these islands) have played little or no part in that good work. This is very far from being the case. The Company—a commercial corporation, and bound therefore by the rules of the game to obtain a return on its capital—naturally commenced its operations in the large centres of population, but, having attended to their needs, it proceeded rapidly to extend its system over the whole country to all places where there was the least prospect of obtaining a moderate profit in so doing.

The difficulties of supplying country towns and rural villages with telephone service stand in need of some explanation. It is, of course, not the rurality or the size of a town which is most likely to make it a late-comer in the telephone network. It is rather its remoteness from and inaccessibility to the busier and more crowded areas. A place may be delightfully rural and sequestered, but if it is within seven or eight miles of some great city with which two or three wealthy inhabitants require communication it is likely to obtain a telephone exchange while the service is still something of a novelty. The wealthy resident, however, is by no means an indispensable factor in the early rural exchange. Many small towns of no commercial importance possessed telephone exchanges in the 'Eighties. Dalston and Wigton (two small places respectively about five and twelve miles from Carlisle—itsself no huge centre of population) will serve as instances.

On the other hand, places not on the route between London and the Midlands, Lancashire, Yorkshire and the West, although old towns such as Spalding, Sleaford, Horncastle, Melton Mowbray, Ely, Oundle, Aylesbury, Maldon, Thetford, Horsham, Romsey, Wallingford, Calne, Malmesbury, Sherborne, Wimborne, Wareham, Shaftesbury, St. Ives, Bodmin, Wells, Glastonbury, Ross, Leominster, Droitwich, Wenlock, Ludlow, Richmond (Yorks), Malton, Northallerton and many others have had to wait until the last decade for the service.

It is now exactly ten years ago that the Post Office began to open exchanges in rural areas. Thitherto their activities had been almost entirely confined to the South Wales and Tyne and Tees districts. It will therefore be of interest to see what the Company had already done in the direction of supplying the service to the less lucrative districts of the country, that is to say, to the more isolated and the non-manufacturing towns. Considerations of size and population do not come into the question so much as geographical position and economic conditions in the towns which I shall instance.

Before the end of the last century the Company had opened in

the South of England exchanges at St. Albans, Hertford, Hitchin Wycombe, Marlow, Guildford, Godalming, Farnham—all places, it will be observed, twenty miles or more from London or from any other large town. I leave out of account the popular watering places of Kent and Sussex. In the large semi-circular belt which lies between London and Southampton, Bristol, Northampton, Leicester and Norwich, an extensive tract in which perhaps in the last century the only towns of 30,000 souls were Reading and Oxford—and in which consequently no town, even though of some importance in itself, forms part of a populous area—the Company was by the year 1899 working exchanges at such places as Chelmsford, Manningtree, Saffron Walden, Huntingdon, Market Harborough, Banbury, Witney, Salisbury, Wilton, Devizes, Trowbridge, Winchester and Chippenham. None of these places boasted 20,000 inhabitants, and it must further be borne in mind that when the Company opened at Oxford in the Eighties and at Bedford in 1896, these places had only about 40,000 and 30,000 inhabitants respectively, and were quite self-contained, having no town of importance nearer than twenty miles distant.

Going further afield, the Company had by the year 1899 supplied the service to Wisbech (Cambs), Boston, Stamford, Louth (Lincoln), Retford, Newark (Notts), Bakewell, Buxton (Derby), Rugby, Kenilworth, Stratford-on-Avon (Warwick), Oswestry (Salop), Hereford, Chepstow, Taunton, Yeovil, Truro and Penzance. In the far North such places as Hexham, Alnwick, Berwick-on-Tweed (Northumberland), Cockermouth, Wigton, Penrith (Cumberland), Kendal (Westmorland), Grange-over-Sands, Carnforth (Lancs) and Ripon, Settle and Knaresborough (Yorks) were all working before the closing years of the last century. These are all country towns properly so called, and do not, of course, purport to constitute anything like a complete list. They are rather places of a certain geographical importance but small population, and the selection of them is designed to show that the Company did not neglect towns situated outside the great industrial areas and the large and popular pleasure resorts. It may be submitted that country towns are not identical with rural districts, but in reply it can be pointed out that to serve the country town is the first and natural step towards serving the small village, that in fact around many of the country towns selected on my list, village exchanges have been opened up, so many indeed that it would be tedious and unprofitable to enumerate them. My paper on the "Development of the Telephone in the English Counties" (JOURNAL, October, 1907, *et. seq.*) gives them in detail. Another point is that it was more meritorious to extend the telephone to such towns as Peterborough—a particularly isolated city of only 30,000 inhabitants—in 1887 than it would be to open exchanges at Latchington-with-Snoreham or Frisby-on-the-Wreake in the present year of Grace. It must be remembered that the "telephone habit" is now widespread, that the pioneer work of years is bearing fruit, that the farmer, the small tradesman, and the country resident feel the necessity of the service no less than the merchant and the townsman. Many country towns (in areas now abandoned by the Company under the Telegraph Act, 1899) in which the Post Office has now a flourishing exchange were vigorously canvassed by the Company in the 'Nineties for sufficient support to warrant the opening of an exchange, but in vain. Ten years' education of the public easily supplies the required explanation. It is not the resuscitation of unwieldy party line rates that will effect the telephonic development of rural England; it is rather that the harvest is ripe and only awaits the capital which can set an army of reapers to work in it.

