

THE NUMBER of different uses for VHF mobile radio telephone equipment is legion already. An enterprising imagination can readily suggest as many more. "VHF", moreover, as the experience of most users goes to show, has a happy knack, once it is installed, of discovering uses for itself—of making itself indispensable in a host of unexpected ways. So much so that nine out of ten users, however sceptical they may be on introduction, sooner or later come to admit they "don't know what they'd do without it" and wonder "how they managed before".

Waterworks undertakings, county ambulance services and contractors working on large open-air construction projects have all found VHF mobile radio telephone equipment invaluable to them not only in foreseen but in a score of unexpected ways.

The Brighton Corporation water authority has now been using radio telephones for more than three years. Two staff cars and three repair vans carry Marconi three/five watt transmitting and receiving equipment, coordinated by a single fixed station remotely controlled from headquarters. This equipment has been invaluable in dealing with emergencies, quite apart from effecting a material improvement of routine administration. The crews of the maintenance vans are now able to report on the progress of jobs and receive working instructions without reporting back to headquarters. The distribution superintendent is able to maintain contact with his base and issue instructions to repair units while touring the forty-six square miles of territory which are his responsibility.

Unexpectedly, moreover, the equipment has proved its value many times over in more than one major emergency which could have exposed the undertaking to a heavy bill for damage. Serious emergencies in a waterworks system are apt to be of two kinds, either

Mobile Radio At Work

fractures or failures of trunk mains on consumer emergencies of the familiar kind due to sudden thaw.

A good and typical example of the first kind of emergency occurred at Brighton late one afternoon when the department, through holidays and sickness, was without its normal distribution staff. Two radio crews having very little knowledge of the district were dispatched from head office to locate the site of fracture. While they were out headquarters received from the police a report of flooding on a stretch of main road. The radio telephone system enabled this information to be passed on to the maintenance crews, who were then directed, from information shown on the department's road maps, to the valves which had to be closed. As a result, the whole operation involving the closing of four geared valves was completed within twenty minutes, whereas without radio telephony, it could not have been completed in less than an hour even if experienced personnel had been available.



As an example of the other kind of emergency, there was a case, also at Brighton (where severe frosts are rare) of a sudden thaw bringing telephone appeals for help from householders at the rate of ninety an hour. The undertaking's five telephone lines were continuously occupied with incoming calls, but the radio system made it possible to direct the maintenance crews from one assignment to the next, thereby forestalling an incalculable amount of damage to domestic and other property.

The area of the Brighton undertaking, intersected by hills and valleys running north and south, is a particularly difficult one for VHF coverage, and therefore offers an excellent example of the necessity for careful planning and siting of the fixed station transmitter and aerial to ensure the best possible service from the equipment.

The aerial mast is sited six hundred feet above sea level beside the Ditchling road reservoir, and the Marconi H16A transmitter/receiver is accommodated in the pump house. Remote control by

P.O. line is provided for switching the transmitter on and off by pushbutton at headquarters, where a switchboard operator controls all inward calls. Two frequency bands are used and the transmitter operates on weekdays from 7 a.m. to 10 p.m. One radio-fitted vehicle is taken home at night by one of the engineers, the others being left at headquarters.

Large-scale constructional works are another field in which radio telephones are making a notable contribution to efficiency. In the construction of a modern airfield, for example, the vast scale of the project calls for centralised weighbatching and distribution of the dry mix by truck to the points of laying. In work of this kind, however centrally it may be situated, the weighbatching plant is bound to be a considerable distance from one or other of the construction points at any given rate. In order to cut to the minimum the expensive time lost through stoppages and breakdowns of heavy plant, Messrs. John Laing and Son have used radio



telephone sets at more than one site, installing it in the plant office close to the weighbatching plant, in the administrative site offices half a mile away, in the fitter's van and site foreman's Land-Rover, as well as at four separate construction points. The radio enables any breakdowns to be reported at once to the plant office, thereby ensuring the prompt summoning of fitters with the necessary spares. It was also found that the radio greatly improved the maintenance of routine contact, and the money saved by the cutting of dead time over a contract lasting for two years or more can easily be seen to amount to a very considerable sum.

