International Transport Workers' Journal

11

Volume XXV No. 11 November 1965

in this issue

MONTHLY PUBLICATION OF THE INTERNATIONAL TRANSPORT WORKERS' FEDERATION

Volume XXV No. 11 November 1965

International Transport Workers' Journal

11

Monthly Publication of the ITF

Head Office: Maritime House, Old Town, Clapham, London, SW4
Telephone: Macaulay 5501-2
Telegraphic Address: INTRANSFE

Representation: ASIAN OFFICE — 18 (1st Floor) Jalan Sultan 52/4, Petaling Jaya, Selangor, Malaysia

TOKYO OFFICE — Kokutetsu Rodo Kaikan, 1, 2 - chome, Marunouchi, Chiyoda-Ku, Tokyo

WEST AFRICA — 85, Simpson Street, (P.M.B. 1038), Ebute Metta, Nigeria

LATIN AMERICA — Apartado 1250, Lima, Peru

Forthcoming meetings:

London	Fair Practices Committee 11-13 November 1965
London	Management Committee 15 November 1965
London	Executive Board 16-18 November 1965
London	Asian Seamen's Committee 24-26 November 1965

Contents

Cover picture: American road transport driver looking for a fault.

Thinking aloud—

Flags of convenience—a constant menace

by HANS IMHOF,
General Secretary

AN UNDESIRABLE SITUATION TODAY can develop into an evil tomorrow and in time lead to disaster, if we either do not see or ignore it and avoid doing something about it. The most blatant case of this very dangerous kind of blindness must be the growth of ship tonnage flying the convenience flags of Liberia, Panama, Lebanon, Honduras, Haiti and a few other countries which have entered this pirate trade in recent years. Having risen from less than a million gross registered tons in 1939 to just about two and a half million in 1947, the total has now reached 23 million GRT. This tonnage enjoys considerable advantages over the merchant fleets of the traditional seafaring nations, subject to high taxation and strict shipping and maritime safety laws. Flag-of-convenience vessels are not bound by any laws designed to protect crews, or — in most cases — by collective agreements with bona fide trade unions. There could be no better proof of the profitability of this modern piracy than the fact that a large part of this tonnage consists of new ships and that for the Liberian flag alone ships totalling a further 5 million GRT are under construction or on order.

The ITF has never ceased to draw attention, by words and deeds, to the harmful effects of this development on the future of shipping in the seafaring nations. During the fifties it seemed as though governments and shipowners' organizations were going to act. But it was only a short-lived awakening. They have sunk back into their sleep again, or they seem resigned to watch the disaster approach. What does it matter, they seem to ask, if sources of tax revenue disappear, if shipping has no strict safety regulations to adhere to or if thousands of seafarers are left to be exploited by profit hungry shipowners without the protection of proper collective agreements? What does it matter if unprotected Asian crews replace crews from the traditional seafaring countries working under the protection of progressive laws and agreements, and threaten decades of social progress in the seafaring industries? The runaway shipowners may sometimes offer good conditions aboard their new vessels during a freight boom. But at best such conditions would be a temporary phenomenon, as long as they were not fixed by an agreement. And new ships only account for part of the runaway tonnage. The following example will prove the point.

Four Maltese ship's boys complained to the British Seamen's Union over bad treatment, bad food and bad accommodation aboard their ship, a small 1,685-ton freighter flying the Panamanian flag. An inspection of the ship carried out by an officer of the Union revealed unbelievable conditions. The ship belonged to a Greek company and all the officers were Greeks. Of the twelve-man crew seven were on their first voyage at sea. For the six crew members who were not Greek, a document in the form of a contract was produced which bore neither the name of the company nor any indications as to the nature of the work, working hours or discipline. Wages were between £12 and £30; only the bosun and the cook received more. A seaman whose contract entitled him to £30 said that he only got £25. These rates included leave and overtime. The ship and its equipment were in a state of obvious neglect. Recreation rooms were dirty, the toilets blocked — the shower was apparently used as a toilet — the wash basins were dirty and stopped up, one cabin was not watertight, most had no light and the doors no handles or keys. The paintwork was peeling away and rust was to be seen everywhere. Bedlinen was only changed once every two months. The food was of an equally bad standard.

These conditions are the products of flag-of-convenience shipping, the fruits of the profit greed of owners who have nothing but contempt for their crews. If governments are content to ignore the situation and if owners resign themselves to face competition which is dirty in the literal sense of the word, that is their business and the most we can do is to raise our voices in protest against it. In our trade unions, however, we are obliged to wage war against it. The saddest aspect of the situation is that in many countries, through devious legal procedures, the authorities can be induced to make our struggle more difficult. . . .

A close look at shipboard automation

The control room of the British motor vessel, Clan Ramsay. *This refrigerated cargo vessel, launched in 1964, has been equipped with centralized control of all its running machinery.*

An evaluation of the Elsinore seminar

DESPITE MUCH PRESS PUBLICITY to the contrary and a lot of uninformed talk about 'black boxes' and their magical qualities, there is still no such thing as an automated merchant ship either afloat or on order. Most of the vessels at present described as automated or semi-automated could far better be termed 'modernized'. Developments in certain countries which have led to reductions in manning scales have nothing to do with automation, but a great deal to do with the increased trend towards rationalization of work on board ship. Experiments are being carried out with vessels which have a certain degree of automation of their equipment; similar experiments are also being done on the possible use of inertial navigation systems and other computer-controlled devices. These, however, are all concerned with things which are still very much in the future, and perhaps may never be applied in practice even if they prove theoretically feasible. The use of remote or centralized control systems is by no means the same as automation; coupling the two ideas simply confuses what is admittedly a complex but nevertheless straightforward issue.

The above are some of the points brought out by experts in the field of shipboard automation who delivered papers at a Seminar on the labour problems resulting from automation and technological change on shipboard, held in Elsinore (Denmark) from 13 to 21 September under the auspices of the International Institute for Labour Studies. The Seminar was attended by representatives of both seafarers' and shipowners' organizations from countries throughout the world, who heard lectures given by some of the world's leading authorities on the application of automation to the shipping industry and participated in extremely lively discussions on what the experts had to say. In addition, the Seminar was attended by observers from a number of both national and international organizations with a close interest in shipping, including the ITF, whose affiliates were also very strongly represented among the participants.

A word of warning is perhaps in order concerning some of the experts' statements quoted at the beginning of this article. To those actually working in the field, the word 'automation' has a very clear connotation. One definition which was given of an automatic control system is 'one in which the value of a controlled condition . . . is compared with a desired value and corrective action is taken dependent on the deviation, without the inclusion of a human element in the closed loop

The participants at the Elsinore seminar on shipboard automation. Representing the ITF were K. A. Golding and M. S. Hoda. A number of delegates from ITF affiliates, and ex-General Secretary P. de Vries, also attended.

formed by the comparing and correcting chain of elements'. This somewhat awe-inspiring sequence of words means exactly what it says and is at the same time the clue to what the experts mean when they state, quite baldly, that automation does not yet exist on any present-day merchant vessel.

Automation implies that the system utilized is a completely closed loop in which the human being plays no part, except possibly in an emergency. All the systems which are being applied on 'modernized' ships today are of the open loop variety, in which information is fed back to human operators who are responsible for assessing the information and initiating any corrective action necessary. Only if the loop is closed and the system becomes entirely self-regulating can one speak of true automation.

To some extent, this insistence on exact definition may sound like hair-splitting, but there can be no doubt that a great deal of misunderstanding can be caused between the technician and the layman unless the distinction between the closed loop and the open loop system is understood. The layman will think that the expert does not understand his fears of robot-controlled industry; the expert for his part will not understand why the layman is worried about something which *he* knows does not yet exist and is not likely to for some years to come.

On the other hand, the layman's fears are not necessarily dispelled by sticking rigidly to the concept of 'pure' automation. One striking example of this was given during the Seminar, when it was pointed out that a centrally-controlled engine room of the open loop variety would perhaps only need one watchkeeper, either in the engine room itself or on the bridge. To replace this by a closed loop system would only mean the abolition of one watchstander, the rest having already been eliminated in the intermediate stage of partial automation. In fact, one can more or less accept the expert's contention that the reductions in manning scales which have already been put into effect in some countries or are now being talked about stem mainly from work rationalization, the use of centralized control systems and monitoring devices.

Most of the experts were in any case of the opinion that the use of automatic devices on board ship was not in fact aimed at achieving any reduction in manpower, nor did it necessarily involve a saving in either time or money. The main point stressed here was that automatic equipment increased both operating efficiency and safety, and in addition made work on board easier for the men who had to operate it. Any saving in manpower which resulted was rather in the nature of a by-product, or, as one expert described it, as a bonus.

Nor did the experts feel that such reductions were likely to cause real social problems. This, of course, seems a much more debatable point than the previous one, but the argument here was that the traditional maritime countries are in any case suffering from an acute shortage of seafarers and the trend towards more and more 'modernized' vessels and the re-organization of work on board might therefore actually help rather than worsen the situation. Against this, however, would have to be set the possibility that the seafarers of the developing countries could be hit rather badly, since many of them find regular employment on vessels operated by industrialized countries. An added factor here is that the increasing use of modernized, semi-automated and, eventually, automated ships will mean that employment possibilities for the least-skilled seafarers will gradually decrease and that this, too, will almost certainly have a far greater adverse effect on seafarers in the developing countries.