An interesting illustration of the progress of the telephone under the Company's ægis in country places would be found in a list of towns which received the telephone service before that of the railway. Our railway system is so well established and has been so widely developed for upwards of 50 years that we not unnaturally find few towns or villages of any sort of importance without a railway station. Yet there are quite a considerable number of such villages which boast a telephone exchange, as the following tentative and incomplete list will show. It may find employment for the curious and exact to amplify it by extending it to Scotland and Ireland, or to correct it in a few cases by deleting the names of villages which possess a station near at hand but bearing another

name. The exchanges given are all in England and Wales and are those of the Company only:—

Berks	Hants	Northants
Burghfield	Odiham	Wollaston
Hurley	Hartley Wintney	Rothwell
Sonning	Horndean	Norfolk
Bucks	Hambledon	Catton
Iver	Bassett	Somerset
Cambs	Rownhams	Chew Magna
Trumpington	Longham	Beckington
Cheshire	Southbourne	N. Petherton
Christleton	Stubbington	Stafford
Stockton Heath	Titchfield	Sedgley
Upton	Niton (Isle of W.)	Eccleshall
Cornwall	Bonchurch "	Barton-under-Needwood
Torpoint	Herts	
Stenalees	Markyate	
Portleven	Bushey Heath	
Denbigh	Hereford	Suffolk
Tyn y Groes	Burghill	Woolverstone
Derby	Bartestree	Sussex
Baslow	Kent	Hurstmonceux
Dorset	Pembury	Westmorland
Preston	Hadlow	Grasmere
Durham	Boughton	Sedgwick
Hurworth	Lamberhurst	Wilts
Middleton-one-Row	Langton	Hilperton
Flint	Fordcombe	Wroughton
Halkyn	Kennington	Worcester
Glamorgan	Riverhead	Crothorne
Three Crosses	Willesborough	Kempsey
Sketty	Eastry	Yorks
Glo'ster	Lancs	Whixley
Saul	Newby Bridge	Rothwell
Hardwicke	Leicester	Dringhouses
Bream	Anstey	Boston Spa
Westbury-on-Trym	Oadby	Dinnington
Amberley	Lincoln	
Wotton-under-Edge	Laceby	
Frenchay	Immingham	

Some of these places are suburban in character, but the majority of them are genuine country villages, in many cases three or four miles from a railway station. They are striking evidence of the activity of the Company in rural districts.

AUTOMATIC TELEPHONES.

(Paper read by Mr. W. AITKEN before the Institution of Electrical Engineers.)

THE following report of this paper is reprinted from *The Times*:—

In this country, the author observed, development had been connected almost entirely with manually operated switchboards, though from time to time automatic features had been introduced to simplify the operating, and thereby to expedite the speed of connection. These automatic features had been principally adopted on the incoming junction switchboards which controlled the work between different exchanges in the same area, where it was essential that the operating should be of the very best. He mentioned that the British Insulated and Helsby Cables, Limited, had lately introduced small switchboards of his design, in which the connections were controlled by a rotary multi-contact electro-magnetic switch, so that when a connexion was made manually it was held electrically and automatically disconnected, and all apparatus was restored to the normal condition when the subscriber replaced the telephone receiver after a conversation. At present, on small switchboards, clearing signals were given to the attendant when the telephone was replaced; but with these new switchboards the lines were automatically disconnected and all apparatus restored to the normal condition by the replacing of the telephone. This would make the work from the private branch exchange to

the central exchange much more positive, and would prevent delays from occurring at the central exchange on account of slow operating at the private branch exchange. Primarily these boards were designed for small exchanges where there was no regular attendant, say, up to 20 or 30 lines.

AUTOMATIC EXCHANGES.

Most of the leading telephone manufacturers were now busy developing automatic systems, but, practically, there was only one system in common everyday use—that of the Automatic Electric Company, of Chicago. It was claimed by that company that there were 300,000 telephones working on their system, San Francisco, Oakland, Los Angeles, Columbus, Grand Rapids, and Chicago being among their largest installations. San Francisco and Los Angeles were both laid out on a basis of 100,000 lines. The former had already four exchanges with three at Oakland, across the bay, most of them of 10,000-line capacity. Los Angeles had six main and four branch exchanges equipped for 25,700 lines. These exchanges were on the common battery system. The Chicago system, just being brought into use, was said to be suitable for 1,000,000 lines.

In a cosmopolitan city the advantage seemed to be with the automatic apparatus as regards operating by the public. The opinion that the subscriber could not be trusted to operate the switch correctly, and that he should not do more than lift and replace the receiver, all operating being done by a trained staff, was, he thought, now held only by a few enthusiasts. The subscriber's instrument might be of any of the well-known patterns fitted with a dial switch. The switch had finger holes near the circumference into one of which a finger was placed and the dial revolved until the finger came against a stop. In the three-wire system this dial as it revolved intermittently earthed one or other of the wires, and thus completed a circuit from a central battery which caused electro-magnetic mechanism to perform certain functions step by step. In the later system these functions were performed by the dial simply intermittently opening the circuit which had been completed by lifting the receiver.

An important feature of the automatic system, of which the mechanism was fully described in the paper, was that it was not essential to concentrate a great number of lines in any one building. The system would work as efficiently if 10,000 lines were in one building as in ten exchanges of 1,000 lines each. The apparatus, with the exception of, probably, the power plant, would be exactly similar, but the street cable plant would be very different. It would thus be seen how efficiently the automatic system met the varied needs of a great city, where a residential district of a few years ago with few telephones became a busy business centre requiring many telephones, like Finsbury Circus; or when a slum, such as the district between Holborn and the Strand, gave place to a great thoroughfare like the Kingsway, and thus upset all calculations of capacity in underground mains and necessitated the re-opening of streets. In the automatic system a district station of suitable capacity would be opened in such localities, and the necessary local lines concentrated on these. The existing cables of small capacity to the large exchange would be utilised as junction wires. A small town with an ultimate capacity of 12,000 to 15,000 lines might be efficiently served by a central of 10,000 lines and several district exchanges varying from 100 to 600 or 800 lines. In existing manual systems somewhat similar automatic district stations might be used with advantage as valuable adjuncts to avoid expensive underground cable work, or the provision of new manual plant, or expensive additions to existing plant of limited capacity.

In some countries objection had been raised to the automatic system because it would do away with one form of employment which was very suitable for women; in new countries where women were scarce the automatic appealed as a way out of a great difficulty.

