Communication Techniques For Modern Warfare

By Captain Cesar Hechanova, SigC

THE conduct of warfare today is characterized by maximum mobility. Modern warfare operates on fixed tactical principles which terrain or weather cannot alter. Varying conditions, however, calls for specific solutions.

Success in battle, among other things, can be attributed to effective direction and control of units by command elements and perfect coordination of combat elements. Control, in turn, is dependent on communications.

During one of the United Nation's offensives in Korea, for example, inside the iron triangle of Chorwon, Kumhwa and Pyongyang, no-man's land extended as far as ten miles. Reinforced patrols had to be dispatched as deep as they can penetrate to gain intelligence. At nighttime, listening posts were assigned to strategic points as far as seven miles beyond the frontlines to gather much-needed information.

Often, during the daytime, light artillery were brought in line with the Main Line of Resistance and were pulled back during the night in order to make them more effective for

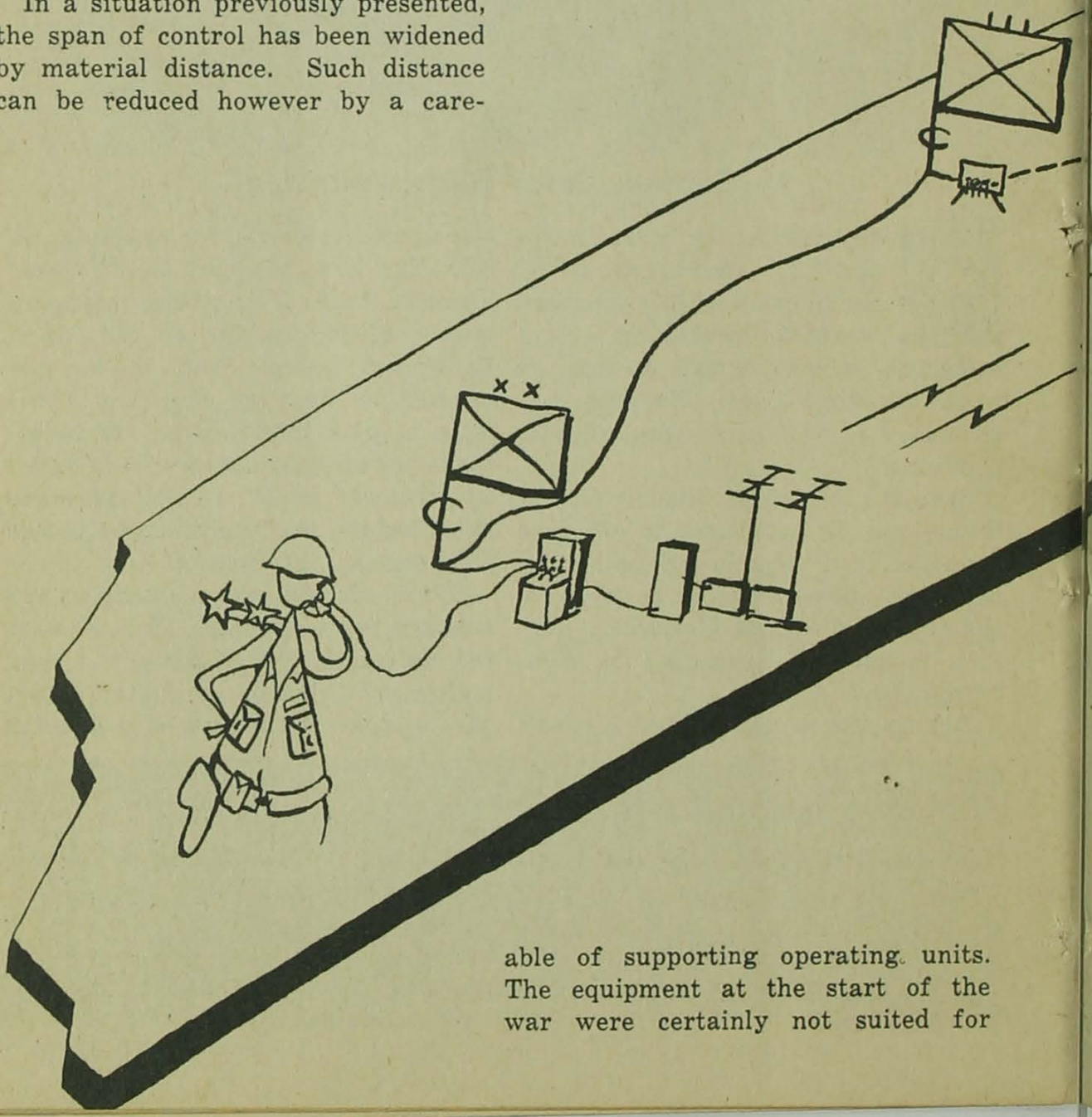
Modern warfare, which gives stress on sound coordination between combat elements and mobility of troops, favors the use of lighter and handier communications equipment in place of the heavy and bulky pieces borne by troopers in World War II