The question of training and retraining also produced some interesting statements from the technical experts. One of the main areas on shipboard in which new developments are taking place, particularly in regard to the application of centralized control systems, is the engine room. Even here, however, the experts did not consider that such developments at the present time would bring about revolutionary changes in the training of engineer

officers. The main emphasis here seemed rather to be on the necessity for a broader-based system which would take account of new developments, but which would not reduce in any way the amount of knowledge of basic engineering required. The urgency of training in the basic techniques of control engineering was strongly stressed, but it was also emphasized that this should only be done *after* considerable training in conventional engineering. The introduction of centralized control systems was, after all, not a sudden development. It had come about gradually and this gradual process was continuing; it should therefore be considered as what it is — merely an advancement of the already-existing art of engineering.

The question of training in electronics was also dealt with at some length. Here again, the technical experts thought that in the foreseeable future there would be no reason at all to think in terms of ships carrying fully-trained electronic technicians. This was not necessary because there are in fact very few new electronic devices being used on board. The utilization of electronic equipment in centralized control systems was in any case uneconomic at the present time, it being much cheaper to employ hydraulic or pneumatic devices. Even in the case of such electronic equipment as is used, training would be confined to familiarization courses and instruction in operation rather than in the actual functioning and repair of the equipment.

Details were also given of experiments currently being carried out in France with systems of joint training for both navigating and engineer officers. This, it was stated, was primarily aimed at helping to reduce or eliminate the barriers which existed between the two shipboard departments. A considerable degree of scepticism about the practical feasibility of this was, however, expressed by participants from other countries. On the other hand, much more interest was aroused by the experiments on crew interchangeability which had been undertaken in Norway in respect of bulk carriers, as well as similar studies which are being made in the Netherlands. This type of system, which has been described in an earlier issue of the ITF Journal and has also been discussed within the ITF Seafarers' Section, involves the re-organization of the ship's complement into two main departments, concerned with operations and maintenance respectively. As mentioned earlier, however, this is primarily concerned with the rationalization of work on board ship and is not a product of automation.

The Seminar did not attempt to reach any specific conclusions regarding the social implications of either automation or rationalization. Indeed, it was considered that these properly belonged to the sphere of collective bargaining between seafarers and shipowners. This was especially true of subjects like manning, training and re-training, on which there was a widespread feeling that not only was too little still known about the practical application of new techniques, but that an International Seminar was not a suitable forum for the reaching of such conclusions. In fact, of course, the Seminar was intended to provide information from experts on the extent and pace of technological progress in shipping, which could be of benefit to both sides of the industry in their assessment of both current and future trends. In that aim the Seminar was certainly very successful, but the information acquired from it will be put to practical industrial use in the only ways in which this can and should be done: in national negotiations between seafarers' unions and shipowners; within international organizations like the ITF; and within the Joint Maritime Commission of the ILO.

Although, as has been made clear throughout this article, the application of automation to the shipping industry is still in its infancy and is in any case likely to develop much more slowly than is the case in shore industries, it may be useful to conclude by reviewing very briefly some of the developments which were considered by the technical experts as at least theoretically practical possibilities for the future. Exactly how far into the future these have to be projected even the experts were unable to say with any degree of certainty, although as a rough guide their estimates seemed to range between ten and 20 years. The extent to which such developments would in fact be applied is equally conjectural, since this obviously depends very much on the size and type of vessel and the trade in which it is engaged. A super-tanker or bulk carrier on regular runs is clearly more susceptible to the large-scale use of automatic equipment than is a general cargo vessel or a smaller ship sailing on a variety of routes, including those where port facilities are relatively primitive or navigational conditions difficult. Cost, safety, and the reliability of the equipment under a variety of circumstances are all factors which have to be taken into account when considering the general application of automated techniques on board ship.

One possible future innovation mentioned at the beginning of this article was the use of a relatively simple inertial navigation system. Basically, this consists of two gyroscopes and two pendulums. The gyroscopes provide extremely accurate position determination in terms of latitude and longitude, whilst the pendulums take corrective action to compensate for deviations from course due to wind and currents. The information obtained would be computer-controlled and fed automatically to the automatic pilot. One of the main advantages claimed for such a system, apart from its accuracy, is that it would be independent of beacons, either on shore or at sea. On the other hand, it was felt that the cost of installing such a system would probably not be justified by the small increase in efficiency achieved over traditional navigation methods.

A further application of automation to maritime navigation could be achieved in the field of collision avoid-

ance. A computer could be coupled with the radar equipment to give continuous monitoring of radar information received, and this in turn would be connected with an alarm system, either audible or visual, which would give early warning of the development of a collision situation.

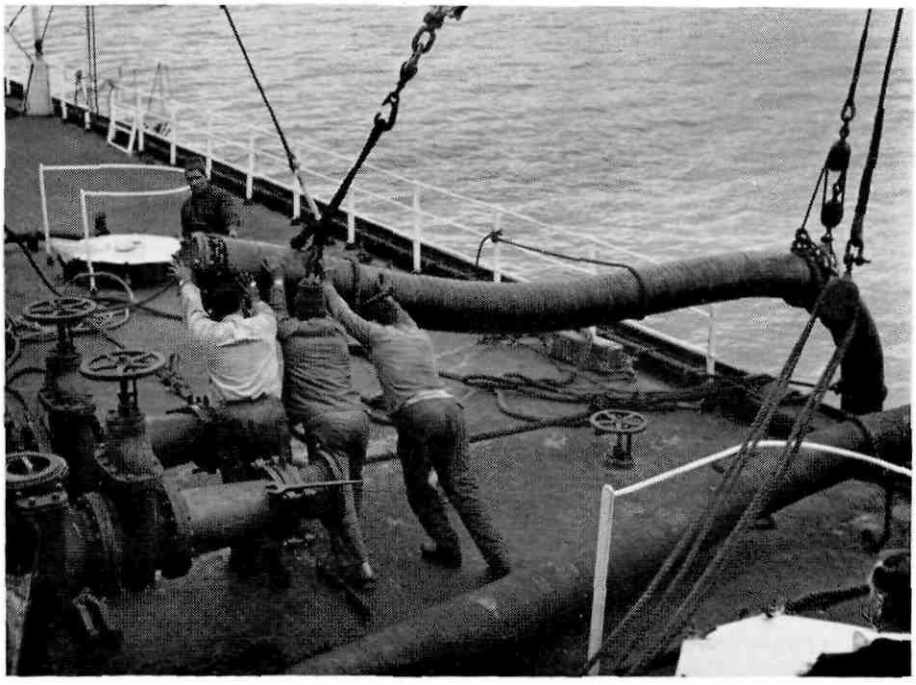
Automatic control could also be, or is already being, applied to the monitoring of machinery circuits and the control of the main propulsion plant, as well as to auxiliary machinery and ancillary equipment. Other areas which could be automated include the refrigeration plant; the generation and distribution of electric power; and the pumping of liquid cargoes, as well as bilge pumping, ballasting, oil fuel transfer, the purification of oil fuel and lubricating oil. Oiling and greasing under automatic control is already being utilized.

Similar considerations could apply to the vessel during port operations. Some degree of automation is already being utilized on 'modernized' ships for cargo-handling purposes; an example here is the remote-controlled opening and closing of hatch covers and the use of hydraulically or electrically operated deck cranes. Mooring and berthing is, however, another field in which new methods could conceivably be used. Self-tensioning mooring winches might be controlled from the bridge, whilst there is also growing interest in bow-thrusters for use in larger vessels to facilitate mooring and passage in restricted waterways. Practically, this can be achieved by mounting an impeller in an athwartship tunnel which is positioned below the waterline near the bow. In the case of tankers, it has also been suggested that use could be made of existing cargo or ballast pumps, but there would be difficulties in generating sufficient pressure if the pump used were situated aft.

Other less technical developments suggested as possible future trends by the experts were further extension of the centralization of ship operation at a single point on board; a greater use of new-type anti-corrosion paints; the more widespread use of replacement units for repair purposes and the carrying out of maintenance work in shore establishments rather than on board; and increased utilization of the self-service system and pre-cooked, deep-frozen meals in the catering department.

A final point about which there was widespread agreement at the Seminar was on the strong need for the dissemination of information concerning the development and application of automatic techniques to shipping. The necessity for full and accurate information and for consultation at the design stage with seafarers' representatives and the seafarers themselves was very clearly stressed. The Elsinore Seminar can be said to have made a very positive contribution towards that process.

Above: The recently launched Tokyo Maru, *a Japanese tanker carrying some extensively automated equipment. Below: The increasing use of modernized and, eventuallly, fully automated ships, will mean a decrease in employment possibilities for the least skilled seafarers. Seamen in the developing countries will be worst hit by this trend.*



Cybernetics serving the railway

A track cable set in the rail base is a suitable means of transmitting control information to the driver's cab.