EFFICIENCY AND COST.

The manual system was now as near perfection from an operating point of view as it could be brought, and increased efficiency could be obtained only by refinements due to more expert

operators and thorough supervision. The principle of working was that the subscriber should only remove the receiver, state his requirements, and replace the receiver on the switch-hook, all operating beyond being performed by experts. This sounded simple, but it depended, first, on the articulation of the speaker, who might be from any county or any country, and secondly, on the ear and understanding of the operator to interpret the words before giving effect to them. Again, in a city like London, about 75 per cent. of the calls were over junction lines, which meant that the first operator had to repeat the number required to a second operator. In the automatic system the responsibility for getting any number, no matter how large, was entirely on the caller. If a blunder was made, the caller had only himself to blame. Practically he was asked to spell out his number, and yet some experts said he was not to be trusted to do this. It was also claimed that the subscribers on an automatic system answered more quickly, as there was no operator to blame. Unquestionably for rapidity of service the automatic had the advantage. As quickly as a caller could spell out his number, so quickly was the connexion built up, for any number on the system, and the clearing was instantaneous. The time taken to send in a clearing signal on the manual was the time taken on the automatic to disconnect. The secrecy of the conversations would also appeal to many.

The capital cost for the actual exchange equipment in small exchanges was much more with automatic than with manual, but with increase in size the costs approached each other until at about 10,000 lines they were equal. This was for single exchange equipment, but when the telephoning of a great city was considered the results might be very different. The subject, however, was a very complex one, and would require very careful study of a particular area to determine exact costs. It might be noted, however, that whereas the manual system increased with an ever-increasing ratio owing to the increase of junction lines with their complicated circuits, huge multiples, and attendant operators, the cost of the automatic system increased much more uniformly. The apparatus increased on the percentage basis, and the junction lines were actually fewer, as they carried a greater number of busy-hour calls owing to the rapidity of the service. Owing to the tendency on the manual systems for junction lines to increase abnormally, as great a number of lines as possible were accommodated in one exchange, and therefore the average length of the subscribers' lines was increased. On the automatic system, however, as the working from beginning to end was junction working, there was not the same necessity for large exchanges, and the apparatus could be broken up and distributed in groups of moderate size as best suited the economical lay-out of an underground cable system, with the result that the average length of the subscribers' lines would be much less.

The manual system was seen at its worst when sub-division took place. Owing to the cost of line equipment it was not economical practice to concentrate all lines on one large central exchange, even when this could cope with the requirements of a town. It was usually advisable, therefore, to have district exchanges. It was difficult to deal with the saving effected in conduits and cable for lines; but generally it must be conceded that as the service remained always at 100 per cent. efficiency, no matter how the units were distributed, there must be a great saving owing to the possible reduction of the average length of the subscribers' lines, the reduced number of junction lines owing to their greater carrying capacity under automatic conditions, and to the greater flexibility due to the feasibility of opening an automatic exchange owing to the growing telephonic density of a district, whereas a manual exchange could be opened only at the cost of reducing the efficiency and increasing the operating cost of the whole area.

The cost of buildings was very much less on an automatic system, as the equipment was much more compact—no kitchen, rest room, and other conveniences for operators were necessary. The furnishings, decorations, electric light fittings, were simpler.

With regard to maintenance, all operators' expenses were saved except such as were required for trunk service, information desks, and the like. Against this, of course, had to be placed the cost of electricians or mechanics. One good man was usually provided for every thousand lines. Many of the sub-exchanges had no regular attendant, all lines being tested from the nearest main

office, and charging of accumulators being effected over wires from the main exchange, only periodical visits were paid to see that all was in order.

The author concluded the paper by expressing his conviction that there was a great future before automatic telephony.

DISCUSSION.

Mr. J. E. Kingsbury said Mr. Aitken's belief that nothing else than the full automatic system could be other than transitory might be right, but there was no material put forward, based upon accomplished facts, to permit of a judgment yet. Mr. Aitken believed that the subscriber could be relied upon to a very considerable extent, and here again he might be right, but it was all a matter of experience and statistics which were at present lacking, and it was unwise and unsound engineering practice to assume that something which had not been sufficiently demonstrated might be relied upon.

Mr. F. Gill said that no discussion of circuits or apparatus would enable a conclusion to be arrived at. It was essential to take a large area and study throughout the conditions which would be found if manual switch gear were installed and the same if automatic gear were used. No decision could be arrived at by generalisation. He referred to Mr. Carty's contribution to the discussion at the International Conference in September last in Paris (N. T. JOURNAL, November and December, 1910). Among other detailed points, he indicated some of the functions of the private branch exchange operator which could not be filled by automatic apparatus. He stated that 22½ calls per junction per busy hour, a figure taken by the author, would be unsafe for English practice, and he criticised the statement of one man per 1,000 lines for maintenance of automatic exchange equipment.

Mr. A. W. Whalley said he had studied five different systems in the United States, and they had filled him with astonishment and admiration at the results accomplished. In his opinion it was now time for the business man and the man in the street to be consulted.

Mr. R. Scruby thought that telephone engineers in England and also the public would one day have cause to thank the inventors, engineers and financiers of the Automatic Electric Company of the United States for having shown them that entirely automatic telephone systems were feasible and economical. About eight years ago in Los Angeles there was the finest independent manual exchange in the United States, but only a year or two after that date all extensions were on the automatic system, and now one of the largest automatic exchanges in the world existed there. At Dayton, Ohio, where there was a manual exchange and a 10,000-line automatic exchange, the public were very much in favour of the automatic exchange. The question of first cost was really a manufacturing problem. Only one firm had up to now been making the apparatus, and the repetition orders were not put through the factory in anything like the same quantities as in some of the manual telephone works.