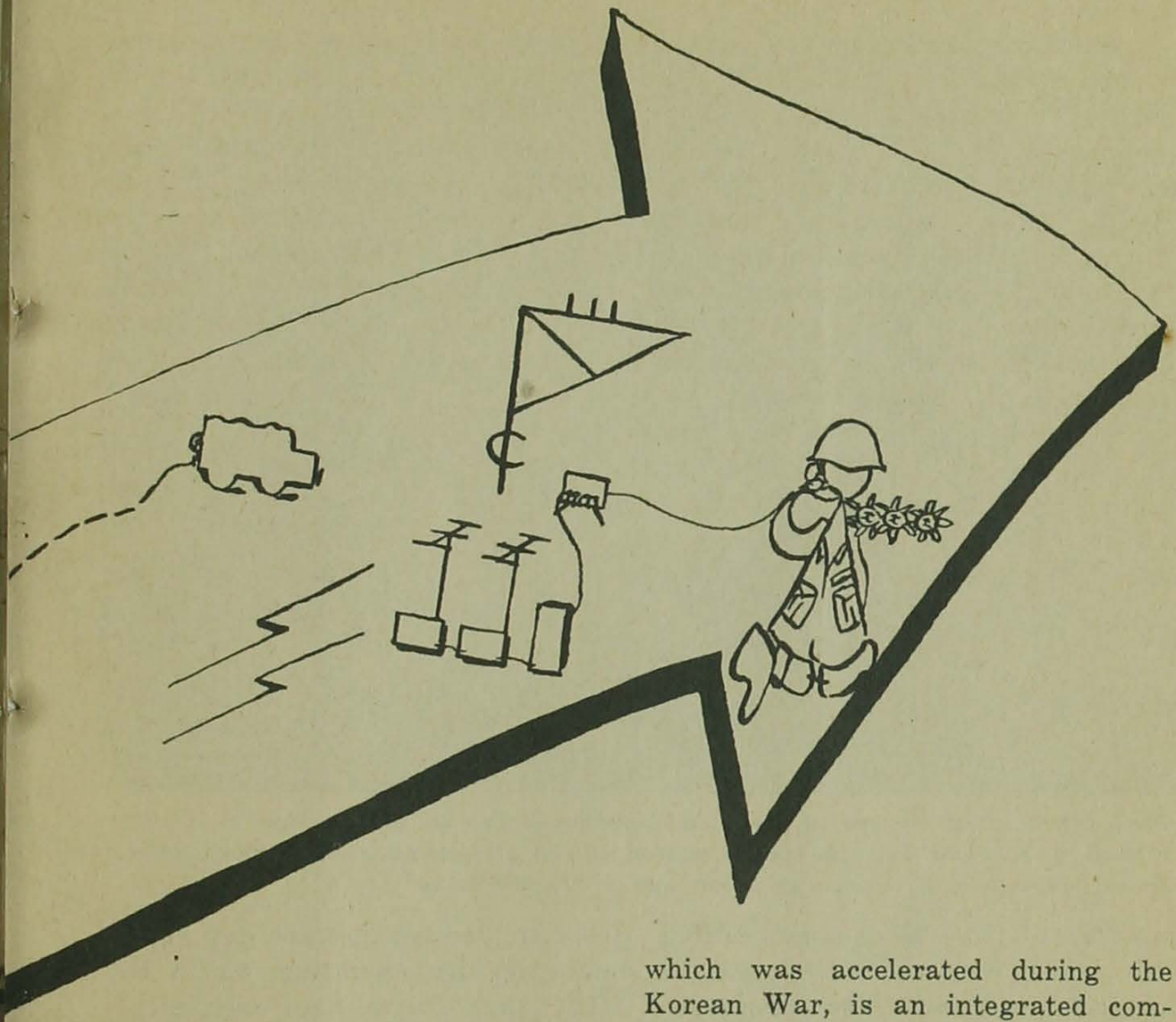
enemy concentrations which normally were beyond the range of small guns. There were instances when, because of "fluid" situations, combat elements were abnormally deployed and units had to displace frequently and move as rapidly as possible.