The first part of this article, concluded here, appeared in the October issue of the Journal. *We resume the discussion of* **Functions of control and regulation.**

Automatic control of locomotives

Driving and controlling a locomotive is still exclusively the engine driver's job. The light signals give him information about the state of his route and are the link between the signal box and his eye. In addition he has his knowledge of the line and his written orders and instructions.

The Federal Railways demonstrated trains at 200 km. per hour over certain sections, for example from Hamburg to Hanover and from Augsburg to Munich, during the 1965 International Transport Exhibition in Munich, and this presented railway engineers with a whole series of difficult tasks. The signalling problem is the first one which interests us. Higher speeds demand greater braking distances. A braking distance of 1,000 metres, as allowed for speeds hitherto attained of up to 140 km/h, is no longer adequate. 2,000 metres would be required for the high speeds envisaged. So as to avoid any alteration to the signalling system in use, which must in any case be retained for slower moving trains, it was decided to introduce an overlaid signalling system which transmits signals as speed data directly to the driver's cab. The driver may for example receive the message '200' for 'clear ahead' and '0' for 'halt'. This system moreover enables a constant safety check to be kept on the train's progress instead of merely an intermittent check as in the case with inductive train control.

Tests showed that a track cable set into the rail base was a suitable means of transmitting the information. It is an unscreened 12 mm thick plastic cable carrying a 2 mm thick copper wire fastened to the inside of each rail. The cable crosses over to the opposite rail every 100 metres. The signals which have to be passed on to the train, i.e. the speeds, are plotted in the signal box (these fast running sections are of course equipped with the most modern signalling systems, as described above) and transmitted to the track cable circuit, which is about 12 km. long. For this, high frequency alternating voltages are used of about 29 or 30 kcs. On the locomotive is a receiver magnet (coupling coil), which takes up the information inductively from the track cable. The information, after conversion, appears on a special indicator where it can be read by the locomotive driver.

The locomotive emits special impulses which make it possible to count each crossover in the track cable. From this it is possible to know the exact position of the locomotive from one 100 metre section to the next, and the driver can read his exact position from the indicator in his cab in relation to the next signal. He is also able to read his actual and target speeds. The locomotive's position can be sent to the signal box, moreover, and the line lead can be used for speech transmission in both directions.

Let us imagine that all the signals on a fairly long section show green. The locomotive driver reads '200' the target speed set on his indicator, and a target distance, which is fixed at, say, 5,000 metres and reduces as the train advances. If one of the signals now shows red 0 = target speed 0 km/h appears on the driver's indicator together with the target distance which is now, let us say, 4,000 m and which reduces every 100 m (i.e. stop after 3,900 m, 3,800 m, and so forth). If the locomotive arrives at the braking point, i.e. the distance from stop which is needed for the driver to be able to bring the train to a standstill in safety, a hooter sounds to warn him to start braking. His actions are now checked continuously, i.e. whether his actual speed is constantly adjusting itself to the indicated target speed, which may be plotted on a brake curve. If he does not do this the train is braked automatically after a fixed warning time has elapsed.

Glance into the future of cybernetics

The track cable transmits any caution signal — a danger stop, for example — immediately and does not need to take into account bad visibility arising from weather conditions or from the lie of the land. This is an important safety factor.

As already mentioned, the locomotive can send information as well as receive it along the track cable — passage over cross-over positions, for example. This means that the position

of the train is always known at the remote control centre. But characteristics of the section can also be stored there — low speed spots, for example — so that it is possible to send the train its exact target speed for every point on the line and with due consideration for train succession. One day the train driver's functions may even be replaced by automatic acceleration and braking equipment which will immediately interpret information sent over the track cable as commands for acceleration or braking. Tests are already being carried out in this field. The full application of cybernetics, in its widest sense, has already begun.

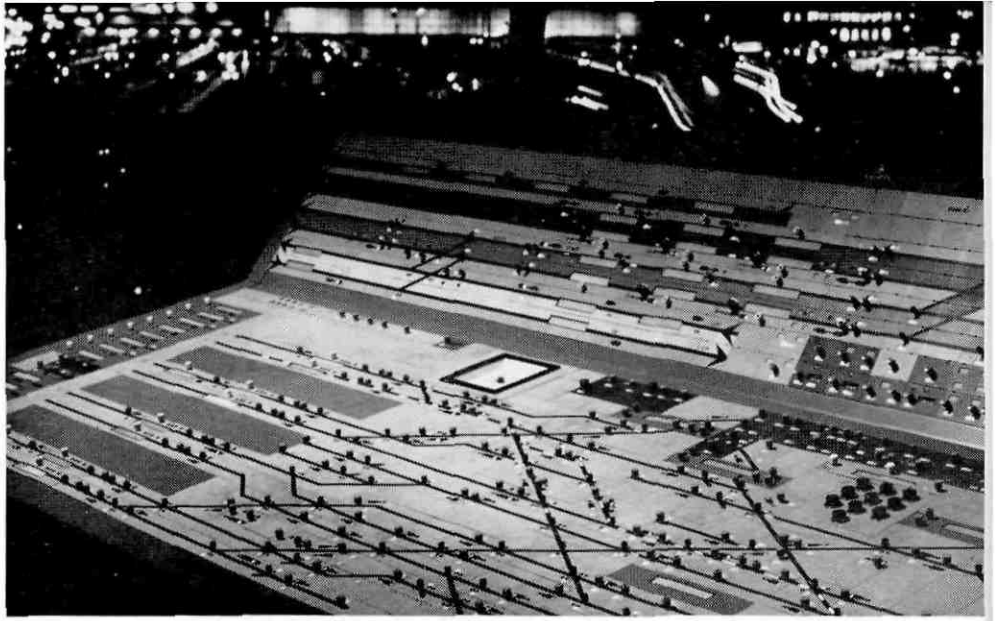
Of course all these techniques will have to be used for a long time to come in conjunction with existing signalling procedure, so that the train may be driven in the traditional way in the event of a failure in cab signals. The engine driver is thus not redundant. But at the same time automatic locomotive control would release him for concentration on the line and selection of the most economic driving procedure.

In the more distant future it will be possible, using the track cable and telecommunications networks, to operate whole line complexes by electronic computers installed at system control centres. Central control of traffic operations — inspection of goods wagon distribution, for example — would also be possible in such a set up.

Level crossing operations

Returning now to the present we can find some areas in which cybernetic techniques could be employed immediately, if they have not already been applied. They are of use in level crossing control, for example.

Flashing lights at crossings with one or more tracks, whether there are barriers — or illuminated traffic signs — or not, present some difficult technical control problems, especially when the crossing is close to a station and the road has to pass over the station's shunting zone. Telecommunications equipment is being installed at many



Remote control has been in use for some time in shunting and marshalling operations. Cybernetics may in the future relieve even the shunting operator of his functions, requiring his intervention only in cases of irregularity.

more crossings where barriers are operated by keepers, to make their jobs easier. Automatic devices have been installed to give an early warning of a train's approach, to indicate its approach and to sound a warning bell.

Electric traction

Examples of the interesting uses to which cybernetics can be put in electric traction are control of the overhead wire switches or of current supplied from substations. Cybernetic techniques can be used for adding and withdrawing sources of energy as traffic density fluctuates and, especially, for failures at supply points.

Automation of shunting stations

Offers great scope for cybernetics. Let us take a look at the following functions. Trains entering the reception sidings of a shunting station are usually pushed by a hump locomotive singly or in groups over the hump. Under their own gravity the wagons and wagon groups cross the sorting zone and finally come to a halt in the appropriate sidings where they will be made up into new trains. The task which cybernetics has to perform here is in itself fairly straightforward, for it is only a matter of a simple sorting process, as for punched card or letter sorting. But the way in which it is to be performed presents difficulties, since the wagons and wagon groups show considerable variation in running qualities, depending on such things as weather conditions (temperature, wind) and changing frictional conditions.

But even so automation has advanced considerably. In a modern marshalling yard control cabin the sorting points are controlled fully automatically by a central electronic shunting memory into which the shunting programme is fed (e.g.) on a punched tape. In the automatic process the wagons released over the hump are steered by the points into their appropriate sidings and their speed of entry controlled at a safe level. This is done by rail brakes at the foot of the hump which control braking fully automatically allowing for wagon speed and weight, weather conditions and running distance.

In the future, to save the work of the lengthman (trackman) in the sidings special equipment will be installed to set the wagon in position for coupling. Tests are at present being carried out in a large German marshalling yard on mechanical and electro-dynamic equipment for this purpose. The pushing speed of the hump locomotive is today already radio-controlled by the shunting operator in modern marshalling yards. In the future cybernetics will relieve the shunting operator of even this control function, requiring his intervention only in cases of irregularity.

Ultimately it will be possible, by programming electronic computers, for shunting procedures, to control the following fully automatically:

1. Pushing speed of the hump locomotive (by radio control),
2. Route formation into and out of the reception sidings,
3. Operation of the sorting points,
4. Regulation and control of braking power in the points zone (automatic rail brakes),
5. Operation of braking and speed control equipment in the sorting (classification) sidings.