The same firm has also used radio equipment successfully to improve the efficiency of opencast coal cutting at two neighbouring sites near Newcastle—one of seventy-five acres in extent at Whitley Bay, the other of thirty acres half a mile away at Crowhall.

At Whitley Bay, a total of six units was installed, one in the office of the contractor's agent, plant manager and coal checker, one in the general foreman's jeep and one at each of the three main excavation points.

This system enabled the plant manager to know where and when lorries or plant were required at the coal face or where any accident or emergency occurred. Many other routine operations were also speeded up by the use of radio telephone communications. At one point, for example, one hundred and

Unloading a stretcher from the Scilly Islands plane. The Cornwall County Council ambulances are fitted with our mobile radio

Repair work on the water mains is reported by radio to headquarters so that engineers at the Brighton Corporation pumping station can act without delay

Directed by radio, one of the repair van crew regulates a turncock outside the pavilion



A Railways supervisory engineer in touch with the signal box saves hours of time when men are working on the line

twenty feet below ground level, five coal face routes converged, causing constant traffic congestion until a mobile radio telephone set was installed at the point to facilitate the regulation of lorry traffic.

In practice, it was found that this Marconi equipment gave good coverage up to eight miles in distinctly unfavourable conditions. The sets were worked twelve hours a day, each battery lasting four days, the daily running cost was estimated at two shillings, and in eighteen months of heavy duty no repairs of any kind were required.

The prime function of an ambulance service is to save life and reduce suffering, and it has been found that radio telephone equipment permitting the diversion of ambulances is capable of making a notable contribution towards the realisation of this ideal. In Cornwall, for example, very soon after the county service had installed radio in some of its ambulances, two accident cases occurred in which diversion made it possible for the patient to be picked up

within two minutes of the accident, whereas to have sent an ambulance from the central depot at Redruth would have taken at least twenty-five minutes in the one case, and not less than ten in the other. (Opportunities for putting radio to practical use in saving lives are almost a commonplace with ambulance services which possess radio of this kind.)

The Cornwall County Council controls forty-five ambulances for stretcher cases, supported by thirty utilecon ambulances and hospital car services for the transport of sitting cases. In 1952, the mileage covered by these vehicles on duty amounted to 1,357,499, and the number of patients carried totalled 23,137. Five of the ambulances and one utilecon are fitted with radio telephone equipment.

All the radio-fitted ambulances are controlled from an office behind the Redruth hospital, working by remote control through a fixed transmitter/receiver station. In three months, the six ambulances saved four hundred and

twenty-five miles by diversion in collecting forty-five emergency cases.

Radio is particularly valuable in Cornwall, an exceptionally large, wild, thinly-populated county, where during the holiday season, the population is doubled, and the accident-emergency rate increases out of all proportion to the temporary growth of population. The exceptionally good radio coverage obtained all over Cornwall, country singularly ill-adapted to the use of VHF is, as in the case of Brighton waterworks, due once again to the very careful siting of the transmitter station and aerial seven hundred and fifty feet above sea level at Four Lanes close to Redruth. Here again an interesting example of radio's ability to be unexpectedly helpful

occurred when the fishery-protection vessel, H.M.S. *Wave*, was stranded last winter near St. Ives. A Cornish radio-fitted ambulance stood by on the pier near the wreck from 8 a.m. until midnight, keeping the rescue organisation in touch with developments until every man had been brought ashore and the injured conveyed to hospital.

At Redruth, a radio watch is normally kept from 7 a.m. to 5 p.m., though these hours are varied according to circumstances.

Not least perhaps among grounds for recommendation is the fact that the operating personnel wherever radio is installed soon come not only to depend on it, but to welcome and take a very real pride in it.

Back to Nigeria

Rigger Bob Savage was in Iraq during our installation for the Baghdad studios. He rebuilt the old Post Office masts for the broadcasting station to a height of 140 feet. He found the local labour versatile, and his head boy, Hassan, showed remarkable talent in extracting teeth with pliers



Bob is now in Nigeria, erecting the masts for the multi-channel trunk telephone system. He is working his way from Lagos on to Benin City and Enugu, putting up the masts for the permanent equipment on the sites selected. Here he is with Eric Gall at the end of the survey