Similarly, lack of troops dictated that units be given extended sectors of responsibility far beyond the normal tactical employment basically conceived on desks and in classrooms.

In a situation previously presented, the span of control has been widened by material distance. Such distance can be reduced however by a carefully planned signal communications system. This system must be efficient, tightly knit and must be flexible enough to be adoptable to any situation that may arise. Equipment therefore must likewise be suited to all situations.

In the early days of World War II, there was an almost frantic search for adequate signal equipment capable of supporting operating units. The equipment at the start of the war were certainly not suited for





employment. So, while engineers were busy planning, inventing, and testing new equipment, a wide variety of signal equipment appeared, as field expedients, not as standard. Maintenance was a great problem. The conduct of war developed new signal communication techniques, and these in turn required the development of new equipment.

The goal in the development of modern Signal Corps equipment, which was accelerated during the Korean War, is an integrated communications system. This means that radio and wire equipment may be used together so that a soldier in the frontline may be able to talk to a rearmost soldier with a "Handie Talkie." Along with integration, equipment were standardized, consolidated, and miniaturized in order that maintenance would not pose a great problem. Similar or the same equipment were developed to meet the requirements of all the combat arms; and equipment for combat troops were made as light as possible.

Modern warfare has given added

The "Handie-Talkie" is one of the most important equipment of a soldier or a unit. Through it important messages can be relayed as well as received when the need arises. Shown above is a serviceman in action with a "Handie-Talkie."

importance to telecommunications with radio, wire, and television as the main facilities. The integration of these facilities evolved new techniques in combat support by the Signal Corps. While wire communications is normally the primary means of communications, this may not be so in certain situations. Present users will benefit much to know some of these new techniques which are gradually replacing the old system.

Inasmuch as the division is the basic unit of combined arms and services, the following examples will mention units of the division:

1. Radio relay — This term was popularly known as VHF (very high frequency) during World War II. However, because present day equipment are also operating within the UHF range (ultra high frequency), this has appropriately been redesignated as radio relay.

The system integrates radio and wire facilities and is normally used as an alternate facility to wire communications. In displacements of CPs, wire construction teams must have to be given considerable time for installing a line. In order that telephone communications will be available at the new CP immediately upon occupation, radio relay terminals should be set up as a "bridge" to the missing wires until the lines shall have been installed. Thru this system, a telephone user will not be able to

tell whether his voice is transmitted thru wire lines or thru radio waves.