Further uses of cybernetics

There are many more ways in which cybernetics can be applied on the railways, which this article has not yet discussed. The following are worth mentioning briefly:

1. The processing of operational or traffic data pertaining to goods wagons. There already exists equipment which can read off wagon numbers and series markings automatically. It is not an impossible task to transmit the data thus collected to central installations to be analyzed and processed electronically.

2. Control and regulation of manufacturing processes in the workshops can be mechanized extensively through the installation of modern data processing equipment.

3. Stock records (working materials, spare parts, operational materials, power current materials, tools and equipment) are already handled by the main processing installation at Frankfurt am Main. Preparations are also underway for salaries, pensions and social security for personnel to be dealt with centrally by this installation.

It is also possible for wagon freight accounts and statistics to be handled by data processing equipment, as also determination of motive power costs.

4. Studies are being made in preparation for placing seat reservations under the control of a central data processing plant. This would enable seats to be reserved up to about two hours before a train's departure.

The recently constructed main control cabin at Munich Central station. The automatic equipment in use enables the train to select its own route.

The central electronic data processing system in Frankfurt am Main which controls ferry bookings (e.g. between Puttgarden, Germany, and Rødbyhavn, Denmark) is a forerunner to this project. It has been in successful operation for some years.

5. Finally it is worth considering the possibility of processing consignment notes centrally, in order to take the burden off individual forwarding centres and to free them from duplication of paper work and calculation.

800,000 wagon loads in inland traffic are already processed by the main computer plant in Frankfurt with the help of the Federal Railway's 16 local punched card installations. This has brought a significant improvement in forwarding services.

Limits of cybernetics

All these centralized operations, of course, require an efficient communications system, but this, as mentioned earlier, already exists.

It is worth making a few remarks in conclusion about the things cybernetics is *not*.

Cybernetics is not by any means entirely new: the regulating circuit has always been known, for example. What is new is the realization that even in this age of specialized and compartmentalized knowledge forces occur which integrate or synthesize different fields of science. Cybernetics is a striking example of such a synthesizing force.

Cybernetics is not a technical realization of the robot concept. The robot in the sense of an artificial human being is and remains a creation of science fiction. Technology does not aim at replacing man or excluding him, but seeks to do better than he can in certain of his activities, or to free him from tedious and unvarying routines.

Neither is cybernetics a professional discipline. It is only a science in the sense of a synthesis of many scientific discoveries from the fields of biology, physics, mathematics, sociology.

Cybernetics is not a way to the absolute understanding of nature, life or man. All scientific discoveries, great and profound as they may appear, are only patchwork, seen beside the miracle of human life, thought and emotions. To overrate cybernetics leads to pure materialism and to a view of man as a material.

The perfect cybernetic data machine which has the correct answer to any question is a Utopian creation, a figment of the imagination. A cybernetic world would be one with no life, no feeling, no heart; there could be no freedom of thought, feeling or action in it.

Cybernetics must have its limits, and they must be assigned to it by man. Even in a modern automated, rationalized, technological world man must remain the criterion of all things; he stands at the focal point of all human endeavour and must remain there.

When Swedish State Railways' Development Department decided to use a computer to find out how many stations would be needed on a new CTC line, it found that 100 days' traffic could be simulated in a quarter hour.

A computer—the railways' best friend

ALL SECTORS OF COMMERCE AND INDUSTRY in advanced countries are more or less computer-conscious today. The horizons of fields in which computer programming can be of valuable service become wider with every new development in this branch of technology. The immense technical resources offered by the computer can be harnessed to a vast variety of different operations. It can be used with particular advantage by the railway, since few enterprises work on such a vast operational scale and with such large data volumes as a national railway undertaking.

The Swedish State Railways have installations for some 1,000 programmes, covering about 20 different fields of operation. Wages and salaries, for example, are all dealt with by computer. The installations at present in use effect the whole job of calculating pay and making out pay slips for 48,000 employees in 25 hours. A variety of tasks are carried out by computer, but Swedish State Railways have put their data processing equipment to even more imaginative uses. The Development Department, where the Railways' plans for the future take shape, uses a computer system for research and investigation into a number of technical questions.

In 1967 Swedish State Railways will be operating a new and improved data processing system which should supply their needs for many years to come. One of the features of the new system is that it incorporates a number of computer 'terminals' linked with the central processing plant. It will be able to answer enquiries from outlying sales and stores centres on printed cards in a matter of seconds.

Jobs to be done by the improved system included: passenger bookings; operational control; control of materials and purchases; carriage accounting (also centralized freight charging and customer invoicing); personnel control, investment and cost accounting and technical assessments (traffic simulation, traffic optimization, track examination, network planning . . .).

For example, Swedish State Railways intend to convert a sixty-mile line to operation by centralized traffic control (CTC): signalling and track installations are to be remote-controlled from a CTC station, and equipment is to be installed which will record trains' positions and report them to the CTC station. Considerable investment is required, the major part for station signalling. The question therefore arises: 'How many stations are really necessary on the line?'

At the time the railway was built this presented no problem, since traffic needs were dispersed over various points and not, as at present, concentrated in a few centres. Nowadays railway stations in Sweden are not always places where passengers are set down and taken on and goods loaded and unloaded, but often merely places where two trains may meet or pass. Such a station need not be staffed and can be operated by remote control under a CTC system. The technical equipment is, however, costly, and Swedish State Railways are anxious to restrict to a minimum the number of stations on a line to be converted for CTC.

There are three ways of finding out how many stations are needed. With the help of intuition and experience a good guess can be made, but a wrong guess for a single station means three or four hundred thousand Kronor wasted in unnecessary investment. The

idea must therefore be rejected. Another possibility is to build a large number of stations and to compare the punctuality statistics obtained when different sets of stations are in use. This seems an absurd solution but it can be done on a computer. The method finally chosen, therefore, was to simulate traffic using the proposed CTC line on a computer.

Before this could be done a programme had to be worked out which the computer could use. This had to cover all necessary data concerning the trains' usual times of arrival and departure at different stations, their travelling time between stations, the traffic controller's procedure as regards delays, and the incidence of delays. This was a laborious job which needed time. Once it was finished, it was found that on this line 100 days' railway traffic could be simulated on one computer in the space of 15 minutes. It was subsequently easy to simulate the different alternatives, and to calculate the line's efficiency for each one.

The programming for this first traffic simulation will provide a sound basis for deciding the number of stations required on the line, number of tracks at a station and, perhaps the most important item, the feasibility of every proposed inclusion in the timetable. These are some of the questions with which the Development Department is now dealing through the aid of its computer.

The problems of conversion to CTC are some of the many things which the computer can deal with rapidly, cheaply and reliably. There are other subjects which it can investigate. How the railway can use its locomotives and goods rolling stock more economically, what the optimal length of a given train and the optimal frequency of a trip should be, whether journey times can be calculated more efficiently for timetable preparation, how many passenger coaches are needed on the network and whether expresses can be speeded up, are all questions to which a reliable answer could be expected from the computer.

JOSEF MATEJCEK

†

The President of the Austrian Railwaymen's Union, Josef Matejcek, died on 4 October, after great suffering. With his death both the Austrian railwaymen and the ITF lose a loved and respected colleague.

Josef Matejcek was born on 19 March 1904 into a railway family living near Vienna. After completing a course at a technical school he entered the railway service in July 1920 in the permanent way sector, joining the union in the same year; in 1922 he was elected shop steward, and three years later was chairman of the West Vienna local branch, as well as a member of the regional and national executive for permanent way workers.

His steadfast political beliefs finally cost him his job; on 5 December 1933 he was summarily dismissed from the railway service. This did not prevent him from being a delegate to the last Free Railwaymen's Union Conference in Vienna on 7 February 1934. After the events of 12 February when the free trade unions were banned, he went to work underground for the union. Two years later Matejcek was arrested and sentenced on a charge of high treason. He spent two months in prison, and forfeited his railway pension. Until 1939, when he was once again able to enter the railway service, he worked as a building labourer.

After the collapse of the Nazi regime in 1945 he was one of the first to offer his services for the reconstruction of the trade union movement in Austria. He and other colleagues between them rebuilt the permanent way sector of the union, and in November 1945 Matejcek was elected to the Central Committee. In 1949 he became Chairman of the national executive for his own trade. When Andreas Thaler fell ill in 1956 Matejcek was entrusted with the task of deputizing for him as General Secretary, a job which he took over permanently in 1957 when Thaler retired. In 1959 he was elected a Social Democratic member of the Austrian National Assembly and in October 1962 became President of his union in succession to Richard Freund.

