

Telegraph and telephone poles of 22 ft. length cost only 65 cents, or, say, 2s. 9d. Light lines can therefore be erected cheaply. Instances are not unknown where farmers' lines have been erected, and when the poles decayed they were not replaced for want of capital. A perusal of some companies' printed reports of their business shows that farmers' lines are a branch of it.

#### STAFFS.

The large number of persons engaged in the managing, engineering, and electrical staffs was a particularly noticeable feature in American exchanges. Every part of the organization—financial management, engineering and electrical problems—receives the greatest possible consideration. The Associated Companies' principal officers frequently meet to confer with each other and to discuss the various problems that arise from time to time.

#### TECHNICAL WORK.

*Telephone Engineering intricate.*—With regard to the technical side of the business, it is being recognised in the electrical world that the most difficult electrical engineering work is included in the modern telephone exchange. Many eminent electrical engineers in Europe and America with whom this subject was discussed generally conceded the correctness of that view. The American telephone engineers were mostly comparatively young men, and graduates of universities.

#### OPERATING STAFFS.

*Great Care exercised in engaging Operators.*—As there are varying conditions in every country in the matter of pay and conditions of employment of exchange staffs, each country has to work out its own terms. In the engaging of girls for exchange work great care is exercised in regard to testing their suitability for the work as well as in regard to their respectability. The rate of pay for operators varies from \$4 to \$10 a week. The operators, it may be mentioned, are all female.

*Girls do Night Duty.*—The hours of duty in America are longer than with us, and girls generally do the night as well as the day duty.

#### SUPERVISING STAFF.

The supervising staff in exchanges is about one for every nine operators in the daytime, and one to every four at night.

#### TELEPHONES AND POPULATION.

*Percentage of Telephones to Population.*—The number of telephones per hundred of population varies in the United States from about 4 to as high as 25 per cent. Boston and New York are respectively 4·8 and 4·6. The development schemes in the Eastern States are based on an ultimate expectation of ten telephones to 100 inhabitants. Our Wellington proportion of telephones to population is about 5 per cent. This is approximated in our other cities.

#### SYSTEMS OF CHARGING.

There are many different rates to subscribers, flat rates and measured, with a tendency to measured. Sometimes a flat rate is applied to residence connections and not to business connections. The flat-rate system is not considered unsuitable for a city with less than 100,000 inhabitants.

#### SMALL TELEPHONE-OFFICES.

The many small telephone-offices so common in New Zealand, giving communication with the world to the most remote districts, seem not to have a counterpart in either Britain, the Continent of Europe, or the United States.

#### GENERAL EXPERIENCE IN DEVELOPMENT.

*With Increasing Subscribers, Improved Methods necessary.*—The New Zealand experience is in keeping with that of other countries, and the changes in this country referred to below are an illustration of what is taking place abroad. The original simple switchboard served well for a limited number of subscribers. As the number of subscribers increased, rendering the use of other methods imperative, the branching multiple system was adopted, that system being the best existing at the time it was introduced.

*Central-battery System for New Zealand Exchanges.*—When the exchanges equipped with branching multiple switchboards—for example, Wellington—grow to the limit of their capacity, they will require to be replaced by the central-battery system, which is now being adopted universally and is superior to the branching multiple system. The Hon. the Minister of Telegraphs authorised last year equipments of central-battery switchboards for Invercargill and Timaru to replace the existing switchboards rapidly becoming unsuited because of the increase of subscribers. These new switchboards will be built on the latest developments of the most modern practice.

#### TELEGRAPHS IN AMERICA.

*Barclay's Printing-instrument.*—The Morse system is universal, and similar to our own. There is one important departure, however, by the Western Union Telegraph Company—the largest telegraph organization in the world—which calls for special mention, and that is the adoption by that company of Barclay's printing system. Barclay's instruments are being introduced into the system of that company as fast as they can be manufactured. The apparatus was seen at work, and the results were excellent. Mr. Barclay's instruments are a typewriter which punches