Mr. M. S. Conner thought the automatic system was a successful one for giving a telephone service; the subscribers liked it. The service was quick, and he believed that they were reduced to considering the question from a financial point of view. The cost of maintenance of the automatic system was greater than for the manual system. He thought it hardly right to say that the cost of maintaining subscribers' instruments might be anything from \$1 to \$10 with the manual system, but only 2 cents with the automatic. He had seen a good many comparative figures, but had never seen any verified by audited balance sheets. It was very evident to him that up to the present no automatic or machine-operated system had been devised that could give a reliable telephone service at the same cost that a corresponding service could be given by a modern manual equipment. The question of depreciation also had a bearing on the matter. There might be some hope for the automatic system if a large proportion of the parts required to make up the mechanism could be done away with, thereby reducing the maintenance cost.

Mr. Aitken, in reply, said he had no idea of doing away with the operator in private branch exchanges. The Automatic Electric Company recommended full automatic for the main exchanges and for the private branch exchanges, but to meet local conditions in warehouses, etc., where automatic working was not convenient, they always had a manual operator. On the question of maintenance, he pointed out that there were very few wearing parts in the automatic system, and the wipers were the only parts which had to be renewed at all frequently.

SOME RECENT ADVANCES IN TRANSMISSION EFFICIENCY OF LONG DISTANCE CIRCUITS.*

By B. GHERARDI, *Engineer of Plant, American Telephone and Telegraph Co.*

IN June, 1900, Professor Pupin took out his patents for loading. Since that time practical applications of loading on a very extensive scale have been made in the plants of the American Telephone and Telegraph Company and the Associate Companies, and most gratifying results in improved transmission and economy in first cost of construction have resulted from the applications of

* Reproduced from the *Telephone Review*, New York, May, 1911.

Professor Pupin's invention. At first the work done dealt with the loading of ordinary open wire lines and standard cables and with the perfection of the apparatus required to accomplish these results. Later, attention was directed to the more complex problem of loading phantom circuits, the loading of our high-grade No. 8 circuits and the design of special cables so constructed that phantom circuit working was possible in connection with loaded cable conductors. As a result of the work which has been done along these lines during the last two years some very remarkable improvements in the transmission efficiency of long lines and cables have been made. The New York-Denver circuit which is now in operation and the Boston-Washington cable which is in process of manufacture have been made economic possibilities by these advances. While it cannot be said that these results could not have been obtained with our knowledge of the art as it was two years ago, it may safely be stated without fear of contradiction that the cost of such work, as it would have had to have been done with our knowledge of two years ago, would have been so great as to have been commercially prohibitive. Someone once defined an engineer as "a man who could do with one dollar what anyone could do with two." This definition, while not complete, is certainly good as far as it goes, and is, I think, well illustrated by the developments which I am going to tell you about this evening.

THE NEW YORK-DENVER CIRCUIT.

The New York-Denver circuit has a length of a little over 2,000 miles, that is, it is more than twice as long as the New York-Chicago circuits, which are about 950 miles long, and is a little less than twice as long as the New York-St. Louis circuits, which are about 1,050 miles long. Until the completion of the developments which have made the New York-Denver circuit possible, the New York-Chicago and New York-St. Louis circuits represented practically the limits of long distance transmission. Now service from New York to Denver can be given which is as good as, or even better than, the service given a year or two ago from New York to St. Louis or Chicago, and this without using any heavier wire than was formerly employed. All our old circuits from New York to Chicago and St. Louis were No. 8 B.W.G. wire, weighing 435 lbs. to the mile. No heavier wire is used to get the New York-Denver service.

One of the aims of our President, Mr. Vail, is to give universal service. The first step in the direction of giving such service is

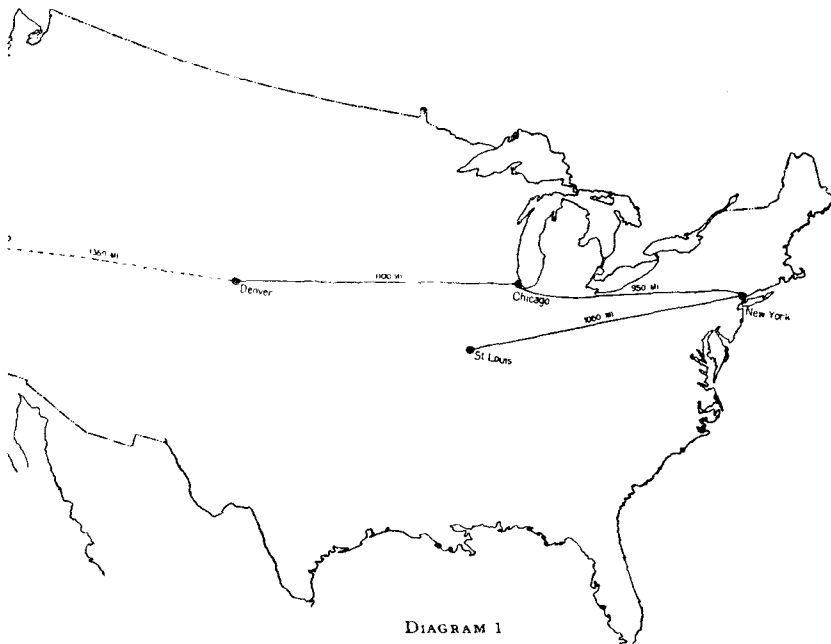


DIAGRAM 1

obviously to be able to give transcontinental service—that is, a talk from New York to San Francisco. Diagram 1 will show how much of a step in this direction has been made since Mr. Vail's wish on this matter was stated about two years ago. This diagram shows what we could do two years ago, what we can do now, and how much remains to be done to get to San Francisco. It was a long step

from Chicago to Denver. One more step a little longer will take us to San Francisco.

Two years ago we did not know how to successfully load No. 8 circuits, how to commercially phantom No. 8 circuits, or how to combine phantoming and loading. Since that time we have found out how to do all of these things, and it is as a result of these developments that the Denver circuit is a reality to-day.