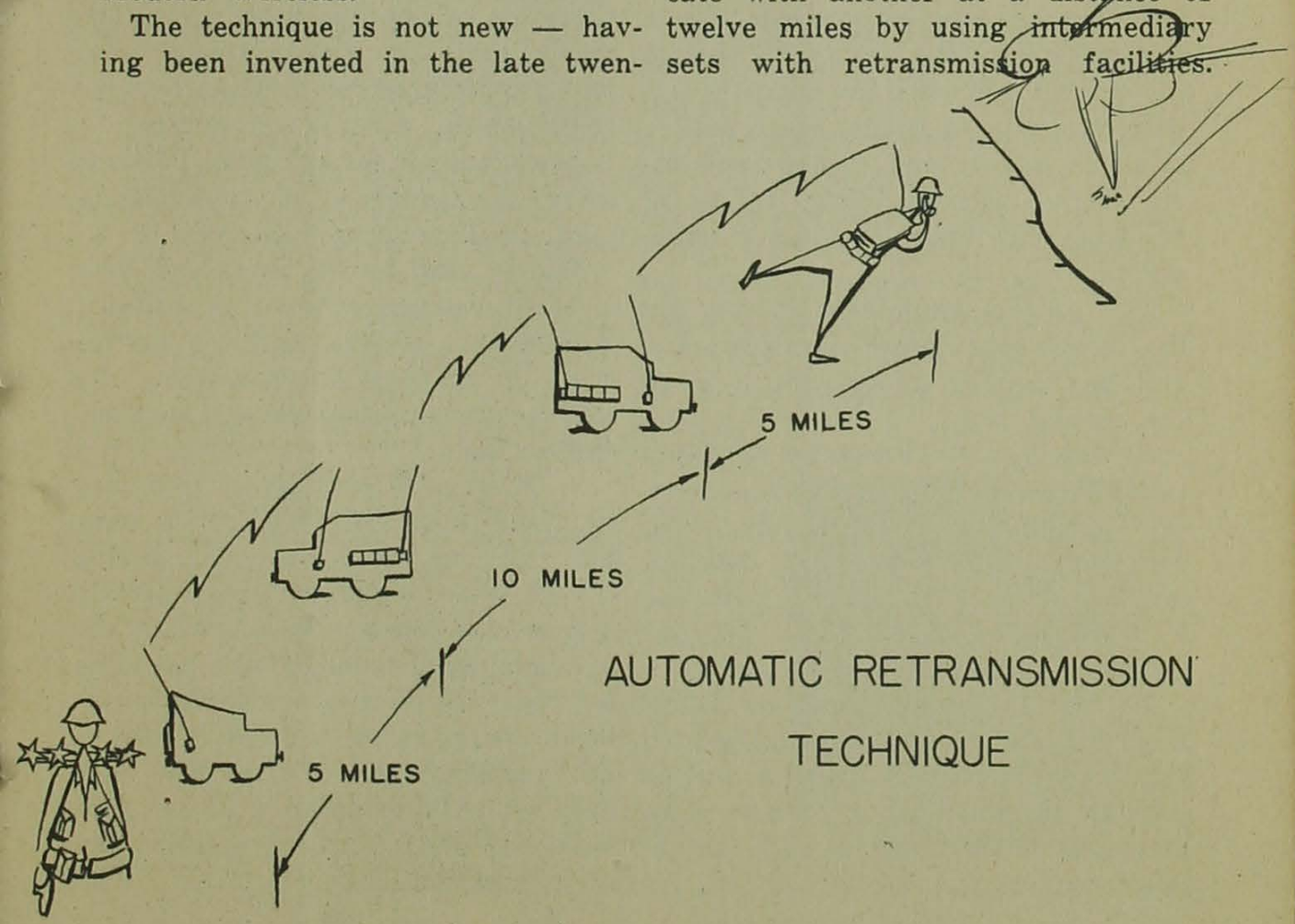
Radio relay may become the primary means of communications between units separated by areas where wire laying is impractical or when displacement is frequent (fluid situations). At present, however, this facility is available only as far down as the regimental CPs.

2. Carrier system — Otherwise known as multiplexing, this system involve the simultaneous utilization of a number of communication channels over a single transmission path. The system was invented by Gen. George Owen Squier, one time Chief Signal Officer of the US Army and who is referred to as the "Father of Modern Wireless."