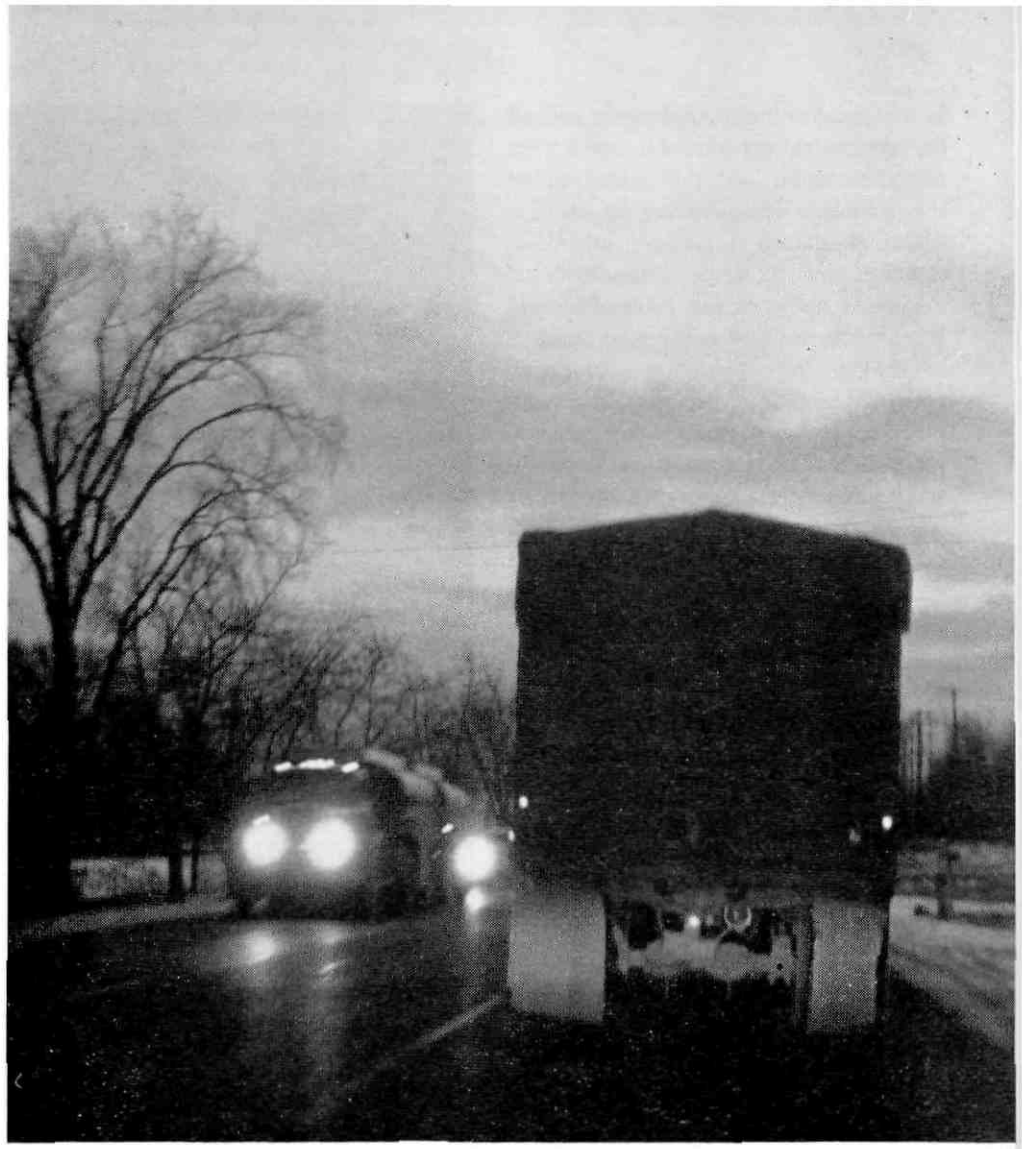
Josef Matejcek was particularly active in the field of social security. For many years he sat on the committee of the railways Insurance Fund and later became Chairman. Many improvements in social security for railway workers came about through his initiative.

He was also highly respected within the Austrian Trade Union Confederation: he was a member of the national executive and Chairman of the Socialist group.

Matejcek had been a member of the ITF Executive Board since the Amsterdam Congress of 1958; within our international, as among his Austrian colleagues, his temperate, quiet and modest personality earned great respect and affection.

The cremation ceremony took place in Vienna on 8 October. The ITF was represented by our President, Hans Düby, and many distinguished men spoke in Matejcek's honour. They recalled his great love of the railways and railwaymen; his death leaves a sad gap which will be difficult to fill.

FATIGUE IN ROAD TRANSPORT



ACCORDING TO OFFICIAL statistics, few road accidents have fatigue as their main cause. Errors of judgement, reckless driving, mechanical faults, bad road or weather conditions — these are among the commonest outward causes of accidents. Yet it is probable that fatigue is the biggest killer on the road. If a driver is tired his judgement is likely to be less sound and he is apt to drive carelessly; his reactions may not be quick enough to avoid an accident in a tricky situation. The police officer who fills in the accident form is not qualified to judge the hidden factors contributing to the manifest cause of the accident. Driver fatigue is usually only given as the cause in obvious cases, for example, when the driver has fallen asleep at the wheel. It is generally held, however, by those who have studied the medico-psychological aspects of driving that fatigue is a major contributory cause of road accidents. Studies and research carried out by experts have shown this to be true.

A Committee set up by the Government of the Netherlands to look into the question of fatigue amongst professional drivers has made some recommendations as to how the problem can be overcome. The recommendations covered working conditions of the driver, construction of his vehicle and construction and layout of the road itself. Some of the recommendations were intended as a basis for legislation; others were not considered so urgent but were thought to be desirable in the interests of the driver's safety and well-being, and it was stressed that transport operators and vehicle designers should take note of them.

The Committee's report had some interesting things to say about vehicle design and construction. Fatigue may easily result from or be aggravated by bad features in the design of the vehicle.

As a rule, fatigue sets in more quickly in cases where not much movement is involved in the work to be performed. Constant use of the limbs and muscles keeps the blood in circulation and the waste products are pumped away. But in work of a more static nature, such as driving, the circulation is restricted and the waste products tend to accumulate and remain, causing muscular fatigue. Added to this physical strain to which the driver

is subjected is the mental strain caused by concentration on the road, the traffic situation and the behaviour of the vehicle. Thus driving in itself is highly conducive to fatigue, not taking into account the driver's condition on beginning his work (his state of health, whether he is fresh and rested, etc.)

Of key importance in connection with driver fatigue are the shape and position of his seat and the arrangement of his controls. Fatigue is apt to set in much more quickly if the driver has to sit for long periods in an uncomfortable position, or if his controls are difficult to reach or awkward to handle.

The seat should be so constructed that the driver's back muscles are as little loaded as possible. The back should be slightly inclined so as to support the small of his back, and the seat should be adjustable (a minimum adjustment of 6 ins. or 15 cm. horizontally and 4 ins. or 10 cm. vertically) so that the driver can select his optimum driving position. The seat-back should moreover be high enough to support the driver's shoulder blades. The seat-back should also be ventilated so as to keep the driver from perspiring. The seat should be sprung in such a way that its vibration frequency is considerably lower than that of the vehicle. Some means of damping should be provided to absorb shock and vibration from the vehicle. An adjustable shock absorber should be provided which adjusts springs to the driver's weight.

Operation of the controls calls for a certain amount of 'physical activity' which provides welcome relief from the static part of driving and helps to lessen fatigue. But the controls may be so positioned or so designed that they make the driver's task still heavier instead of lightening it.

The foot controls should not be more than 8 ins. (20 cm.) from the floor, and the areas of contact of the pedals should have a distance of at least 2 ins. (5 cm.) separating them. It should be possible to depress the accelerator with the minimum of force; the foot brake

should need an effort of not more than 155 lb. (70 kg.); the hand brake not more than 66 lb. (30 kg.); and the clutch pedal not more than 77 lb. (35 kg.).

The steering transmission ratio should not be more than 25: 1, and the pressure required to turn the steering wheel at its circumference should not exceed 44 lbs. (20 kg.). Its position should be at an angle of 45° from the vertical and its diameter should not be more than 22 ins. (55 cm.).

The gear lever should be so positioned that its operation should be impeded as little as possible by other controls, the steering wheel for instance. And if the lever is mounted on the floor, the driver should not need to move his arm behind his body to change gear.

The dashboard instruments should be grouped together, as far as possible, and so constructed that they can be easily read. If the distance between the driver's eyes and an instrument is 30 ins. (75 cm.), the diameter of the instrument dial should be about 3 ins. (7.5 cm.). Controls on the dashboard should be of different designs, for easy recognition, and the trafficator should be close to the steering wheel. The direction indicator should be linked to some kind of clearly audible acoustic signal and it should cut off immediately after a turn has been completed. The device for dipping the headlights should be easy to operate either manually or by foot and should be easy to find.