Before explaining how each one of these results was accomplished, and the part which each result contributed to the achievement of talking from New York to Denver, I will describe the

GENERAL ARRANGEMENT OF NEW YORK-DENVER CIRCUIT

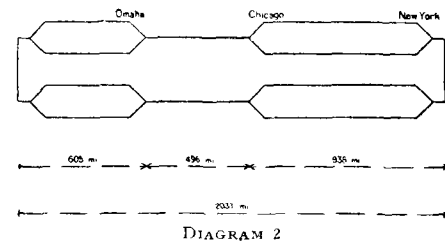


DIAGRAM 2

circuit. Diagram 2 shows in a general way the New York-Denver circuit. From New York to Morrell Park (the test station just outside of Chicago) there are two loaded No. 8 circuits. These are phantomed, thus creating a third circuit, and this phantom is also loaded. From Morrell Park to Omaha there is a loaded No. 8 circuit. No loaded phantom has as yet been provided here because the pole line did not carry two No. 8 circuits so located with relation to each other that they could be phantomed. Arrangements are being made to move a No. 8 circuit on this line to pins adjacent to the present loaded No. 8 circuit, and as soon as this is done a phantom will be created from the two circuits, and this phantom will also be loaded, thus giving between Chicago and Omaha the same arrangement as now already exists between New York and Chicago. From Omaha to Denver there are two No. 8 circuits which have been phantomed, thus creating a third circuit, and the two physical circuits and the phantomed circuit are all loaded, thus giving from Omaha to Denver the same general circuit equipment as now exists between New York and Morrell Park.

The circuit from New York to Denver, utilising the phantoms where they exist and including the reflection losses due to the present irregular arrangement, is equivalent in transmission efficiency to about 30 miles of standard cable. The circuit if connected throughout on a non-phantomed physical circuit over the same route is equivalent to about 32 miles of standard cable. When the final arrangement is completed between Chicago and Omaha our present estimate is that a New York-Denver connection on the phantom will be equivalent to between 28 and 29 miles of standard cable. If the circuit were made up throughout of unloaded No. 8's it would be equivalent to 69 miles of standard cable. A No. 8 unloaded circuit from New York to Chicago by the shortest route is equivalent to about 34 miles of standard cable from testboard to testboard. It will thus be seen that the new circuits to Denver are better than our old circuits were to Chicago. Not only are they better, but they are cheaper, because with the art as it was two years ago with four No. 8 wires we could get two circuits; now with four No. 8 wires and some coils and insulators we get three circuits of more than double the transmission efficiency. It is interesting to consider what results these cheaper circuits will accomplish when used in connection with the Chicago business. The No. 8 unloaded circuit to Chicago has a transmission efficiency of 34 miles. By the use of telephone relays or repeaters this can be cut down to about 22 or 24 miles. The efficiency of the No. 8 loaded circuits from New York to Chicago is equivalent to about seventeen miles of standard cable. The efficiency of the loaded phantom is equivalent to about fifteen miles of standard cable. As soon as certain additional circuits *via* Pittsburg are loaded and phantomed we shall start using the high-grade circuits for New York-Chicago business.

As I have already stated, there are embodied in the New

York-Denver circuit three advances recently made in the art, namely:

- Loading No. 8 circuits.
- Phantoming No. 8 circuits, and
- Combining loading and phantoming on the same circuits.

LOADING No. 8 CIRCUITS.

The problem of loading No. 8 circuits was primarily a problem in connection with the insulation of the line wires. A No. 8 circuit can be loaded with the same coils used on No. 12 circuits, and these coils would be spaced in the same manner, that is, at eight-mile intervals. It has been a fact known to us ever since we started to

which part of the time would be better than if not loaded and part of the time worse.

It having been established that a substantial improvement would have to be made in the insulation of No. 8 circuits in order that they might be successfully loaded, and reasonably uniform results obtained from the loading, a study of line insulation conditions was made to determine what steps would be necessary in order to improve the line insulation. Aside from the general insulator leakage, two particularly weak points were found in the insulation of open wire circuits. One of these was at transposition points. Diagram 3 shows the arrangement of the wires on a standard single pin transposition. I will be seen that with this arrangement there is a very direct leakage path from one wire to the other during wet weather. The part of the insulator surface protected by the petticoat is the only part that is of much value during wet weather. Actual measurements showed that the leakage on lines equipped with standard single pin type transposition insulators was 20 per cent. greater during wet weather than on lines where the two wires were never allowed to be on the same pin. Of course the old standard transposition which employed two insulators, both of the transposition type, and in which the wires were tied to both of them, was just twice as bad as the single pin transposition already discussed. The method of overcoming this difficulty was to transpose the wires without bringing them on to the same insulator. This is accomplished in the manner shown in the second part of Diagram 3, that is, to employ the phantom transposition bracket for transposing a physical circuit. The same problem, of course, arises when phantoms are involved and having used the phantom bracket for