The technique is not new — having been invented in the late twenties. It has been used by commercial companies. However, numerous improvements have appeared since then.

In carrier system, one pair of telephone wires may be made to work as four or twelve pairs with the aid of supplementary equipment. In this connection, radio relay circuits may be made to perform likewise. The carrier system will make available enough communication channels for the ever growing needs of communications.

3. Automatic retransmission technique — In this system, a soldier with a "Handie Talkie," capable of transmitting only up to a distance of one mile, may be able to communicate with another at a distance of twelve miles by using intermediary sets with retransmission facilities.



AUTOMATIC RETRANSMISSION TECHNIQUE

Above photo shows a commander communicating with his unit as another officer and an enlisted man stand by.

With walkie-talkies, a distance of twenty miles can be covered. Thus, a commander who wants to control his combat elements can directly talk with subordinate commanders with a small, compact, and lightweight radio set — without being trailed all the time with bulky and heavy equipment.

The present equipment in use are the most versatile yet developed and can be adopted to the needs of all the combat arms.

4. Teletype — This equipment, formerly available to division headquarters only, may now be employed with regimental CPs with the development of lighter equipment. Its use in the regiment is limited only to personnel available.

To increase communications facilities, this equipment can be integrated into radio relay circuits with carrier making it possible to handle more messages aside from speech transmission.

5. Radio Teletype technique — Integration of teletype with radio (formerly basic to wire systems only) will provide teletype systems between units where wire is impractical — between islands for example. This will solve the problem of transmitting long administrative messages.

Widely used by the press and commercial communications companies, it is available to the military as far down to division headquarters. Its use for air requests cannot be overemphasized.

6. Modern Wire Laying technique — The system, designed for the combat elements, was conceived during World War II and perfected shortly before the Korean War. With the new method of "reeling" combat wire, it is possible to lay lines across seemingly unapproachable areas by use of the bazooka, rifle grenade and even light aircraft, in addition to the conventional method of wire laying by foot or motor.

This technique is highly effective for river crossings during an assault, or across densely forested areas and rugged terrain.

7. Television — The adoption of television for combat use will enable commanders to observe factually the progress of an operation by use of small TV cameras distributed among combat elements.

8. Facsimile — The technique of using facsimile with integrated wire and radio facilities enables the transmission of maps, photographs or sketches over wire or radio channels. Commonly called "Radiophoto" or "Wirephoto" by newspapers, facsimile was adopted during World War II. Since then the numerous improvements made of the equipment has greatly increased the speed with which documents are transmitted.

This facility is available to units down to division headquarters and provides JOCs with photographs and sketches needed for air requests.

9. Teletype Tape Relay technique — Employment of this technique in large headquarters where messages are numerous enables the transmission of sixty (60) words per minute over teletype. Except for the originating station, a message may be relayed to a terminal station without the need for trained operators (typists). In a tape relay station, one man is enough to handle six or more circuits. Attendants need not be highly trained as compared to teletypewriter operators. This technique may be employed by a division headquarters to a limited extent.

Signal Corps communication techniques have mushroomed during the last decade and as long as there are armies, they will continue to grow and mature with the development of other combat arms and services. Techniques have always been geared to aiding command elements to direct and control their units effectively.

With the rapid development of electronics equipment today, armies have also been developing methods to destroy their effectiveness for the military. By observing the proper security measures recommended for electronic equipment, you contribute to the accomplishment of the Signal Corps' mission. The "electronic war" is on and only with your help can the signal systems be utilized effectively.

ABOUT THE AUTHOR

Captain Cesar G. Hechanova is a veteran of many campaigns. He was Assistant Communications Officer and later Assistant Bn S-2 of the 10th BCT (PEFTOK) in 1951. During his Panay guerrilla days (1942-1945) he was Communications Officer of the 64th Regimental Combat Team, 6th Military District. Sent to the US Service School (The Signal School) Ft. Monmouth, New Jersey in 1954, he is the present Commanding Officer of the 3d Signal Company, 3d Infantry Division, PA.