If a driver's view of the road is obstructed he must intensify his concentration, and this will bring on fatigue all the more quickly. Visibility may be reduced or obstructed in a variety of ways: other vehicles on the road, bad weather or the lie of the road. But the vehicle itself must have no constructional features which restrict the driver's view. The bonnet of the vehicle should not obtrude into his view of the road itself, for example. He should be able to see the road from a distance of not more than 16 ft. (5 m.) from his driving position. His angle of upward vision should be at least 15°, and his angle of vision to the extreme left and extreme right should be at least 220°. Partitions between adjoining windows should be thin in order to restrict vision as little as possible. There should be no objects on or near the windscreen which would restrict the view at eye level. The wing and rear window mirrors should give the driver an unrestricted view of traffic beside and behind his vehicle without his needing to turn his head or body. The vehicle should be equipped

with shades to protect the driver's eyes against the glare of the sun. Windscreen wipers should be so constructed that the windscreen can be cleaned effectively in all circumstances.

Continuous driving in a badly sprung vehicle is extremely fatiguing, as excessive vibration can cause considerable discomfort. Vibration frequency should, as a general rule, be not more than 1.4 c/s fully loaded, and not more than 2.0 c/s empty.

Noise is another fatigue-inducing factor in driving. The driver's cab should be sound-proofed from the engine and from other sources of noise in the vehicle. A car radio may be useful to the driver in keeping awake, but this depends largely on the nature of the programme it is tuned in to, on the traffic situation and on his own tastes and dispositions. A radio may lessen the driver's concentration, which could be dangerous in heavy traffic, or if it is tuned in to a programme of soft, restful music it may make him drowsy.

Ventilation and heating are important in connection with fatigue. A driver in a badly ventilated cab is likely to become tired or sleepy, and the lack of ventilation is all the more dangerous when the air in the cab is already polluted — by petrol or oil fumes, for example, by exhaust gases or tobacco smoke. The cab should be so constructed that a minimum amount of ventilation is guaranteed without any action on the part of the driver. A minimum of 105 gallons (400 litres) of fresh air per minute is suggested. At the same time it should be impossible for impure air to enter the cab. The effects of heat from the sun should be counteracted by insulating the walls of the cab with some material placed between the inside and outside walls and by painting the roof in a light colour — preferably white — which will reflect rather than absorb the heat. Heating itself may be necessary in cold weather, but it should not be possible at any time for the temperature in the cab to rise above 18°C. (65°F.). A proper combination of ventilation and heating should be aimed at, as insufficient ventilation coupled with heating which is too strong or too local may have the effect of inducing sleep or fatigue.

Weak or badly adjusted lighting make great demands on a driver's concentration at night, and this results in early fatigue. It is recommended that the lighting system of a vehicle should be sufficiently strong at all speeds: the headlights should carry bulbs of at least 35 Watts. The strength of the dashboard illumination should be adjustable and such illumination should be screened from the windscreen so as to prevent reflection. Lighting inside the vehicle should also be prevented from reflecting in the windscreen.

Sleeping cabins or cubicles are becoming more and more common in long distance and especially international road transport. They are used for rests during breaks in work periods and as over-night quarters. They are extremely useful in the former case in preventing or postponing fatigue, but they are not considered to be suitable for over-night accommodation. It is better for the driver to spend the night outside his vehicle. But as a mere resting place, the cabin should be provided with a couch at least 6 ft. 1 in. long and 2 ft. wide with a headroom of at least 2 ft. 2 ins. It should be so designed that the driver cannot fall off it when the vehicle is braked hard, and, whether the vehicle is in motion or stationary, it should be impossible for impure air to enter the rest cabin. The couch should be insulated as far as possible from the noise and vibration of the vehicle.

The extent to which a driver may tire is influenced by a number of other factors besides his physical surroundings at the wheel. The circumstances in which he works are important influences. Long working hours, having to drive within too tight a schedule, an unsatisfactory job, poor relationships at work and unsatisfactory social conditions all contribute to bring on fatigue at the wheel. A driver notices when he is getting tired and, if he takes the appropriate measures — stopping for the night, for a short rest or to stretch his legs — he will not risk his safety on account of fatigue. But there are cases when a driver has to refrain from doing the sensible thing, when he knows he is tired. He may have to adhere to a schedule which is too tight to allow for adequate relaxation and recovery. But the point at which the driver begins to tire varies a great deal from one individual to another. It may be linked to a number of factors, such as the driver's state of health or his general feeling of well-being — his job may be monotonous and wearisome, he may be in conflict with superiors or colleagues, or be otherwise dissatisfied with work, or he may have personal worries. The majority of drivers questioned in the course of one investigation said that they felt the first signs of fatigue after anything from

Bunks in the driver's cab are recommended for short rests rather than for overnight sleeping accommodation.

Drivers' schedules should be planned so as to allow them adequate time for a number of short breaks. Several short rests are felt to be more beneficial than a long period of driving interrupted by only one long break.

125 to 300 miles (200 to 500 kms.). The median was 200 miles (about 300 kms.) or after four hours' driving.

Fatigue inducing factors arising from working conditions are the concern of the operators. Working hours in long distance road transport are regulated by law in most countries, but there are many in which such legislation has not yet been enacted. Abuses occur in countries where drivers' working hours are fixed by law. The Committee appointed by the Netherlands Government to study the question of fatigue in road transport recommended the use of the tachograph — a mechanical device for recording hours of attendance, work and rest — in certain types of transport to combat abuses. It also recommended the planning of drivers' schedules so that these allow them adequate time for a number of short breaks. Several short rests are felt to be more beneficial than a long period of driving interrupted by, say, one long break.

The Committee divided its recommendations into three groups. The most important, for example, the specifications for design and positioning of controls, were put forward as a basis for legislation. Some were designed to guide those concerned with the construction and operation of long distance commercial vehicles in providing the best driving conditions with particular regard to fatigue. In some questions the Committee reached no firm conclusions, and a number of aspects of driving which might have a bearing on fatigue were recommended for further study by experts.

News from the Regions

Problems and tasks of the developing trade unions

Extracts from a speech by Frank L. Walcott, General Secretary of the Barbados Workers' Union, at the recent ICFTU Congress.

IT IS IMPORTANT for the trade unions to be aware of the needs of the community. The unions must understand that they have a part to play in the economic development of the community and that they must assist in overcoming some of the barriers which obstruct the growth of a sound and viable economy.

This does not mean, as some people seem to think, that the trade unions should deny their freedom of action and surrender their basic rights to the government; nor does it mean that they should erect a white flag and call a truce to all action to fight for the raising of wages and a general improvement in the standard of living for the workers.

What it does mean is that trade unionists, as responsible citizens, must make a close and intelligent study of the economic needs and limitations of the community. They must bear in mind, for instance, that strikes in these communities cannot be regarded in the same manner as strikes in developed and settled societies, because the developing countries do not have the surpluses to withstand the impact of strikes in the same manner as developed countries. . . .

What then are the tasks facing the trade unions in developing countries? In the first place the unions must build up their organizations in such a manner as to provide the basic machinery for the defence and protection of their members, both individually and collectively.

It is pointless for trade unions to develop on a basis which ignores the functions of the community as a whole. They must provide for proper communication among their members in order to secure the fullest participation of the members in union decisions. The necessary machinery should be established at all stages to allow trade unions to operate freely without unnecessary interference from governments or employers. . . .

I cannot emphasize too strongly, on this question of trade union freedom, that trade unions must be absolutely free to elect their officers, formulate their policies and conduct their activities without external interference. They must also be free to establish voluntary relations with national organizations, e.g. political parties, if they so desire, and with the international labour movement.

Trade unions in developing countries require sound finances; this can only be achieved, first, by a conscientious membership prepared to make financial sacrifices, and second, by a rational financial administration.

Another important factor in this development is education: the trade unions and their representatives should be participating in educational planning at the national level. The reason for this is simple. The children of the workers have to be educated and the trade unions have a vital interest in seeing that a proper education system is provided for the nation.

Adult education, special training for those who are unable to read and write, special training in trade union affairs, and the provision of sound and modern vocational training, are of the utmost importance. Trade unions should be able, in collaboration with other institutions in cases where it is not possible for them to act alone, to provide courses for trade union members which would foster the growth of leadership from the rank and file, and would stimulate the workers to participate fully in the activities of their organization. . . .

One way in which the unions can help to accelerate the pace of economic growth is by developing cooperative action among their members. There are many spheres of economic activity in developing countries which seem more appropriate for the cooperative movement than for the private investment sector; for example housing, where cooperatives could provide workers with the decent housing standards they seem unlikely to get by other means. Of equal importance are consumer cooperatives, in order to combat the high prices which at times nullify the gains that the trade unions have made by collective bargaining.

* * * *

Justice sought for Argentine fishermen

THE ARGENTINE DELEGATION to the Fishermen's Section Conference held this year in Copenhagen in conjunction with the ITF Congress described the difficulties which the unions were encountering there in getting fishing crews organized and obtaining justice for them in the face of strong opposition from the Fishing Boat Owners. Appeals have frequently been made to the authorities to compel the owners to comply with the law, so far without success. The following is the statement laid before the Fishermen's Conference:

'In our country the Fishing Boat Owners are conducting a vigorous campaign to prevent their crew members from joining trade unions and to keep them outside the scope of the existing social legislation.

