which would be possible, should result in a saving of about £3,500 a year. Another advantage of the system will be that, owing to the message passing through fewer hands, greater secrecy will be maintained, while at the same time it is estimated that a saving of about three minutes should take place in the despatch of the telegram from the office.

Office Copies of Telegrams.

For many years we have been keeping office copies of telegrams, using the office copies as accounting vouchers, which were eventually paired with the forwarded telegrams. This is a satisfactory check, but a very costly one, to say nothing of the fact that the messages must pass through so many hands that the secrecy of messages is not so perfect as it might be. The system, I may mention, follows that in use in Great Britain, where, as in New Zealand, the check is an intermittent one only. In other countries, however, I find that office copies are not kept. After examining the system in use in Germany, I am convinced that we can, without the slightest difficulty or accounting-danger, dispense with the office copies. The method of accounting will be greatly simplified, being made by the original telegrams without the labour of searching for their copies, and there will be a large saving in stationery. The main point, however, is that a considerable number of officers in the Clearing-room will no longer be required for the work of pairing telegrams.

The present staff of the Inland Clearing-room is a Clerk in Charge at £260, and 35 officers. The total salaries amount to £3,415. Under the proposed new arrangement the Clerk in Charge of the Foreign Clearing-room will be able to supervise the Inland Room, and it is anticipated that 17 clerks in place of 35 will overtake the work required, in addition to which 9 boy sorters at local offices can be dispensed with at a saving of £540. These together will show a saving of about £2,480. There will also be a saving in printed forms of £900, and carbonic paper £180, in addition to which, storage accommodation, labour removing bags of telegrams, &c., will probably be less by £200 per annum. In all, a saving of £3,700 per annum can safely be set down as within the mark.

Delivery of Telegrams.

Our method of paying boys a fixed salary for the delivery of telegrams has many disadvantages, especially in the larger cities. In all the principal countries I visited I found that payment for this work is made by results; and I would recommend that we adopt a similar system. Payment by results naturally induces the boy to use his best endeavours to make smart deliveries, and no injustice need be done to any boy. A fair number of messages, giving a minimum day's pay, can be decided upon before the system commences. In all cases a minimum payment can be fixed irrespective of the number of messages delivered.

Telegraph Apparatus.

While in Europe I had an opportunity of examining the latest telegraph apparatus. Recent developments calling for remark are the invention of the Murray multiplex (an adaptation of certain principles of the Baudot machine to the Murray device), which has the good points of the original Murray machine with the advantages of the multiplex working on one wire. The instrument is a fascinating one to watch, but when I saw it at work it did not appear to be sufficiently perfected to insure its being worked for any long time without mechanical troubles intervening.

The Baudot multiplex instrument continues to be highly favoured, and is generally acknowledged to be the best printing-instrument yet devised.

I made a special trip to Paris to see the Pollak-Virag apparatus at work. So far this instrument has not been adopted by any Telegraph Administration, mainly on account of its requiring two wires. It is also stated that the induction is so great as to affect telephone-wires. I was only able to see the machine working on short circuit, but its performance was most remarkable. The message is punched on a ribbon of paper by a machine with a typewriter keyboard, and is transmitted at the rate of speed of forty thousand words an hour. By a pair of mirrors and other mechanism controlled by the electric impulses the message is printed, or, rather, reproduced by photographic process, in a perfectly legible style of script. This instrument has great possibilities. In Great Britain the Wheatstone system was some years ago much used; but, although the transmitter was very fast, it was found that the number of clerks required to punch the messages on tape and write up from the Morse characters printed at the receiving end was so great as to render the system too costly to work except in cases of pressure. Recently, however, the invention of the Gell perforator with which one clerk can punch from eighty to one hundred messages an hour has enabled the number of clerks at the transmitting end to be much reduced. At the same time it occurred to the Edinburgh office that, instead of writing up from the receiving-tape, it would be sufficient if the tapes of messages for retransmission were pasted on sheets, the retransmitting operator working from the Morse characters. As probably 50 to 60 per cent. of telegrams received in the large offices are for retransmission, a considerable saving of staff was thus effected at the receiving end of the wire. On the whole the Controller in Edinburgh informed me that he considered that the Wheatstone instrument with the Gell puncher and the pasting of tape actually resulted in a saving of staff as compared with the Morse instrument. In London I was informed that the new method of working Wheatstone had given the instrument a fresh lease of life. One great advantage of the combination of the Gell perforator with the Wheatstone is that the perforating can be performed by persons having a knowledge of the typewriter but no knowledge of manipulating the Morse instrument, while the translating of the Morse characters at the receiving end can be acquired by any intelligent person in a few days. We have a couple of the Gell perforators in New Zealand, with which we might give a trial to the system between Auckland and Wellington.

I also saw an instrument called a telewriter, by means of which a message written by any person is reproduced in fac-simile at the receiving end. This instrument is combined with the