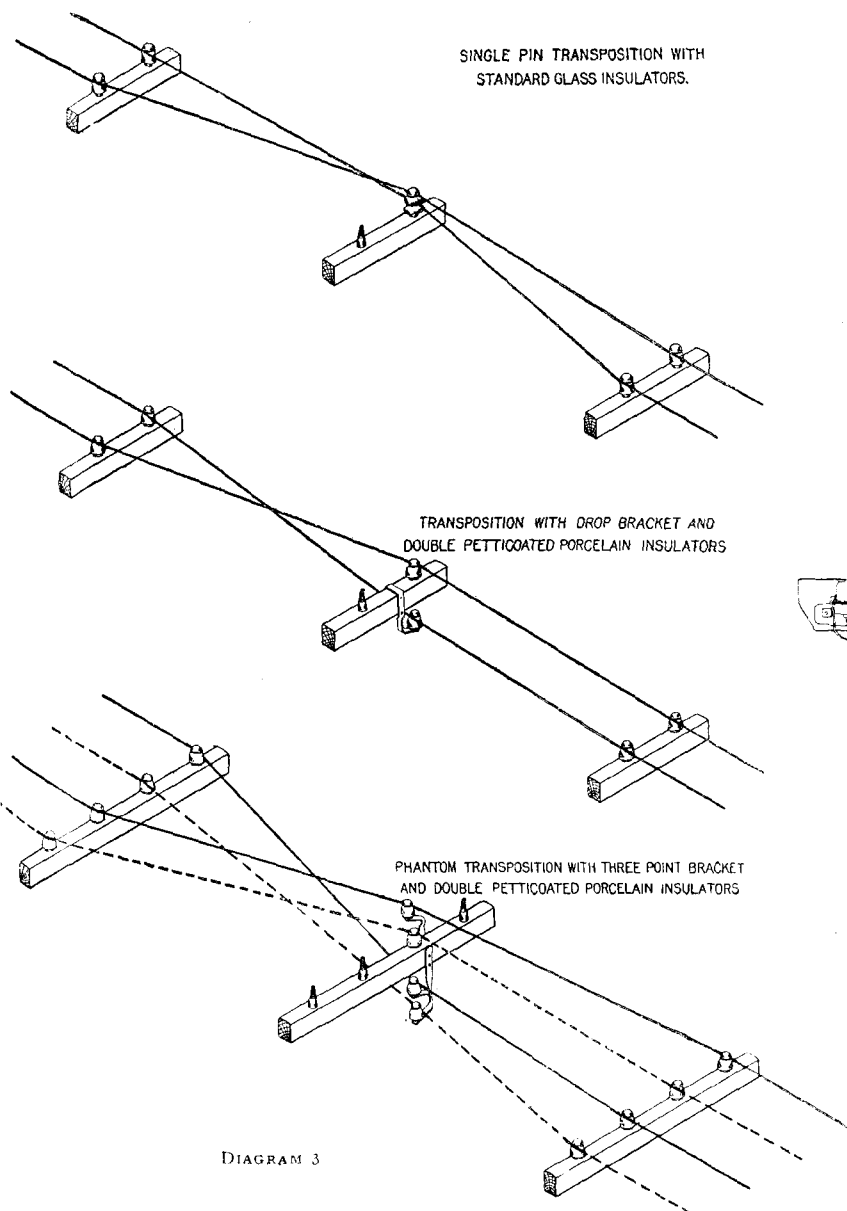


DIAGRAM 3

do commercial loading that low insulation on a loaded circuit has a much greater effect in impairing the efficiency of such a circuit than the same insulation has on an unloaded circuit. It has also been known that the effect of low insulation on the No. 8 circuits was much more serious than on the No. 12 circuits.

When we first began to unload our open wire circuits about ten years ago it was found that the No. 12 gauge circuits which had been loaded gave satisfactory results in dry weather. In wet weather the results were not so good, due to the lower insulation at such times, but these results were good enough. In the case of No. 8 circuits, however, it was found that when they were loaded the effect of low insulation was so serious in wet weather that at such times the circuit was no better that if it was unloaded—sometimes even worse. A system of loaded No. 8 circuits could not, therefore, be considered satisfactory, as it would be a system

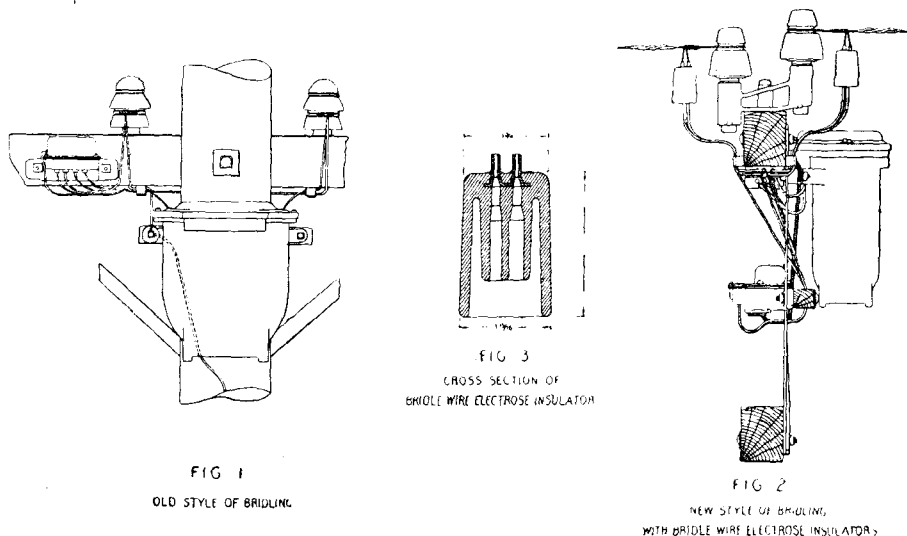


FIG 1
OLD STYLE OF BRIDLING

FIG 3
CROSS SECTION OF
BRIDLE WIRE ELECTROSE INSULATOR

FIG 2
NEW STYLE OF BRIDLING
WITH BRIDLE WIRE ELECTROSE INSULATOR

DIAGRAM 4

the transportation of physical circuits, something else is required when phantoms are involved. This arrangement is also shown in the diagram. By the means described above the transposition as a factor in producing low insulation is eliminated and the transposition points are made just as good as any other point in the line.

