Safety at Sea

(Continued from front page.)

Directional Receivers.

WITHIN two years from the date on which the Convention comes into force every passenger ship must be equipped also with directional receiving apparatus. This is the first time that such apparatus has been made compulsory fitting. All our large passenger ships are already fitted; in fact about 20 per cent. of our ships fitted with wireless are equipped with this apparatus, so that the new regulation will not affect us much, but it is most important from the international point of view.

Directional receiving apparatus in a ship enables the operator to obtain the bearing of the ship from any other ship or any shore station which is transmitting wireless signals, so that its importance from the safety point of view is obvious. It is of great assistance to navigation in foggy weather and has frequently enabled a ship in distress to be located by another ship which is coming to the rescue. When more ships are fitted it will also, no doubt, prove of help in assisting ships to avoid collisions with other ships in a fog.

It is hoped that Mr. Baird's noctovision system will prove of great value in this connection later on. With this system a ship will be able to direct a beam of infra-red rays in much the same way as a searchlight, and be able to see, on the screen of its noctovision receiver, objects in the path of the rays.

Wireless Beacons.

DURING the last few years a number of wireless beacons have been established around our coasts, and those of other maritime countries. More than 100 are now working and about half of these are in the United States. These beacons emit their call signs automatically at specified times, so that a ship fitted with a directional receiver can obtain a bearing on a beacon station up to a range of about 50 miles. A few beacons emit a revolving beam, which enables a ship to obtain a bearing with its normal wireless receiver, and some others emit a submarine sound signal simultaneously with the wireless signal, so that a ship may obtain not only its bearing but also its distance from the beacon.

There are, too, a large number of coast stations which are fitted with directional receivers, by which means they can obtain the bearing of a ship, and pass on the information to the ship by wireless.

The S O S.

THE most important application of wireless in connection with the safety of life at sea is its use for the S O S signal, which is broadcast by a ship only when the ship itself is in danger. The signal consists of the three letters sent as one sign, and repeated three times. This is followed by the distress message giving the ship's position and particulars of the case of distress. Distress work is carried out on the 600-metre wave on which all ships are normally keeping watch, and all other signalling ceases as soon as the distress signal is heard. The coast stations in this country deal with nearly 100 distress cases every year.

The station which deals with the distress call keeps the Coast Guards, the Naval Authorities and Lloyds in touch with the situation, so that all possible means may be taken in providing assistance from the shore.

The new Safety Convention recommends that the distress signal should normally be preceded by the Alarm Signal, which is used to put into operation the auto-alarm receiving apparatus in ships in the vicinity. This apparatus is arranged to ring bells in the ship for the purpose of calling the operator to the wireless cabin whenever the alarm signal is received. Auto-alarms have been in use in many British ships for the last two years, but other countries were a little sceptical of their practical utility, and the fact that this apparatus was recognised internationally at the recent Convention ensures the more general adoption of the apparatus throughout the world. The Alarm Signal consists of a series of twelve dashes sent in one minute, the duration of each dash being four seconds, and the duration of the space between dashes one second.

Weather bulletins, gale warnings and navigational warnings are now broadcast from the majority of coastal stations the world over; and these reports are the only use made of wireless telephony in connection with the safety of life at sea. It is interesting to note that trials are now being made in England and other countries with the transmission of photo-telegraphy of weather charts for the use of ships at sea.

In conclusion, there can be no doubt that the advent of wireless has done more towards furthering the safety of life at sea than any other invention the steam engine.

"Talkie" Production

Success Due to Radio

THE following tribute to the part played by radio in the production of the talking kinematograph film formed the leading article in a recent issue of "Science and Invention": One by one, and in large groups, the motion picture houses are going "talky." Within a few months we have witnessed a complete recasting of the motion picture industry. This upheaval has caused many stars to lose their brilliance and has made more lustrous some other lucky individuals who up to now, never had a chance.

Most of us know little and care less about the mechanics of this change, but it is a most interesting story and is just another indication of the rapidity with which our business methods may be completely upset and rebuilt. New actors, new directors, new continuity writers, new camera men and new technique are but a few of the changes the talkies have brought us.

From the standpoint of applied science most of us can learn a great deal from the talkies. When the recording is done by an electrical reproducing method employing wax, great care must be taken in the preparation of the wax to hold what is termed "surplus noise" down to the lowest possible scale. Where the voice and music recording is made a part of the film there is a great opportunity for chemists to exert their skill in the proper compounding of those chemicals which form the film emulsion, sensitive to the light ray, as well as in the production of the extremely delicate light-sensitive cells which are used in converting the rapidly changing sound frequencies into the light frequencies which are recorded on the film. One of the least understood among the electrical phenomena is high-frequency alternating current. This form of current is, to a large extent, the current used in the talkies. The intricate mechanisms providing synchronism between the electrical and mechanical units, which comprise the recording and reproducing units for the talkies, require an accuracy of manufacture usually confined to such skilled arts as watch manufacture.

The application of a great many of the fundamentals found in the commercial talkies has come directly from the large radio laboratories. This is indeed a fertile field for experimentation, and it is very likely that a great many home talking movie outfits will be used by many experimenters for the development of ideas which will further improve the commercial product.

In spite of the giant strides that have been made in the last year, there is still plenty of room for improvement in colour motion picture photography, recording equipment, and the proper application af all these ideas to fit the particular acoustic properties of the theatres to the talking movie systems.