'The crews of fishing vessels are generally paid in the form of a share in the proceeds of the catch. This is just another form of wages, and can-

not disguise the fact that the relation between crew and owner is that of employee to employer. However, the owners have arbitrarily and maliciously interpreted this method of payment as meaning that the members of the crew are in fact partners in the enterprise. After the expenses (fuel, repairs, etc.) have been deducted from the proceeds of the catch, the remainder is divided among the owner and the crew members in agreed proportions. However, the workers remain outside the range of social security legislation: they have no annual leave laid down by law or by collective agreement; they do not have the security of a guaranteed annual wage, a benefit enjoyed by all other Argentine workers; nor do they have the right to any payment during periods when they are unable to work through sickness. In short, the owners consider that their crews have no right to the benefits laid down by law for all other wage-earners.

'Clearly this is a most unsatisfactory state of affairs. And, in order to maintain it, the owners are doing all they can to prevent their crews becoming members of unions, in the hope that they will avoid collective bargaining aimed at improving these deplorable conditions.'

* * * *

ITF-ORIT joint education programme in Brazil

A JOINT ORIT-ITF three-man team recently toured in Northern, North-Eastern and Eastern Brazil for a period of twenty-five days in order to make contact with as many local unions as possible. The three men — Joviano de Araújo (ORIT) and Medardo Gomero and Geraldo Effresios de Moura (ITF) — spoke to many trade unionists, giving information about and goodwill messages from the international movement. It is considered that such grass-roots contacts are extremely valuable in getting across a clear idea of the powers and limitations of the international trade union bodies, as well as enabling trade unionists themselves to see their own and their organizations' activities in a wider context.

ITF Central American Seminar

THE ITF'S LATIN American Regional Office is organizing a seminar from 1 to 27 November for trade union organizers in Central America, in collaboration with the Central American Institute of the American Institute for Free Labor Development. The seminar is being held in San Pedro de Sula, Honduras, and will give special training in the techniques of trade union organization to twenty-five trade unionists from five Central American countries. Manuel Medrano, Assistant to the ITF's Regional Director, is in charge of all the arrangements — the selection of participants, the coordination of the programme, etc. — and is also acting as ITF instructor for the first week.

* * * *

A visit to Israel

A delegation from the Scandinavian Transport Workers' Federation visited Israel recently, and this is part of the picture of the shipping industry which emerged from Niilo Wälläri's report back to the Federation's conference.

ISRAEL'S MERCHANT FLEET totalled 565,000 tons at the beginning of 1963. She has several large up-to-date ocean-going passenger liners, most of which were built in Germany for Israel as war reparations. But Israel suffers from a shortage of qualified seafarers and therefore has to employ a large number of foreigners. This means that conditions of service vary widely, since most foreigners wish to work under the terms which obtain in their home countries. The largest single foreign group is the Italians, who demand Italian working conditions and want their Italian social security deductions to be sent home. This may cause difficulties with drawing up the collective agreements, as Ze'ev Barash explained when he gave the delegation some background information after receiving them on behalf of Histadrut.

Haifa, Israel's largest port, has about 191,000 inhabitants. The shipowners have their headquarters there, and so does the Seamen's Union. The oil port is at present undergoing reconstruction and when it is finished it will be possible for large tankers to load up to 4,000 tons an hour, against 1,000 tons an hour previously. Haifa's turnover of all goods amounts to about 3 million tons a year. And so far it is the country's only port, except for Eilath, where ships can be loaded and unloaded at the quayside.

This is something of a disadvantage in such a rapidly growing country, since Haifa is in the north and a good deal of trade, particularly in raw materials, originates further south. It was therefore thought necessary to build a new port, and Ashdod, 30 km south of Tel Aviv, was chosen as the most suitable site. A substantial loan was obtained for the purpose from the International Bank for Reconstruction and Development, and work was begun in 1961. When the plans were drawn up, the experiences of other countries were taken into account; now on this desert coast lies a harbour, protected by a jetty over 2 km long. Part of the port is already finished, and the first vessel will be able to use it at the end of the year. The port's capacity will be over 5 million tons a year and the installations will make it possible to handle up to 1,000 tons an hour of phosphate, potash and similar products.

University training for marine officers

FOUR BRITISH universities or university colleges may be offering degree courses in nautical science by next year. Plans to provide such a degree are under consideration by the Council for National Academic Awards. If the courses are accepted, it is hoped that the first students may take up their studies in September 1966 or 1967. All navigating cadets entering the British Merchant Navy this year are in any case to follow a programme of progressive training at sea, based on schemes which some shipping companies have already operated successfully. The programme is designed for cadets having already attended nautical college and for those coming direct from school.

EGGED

by Arieh Greenfield

The Story of an Israeli bus workers' cooperative, the largest passenger transport undertaking in the country.

THE YOUNG PEOPLE who laid foundations for the rebirth of Israel about the turn of the century were great idealists, and often also ideologists with a vengeance. Raised in Czarist Russia and the other empires of pre-World War I Europe, many of them believed that Marx, Bakunin, Lenin, Martov, Luxemburg — any one of them, or all together — had the answer to what ailed mankind.

It is to the everlasting credit of these pioneers that, in spite of this, they were not blind dogmatists. They advanced the cause of the Jewish state step by step, never losing sight of the goal, but never blind to the demands of each day. Only in this context can the creation of the labour-owned sector of Israel's economy be understood. Enterprises rose in a great variety of forms — collective agricultural villages, smallholders' cooperatives, administrative enterprises owned by the labour union as a whole and managed by union appointees, cooperative factories, stores, transport services. When a new venture made its appearance, it had to make its way in a competitive society. It had to justify its existence by fulfilling a true need, by supplying a service in demand at a reasonable price.

More ventures were started than were successful. Many went under, lost money, dissolved, because they were inefficient, incompetent, incapable of competing. Many others made a go of it and helped to create the present-day Israel economy. One of the most successful is Egged, the country's largest passenger transport firm.

The First Automobiles

The automobile first appeared in the Holy Land in 1917 in the van of conquering British troops. Until then transport had been by railroad, by horse- or mule-drawn diligence, and mostly the simplest way, by shank's mare. Memoirs of those days frequently mention that their heroes 'went' from Jaffa to the Galilee, or from there to Jerusalem — 'went' means just that: they walked. As soon as the war ended, the British army sold some of its vehicles as surplus. Some were trucks, others four or six-passenger cars, and these were immediately pressed into service by various enterprising souls, in stiff competition with more reliable animal transport.

All during the twenties transport remained in individual hands — one driver, one vehicle. There were beginnings of organization: 'offices' appeared in all larger Jewish settlements, where drivers and passengers could meet. But service was haphazard. Cars left when enough passengers could be gotten together, and no driver could be certain when he would find a load for his return trip.

Beginning of Transport Coops

The 'offices' were the seedbeds of organization. At first some semblance of a schedule was arranged, and an order of departure for the various vehicles. Soon, however, things progressed beyond this stage. In 1932 twelve drivers, owners of twelve automobiles, founded the first cooperative in Rishon Lezion, south of Tel Aviv.

The new coop provided scheduled service between Rehovot, Rishon and Tel Aviv. It was so successful that the idea was immediately imitated. During the next two years cooperatives were organized in all parts of the country.

More than ten major organizations appeared, in addition to smaller, merely local, outfits.

There was no handbook available on how a transport coop should be organized. At first there were no shares — every member brought a vehicle with him, and that was that. All members drove, and none but owner-drivers were members of the coops. In fact, there was no need for anything but drivers. The business was so small that management, book-keeping and the like was done by all the members, after work hours. Life was not easy, but it wasn't very complicated, either.

The following years saw a process of expansion, strengthening, and consolidation. Neighbouring coops joined forces, unified lines and schedules, increased efficiency and improved service. In 1951 this process reached its present culmination, with one cooperative providing internal transport within Jerusalem, another serving the population of the greater Tel Aviv areas, including Petach Tikvah, Ramat Gan, Jaffa, Holon, etc. The third cooperative, *Egged*, largest of the three, serves all the rest of Israel.

In Peace and War

During the Second World War, Egged drivers were among the volunteers for the British forces in the African desert, and later in the Jewish Brigade. Civilian drivers were with their vehicles, and hauled British troops all through the Middle East and North Africa, from Tunis and Libya to Iraq and Iran. They provided transport for the underground Haganah, and for the emerging Jewish state's infant army. During the Sinai campaign many a stronghold was captured by 'bus passengers', who travelled by Egged to the jumping off point, quickly took their objective, and returned to their bus for a ride to the next enemy position.

Egged Today

When present-day Egged was formed in 1951 by unification of three different cooperatives, the combined fleet numbered 960 vehicles, seating 33,000 passengers. There were 1,700 members in the consolidated cooperative, and they employed an additional 965 workers.

At that time the first new vehicles to reach Israel since 1939 were received. Many pre-war White and Red buses were still in use. Many more bus bodies had been built on top of British truck chassis. Now new GMC, Ford and White chassis were imported, to which local firms added bus bodies. Only later were 'real' buses bought — at first Chaussons from France, and now almost exclusively British Leylands. Some of these are already produced at the Leyland assembly plant in Israel.