Another point at which it was found that there was considerable leakage was where, for the purpose of inserting loading coils, connecting with a test station, or for any other reason, the wires were bridled. These places were particularly bad during wet weather, especially after the bridle wire had been in service for a short time and had weathered. The path of this leakage is shown in Part 1 of Diagram 4. The braid on the bridle wire soon becomes weathered and when wet is a fair conductor. Leakage takes place easily over the wet surface at the end of the rubber insulation and thence to the wet braid. This difficulty was overcome by a very neat device known as a bridle wire insulator. Part 2 of the diagram shows a picture of such a bridle wire insulator, and Part 3 shows a cross section of it. The two wires shown in connection with this bridle wire insulator extend—one to the loading coil and the other to the lightning arrester. The adoption of this arrangement has completely eliminated low insulation at bridling points.

(To be concluded.)

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VOL. VI.]

JULY, 1911.

[No. 64.]

THE POSTMASTER-GENERAL AND THE STAFF.

THE Postmaster-General in his speech to the staff at the annual dinner made two statements which were listened to with unbounded satisfaction. The first was as regards the position of the staff on their transfer to the Crown, when he stated explicitly that all who contributed to the pension fund would be able to assign their share in that fund to the Postmaster-General when the fund is wound up, and be allowed to count all the years they had spent in the service of the Company and during which they had contributed to the fund as though they were years spent in the service of the State for pension and superannuation purposes. This was received with especial pleasure as it seemed to deal satisfactorily with the cases of the Legal and Contract Department staffs, about which much doubt had been felt. The other statement which evoked loud applause was one to the effect that promotion in the Post Office would not be determined by mere dead routine rules of seniority in which merit would not be taken into account, and that the telephone would in a large measure be kept apart from other Post Office work, with the allowance of a large measure of discretion to local officers.

In the recent debate which took place in the House of Commons on the Telephone Transfer (Consolidated Fund), Mr. HERBERT SAMUEL reiterated these statements and confirmed these promises, but with an important qualification as regards the first, which will inflict an undoubted hardship on a section of the staff. Anyone who has read a full report of Mr. SAMUEL'S speech cannot fail to discern therein his desire to act fairly to the staff, and to meet as far as possible the undoubted difficulties and nice points of the situation. Referring to Lord STANLEY'S promise to take over all employes of the Company who received less than £700 a year and had more than two years' service, the

Postmaster-General said: "I propose to redeem that promise, but to extend it further, and not only to take over those who have more than two years' service, but to take over the whole staff, no matter what their length of service may have been," and as regards seniority he said "in no case will the years of service to the Company be left out of account with regard to seniority, and the present officers of the Company will have the full benefit to which their years of service entitle them."

Dividing the Company's staff into two classes, the pensionable and non-pensionable staff, the Postmaster-General informed the House that "almost the whole of the pensionable officers of the Company would be transferred to established posts in the Post Office, and therefore pensionable posts," and that a very large number of the other class would fall within the class of established Civil servants. "In fact," he said, "fully four times as many of the Company's servants will be placed on the establishment of the Civil Service as have hitherto been in the pensionable class while with the Company."

Of the Company's pensionable staff, however, there remain a certain number who, according to Mr. SAMUEL, "cannot be established without disturbing arrangements which are uniform throughout the Civil Service," and he instanced the Solicitor's Department. These he proposes to compensate by giving them an allowance in addition to their salary equivalent to their pension rights. But it may be pointed out that such an allowance would by no means compensate a man for the various disadvantages attaching to the personal service of an individual as distinguished from the established service of the State. We believe it is the fact that the Solicitor to the Post Office, his assistant and principal clerk are on the established service. This would seem to dispose of any difficulty in the establishment of corresponding men in the Company's service. As regards the clerical members of that department there should be no insuperable difficulty in finding them posts on the establishment in other departments.

As regards the second point mentioned at the annual dinner, Mr. SAMUEL said:

"Certainly the system will not be thrown into the routine of the Post Office Department. We are on guard against over-centralisation. The responsible officers in the districts will be given a large measure of local control, and we mean to use to the full the experience and capacity of the Company's staff in connection with work in which they are experts. The Company's managers will be kept at telephone work, and they will be given a very large measure of discretion in their own sphere."

This, again, we are sure will be hailed with satisfaction by the staff.

The attitude of the House of Commons towards the claims of the staff was appreciative, and Mr. JOYNSON-HICKS, who seems to have a remarkably clear grasp of the difficulties of the staff's position, spoke strongly in their behalf and pressed for the inclusion in the forthcoming Bill of the various assurances which have from time to time been given. With the obvious willingness on the part of the Postmaster-General to meet the staff at all points, and with the general desire of the House to see that they are fairly treated, we hope and believe that a satisfactory solution of the establishment question will be found.

HIC ET UBIQUE.

IN a series of "Active Service Impressions" appearing in a weekly paper called the *Regiment*, Mr. J. F. Trustam, who has been a clerk and collector in the Company's London service since 1903, figures in the following exciting experience of a scout during a reconnaissance at Laings Nek:—

Having a white horse I made a splendid target, and I had not gone far before my horse came to the ground with a crash. I thought he was dead, but he scrambled to his feet again, and I jumped into the saddle.

Owing to this delay the Boers had come within 50 yards of me and called on me to put my hands up. But I made a dash for it, instilled with the idea that while there was life there was hope.

I was about 300 yards past Umbana Kopje, and had my corps well in sight when down came my horse again—this time on top of me. I was pinned to the ground with the horse lying, utterly exhausted, across my legs!

TO THE RESCUE.—The Boers were afraid to come from the cover afforded them by the kopje, as they would have come within range of our guns, so they lay taking pot-shots at me. How long I lay there I could not say, for the minutes seemed hours.

The bullets were cutting the sand into my face when I heard the sound of galloping horses. It was Capt. Denny and Troopers Maise and Trustam pluckily come to my assistance!

They pulled the horse off me, and I was soon in the saddle, out of range, none the worse for my adventure except for a bullet through my bandolier, one through my trousers, a black eye, and a few bruises.

ACCORDING to the *Standard* direct telephonic communication has now been opened between Paris and Vienna by a line passing through Frankfort and Munich. The ordinary tariff is eight francs a call.

ACCORDING to the *Zeitschrift für Schwachstromtechnik* the Swiss Bundesrat has agreed, with certain reservations, to the following alterations of tariff:—

Systems with less than 300 subscribers, 60 francs (£2 8s.).

Systems with over 300 subscribers, 70 francs (£2 16s.).

There is no flat rate in Switzerland, and we assume that the charge per call of 5 centimes ($\frac{1}{2}d.$) is unaltered. The old rates were 100 francs (£4) for the first year, 70 francs (£2 16s.) for the second year, and 40 francs (£1 12s.) for the third and succeeding years of subscription. There is little doubt that the Swiss Government could not make the service pay at the latter figure, even at the low rate of calling per day in vogue in Switzerland as a consequence of a universal message rate.

MR. G. HOOPER, District Manager, Plymouth, who holds the commission of captain in the Devon Fortress Royal Engineers and commands the electric light companies of that corps at Plymouth, took up a detachment to the Coronation ceremonies. They were encamped in "B" Camp, Kensington Gardens. They assisted in lining the streets on June 22 on Constitution Hill, and on June 23 Hyde Park Corner.

THE NATIONAL TELEPHONE COMPANY v. HIS MAJESTY'S POSTMASTER-GENERAL.

IN our last issue we gave a verbatim copy of the judgment of Mr. A. T. Lawrence upon certain preliminary questions arising out of the notices of objection which the Postmaster-General has given to the Company in which he claims to exclude from the scope of the purchase by him of the Company's plant certain plant, land and buildings which he considers will be unsuitable for the actual requirements of the telephonic service of the Post Office on Dec. 31, 1911. That judgment, it will be remembered, was in favour of the Company to the extent that it was held that the Postmaster-General was not entitled to object to buy the Company's plant because he will on the day mentioned be in possession of other suitable plant sufficient for the requirements of his service. The Court also held that certain of the notices were void by reason of indefiniteness. Against this decision the Postmaster-General has appealed, and the appeal came on for hearing in the Court of Appeal before the Master of the Rolls (Sir H. H. Cozens-Hardy), Lord Justice Farwell and Lord Justice Kennedy on June 14, and was continued on June 15, 16, 19 and 20. For the Postmaster-General it was contended that the interpretation placed by the Railway and Canal Commission upon the expression "unsuitable for the actual

requirements" was wrong, and that the notices of objection held by the Commission to be void were in fact good and sufficient notices. The Company disputed these contentions and claimed that the notices held by the Railway and Canal Commission to be void were in fact void.

The same counsel appear as in the Court below—viz., the Attorney-General (Sir Rufus Isaacs, K.C.), the Solicitor-General (Sir John Simon, K.C.) and Mr. Branson for the Postmaster-General, and Sir Alfred Cripps, K.C., Mr. Danckwerts, K.C., Mr. Forbes Lankester, K.C., Mr. Morten, K.C., and Mr. H. H. Gaine for the Company.

REVIEW.

The Propagation of Electric Currents in Telephonic and Telegraphic Conductors. By J. A. Fleming. (316 pp. Price 8s. 6d. net. Constable & Company, Limited, London.)—In this text book the telephone engineer has for the first time a comprehensive explanation and description of that part of his subject generally termed "transmission."

Dr. Fleming has embodied in his book, which is based on two series of special lectures, all the information on transmission which has up to the present only been available by reference to the technical press and to such publications as the *Philosophical Magazine*, *American Philosophical Societies' Transactions*, *Harvard Engineering Magazine*, and similar sources inaccessible to the majority of telephone engineers.

Dr. Kennelly's methods of dealing with the calculations involved in transmission by the use of hyperbolic trigonometry are adopted by Dr. Fleming, and the simplicity of these methods when compared with the mathematics as used by Oliver Heaviside is well seen by a comparison of the latter's works with chapters in Dr. Fleming's book dealing with the same subjects. We are glad to see that most of the symbols used by the National Telephone Company for some years have been standardised by their inclusion in Dr. Fleming's book.

A considerable proportion of the book is devoted to methods of measurements and practically all the apparatus at present available for the measurement of telephonic current, potential, power, capacity, inductance, etc., is described in detail.

The book teems with useful data and in this connection we are glad to see that Dr. Fleming has given many of the results obtained in the Company's Investigation Laboratory.

One chapter of considerable interest deals with loaded cables in practice, and here we have summarised most of the information so far published on this important subject. The great progress however which is continually being made in loading is resulting in the amassing of such valuable data that in all probability, before long, a book dealing entirely with this subject will become a necessity. Be that as it may, the subject of transmission which as we are all now aware is one of great and progressive importance, is fittingly dealt with in this book and no telephone engineer who would wish to be fully equipped can afford to be without it.

The following is a summary of the table of contents:—

- Chapter 1.—Mathematical introduction, including the calculus of complex quantities, hyperbolic trigonometry, Dr. Kennelly's tables of hyperbolic functions.
- Chapter 2.—The propagation of electro-magnetic waves along wires, including general and mathematical theory.
- Chapter 3.—The propagation of simple periodic electric currents in telephone cable, including the cases of both lines of infinite and finite length.
- Chapter 4.—Telephony and telephonic cables, including general principles. The analysis of complex waves. Distortionless lines. Various methods of improving the transmission, including a description of Pupin's methods.
- Chapter 5.—Propagation of currents in submarine cables. This chapter deals more particularly with telegraphic signals.
- Chapter 6.—The transmission of high frequency and very low frequency currents along wires.
- Chapter 7.—Electrical measurements and determination of the constants of cables, including formulae for the predetermination of the capacity and inductance of telephone lines. Practical methods of measuring line constants, etc.
- Chapter 8.—Cable calculations and comparison of theory with experiment, including tables of valuable data.
- Chapter 9.—Loaded cables in practice, including description of loading coils and their application. Data for various overhead lines and land and submarine cables.