During thirteen years, until October 1964, the number of buses increased by 61%, to 1,595. Seating capacity, however, grew by 110%, to 72,650. The number of persons employed by Egged exceeds 5,400, of which 3,400 are share-owning members of the cooperative.

Egged buses travel more than 85 million miles annually. During the coming year more than IL.100 million will be collected in fares.

In the course of 1964/65 some 270 new buses will be put into service, all of them large and modern. Between 120 and 150 old vehicles will be withdrawn. Egged will build modern bus terminals in various towns, run special services to the beaches and the mountains during the summer, and maintain contact with settlements during the winter in spite of floods and wash-outs.

How the Cooperative Is Organized

This tremendous enterprise is a cooperative, in which every member has one vote. All the members go to the polls every other year to elect a 55-member council, a 16-man management committee, a control committee, and thirty judges who deal with infractions of work discipline, and the like.

To become a member of Egged one must first of all be a bus driver. Without a valid transport driver's licence candidates need not even apply.

Most candidates come from among the coop's hired workers, or are sons of members. But anyone may apply, and he has a good chance of being accepted if he is really suited to the work.

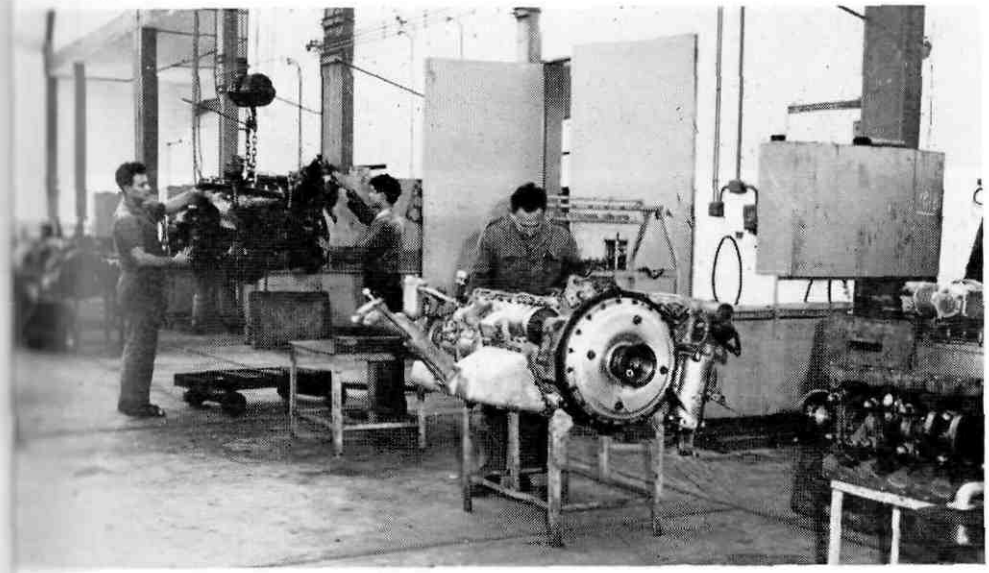
Each member must, of course, invest his share in the business. The nominal value of this share changes from time to time, and usually represents a compromise between book value — an unrealistically low figure — and the value veteran members attach to the cooperative of their creation, including experience, goodwill, and other intangibles. Young men, candidates to become members, are of course interested in setting a low value on the share. The Histadrut and its cooperative institutions also tend in this direction, in order to keep the gate of the cooperative as widely open as possible to young blood.

At present the value of the share has been pegged at the equivalent of thirty-six months' wages. Candidates, who cannot raise the entire amount, but are otherwise qualified for membership, get help from Egged in obtaining loans to make up the amount.

Having invested the value of his share, each member works twenty-five 7½-hour days a month, and receives a monthly wage of about IL.800. Overtime, limited to fifty hours a month maximum, may raise total gross income to slightly more than IL.1,000. This is a good wage, but not considered unusually high for skilled men in Israel.

The wage, of course, is not the only benefit an Egged member enjoys. There are marginal items, such as free bus passes for his entire family, presents of wine for the holidays, and the like. Above all these, in importance, ranks the members' job security. As long as a member is willing to shoulder his share of the work, he will have no material worries to speak of.

Egged insures its members against accident and death. It takes care of them if they are sick, or disabled. Old age is provided for through the coop's pension fund, and retirement may come as early as age 55, if the member so wishes. Upon retirement the cur-



Top: *Egged's spare parts factory near Tel Aviv;*
Middle: *Some of Egged's maintenance workers servicing bus engines;*
Bottom: *New members of Egged learning about the cooperative's work.*
On page 257: *Drivers consulting the duty roster board.*

rent value of the share is returned to the member, and he begins to draw a pension equal to about two-thirds of an active member's wage.

There is some difficulty with older Egged members, who can no longer be expected to put in a day's work at the wheel, like the youngsters of 22. To help alleviate this problem, men above 50 work only 6½ hours a day, without, of course, any reduction in pay. The coop also encourages them to study and acquire new skills needed in the service departments of the business.

Democracy at Work

Democratic control by all members over the operation of the cooperative is assured by frequent elections. Every two years top policy-making management is chosen by all members. Technical managerial positions which depend on special training and experience, are of course not involved in this.

Election rules are very liberal. Every member is entitled to vote, and to stand for election. Any ten members may propose candidates. In practice, however, only candidates supported by one of the two 'parties' have any real chance of winning.

These two 'parties' have no connection whatsoever with Israel's general political scene. Practically speaking there are but few basic differences of opinion between the two. They began with personalities, and are really based only on this. There are the 'ins' and the 'outs', divided by no really fundamental conflict. Thus they provide for periodic ventilation and rejuvenation

Two of Egged's coaches waiting on the quayside at Haifa to show parties of foreign tourists around Israel.

of top management, within a framework of continuity and stability.

It must be remembered that an additional stabilizing factor is involved. As a franchised public service Egged is under fairly close governmental supervision. The Ministry of Transport concerns itself with frequency and quality of service on the various routes, while fares are subject to approval by a Public Fare Authority, headed by a member of the judiciary.

Naturally enough, relations with these government bodies are not always idyllic. As a rule demands for large increases in fares are pending before the Authority. In the course of settling these demands all details of operations are examined, first of all the member-drivers' incomes. Only after many delays is a settlement reached, which, like most compromises, really satisfies no one completely. The central bodies of the cooperative movement, Hevrat Ovdim, also keep a close watch on the standards of public service in large coops.

Present and Future

The practical experience accumulated by Egged and its members over several decades is very rich and valuable. Government, union and international bodies have recognized the value of this accumulated knowhow, and from time to time the coop is requested to second some of its members as advisers and instructors to other organizations.

Twenty-three members serve in such capacities now. Among those serving abroad are two veteran Egged men, who are helping in the reorganization and modernization of bus transport in Ethiopia. Others are in Tanganyika, as economic counsellors to the government there.

Times change, and much can be expected to change in passenger transport during the coming years. Egged's record gives ground for the belief that the cooperative will know how to keep pace with the times, how to change and adapt, without losing sight of its fundamental democratic, cooperative, public service character.

Conditions favourable for Channel Tunnel

PRELIMINARY EXAMINATIONS of the results so far produced by the Channel Tunnel study group shows that there are no major adverse geological conditions which might impede construction of the tunnel. Reporting this recently, the group stated that the survey of the bed of the English Channel, which began in September last year, would soon be completed. None of the results so far excluded either a tunnel bored under the sea bed or an immersed tube on the sea bed. This confirmed the earlier studies submitted by the group to the French and British governments in 1960.

The engineer responsible for overall direction has estimated that construction could begin in a year, and the tunnel could be finished within five years from the time the first shaft was sunk.

What's new in transport?

Marine buoys powered by solar cells

AN INTERESTING EXPERIMENT now being carried out in pursuance of maritime safety is the use of sunlight to power marine buoys. This is done by means of solar cells installed in the buoys, which when exposed to the sun or bright daylight produce an electric current. The current charges a battery from which a flashing light will operate. The battery enables current to be available throughout the twenty-four hours of the day, and even for longer periods — three or four days — when daylight is obscured, as it would be in the event of fog or mist.

* * * *

Ticket machine takes banknotes

A JAPANESE ELECTRONICS firm, in conjunction with Nagoya city railways, has produced a ticket-issuing machine for 37 stations, offering 10 different kinds of ticket.

The traveller presses the required button and the appropriate fare is shown on a little screen.

What is different about these machines is that not only will they take coins, but they will scan and accept or reject notes, and give change.

* * * *

Arctic cargo submarines proposed

DR. BARNES WALLIS, an eminent British engineer, has suggested that Britain should build large cargo-carrying submarines, able to travel under the Arctic ice-cap. He was opening the proceedings of the engineering section of the annual meeting of the British Association for the Advancement of Science, and went on to demonstrate that for bulk transport, ocean travel must always remain between five and fifteen times cheaper than its equivalent on land. Dr. Barnes Wallis showed a slide depicting a view of the earth looking down on the Arctic ice-cap. If Britain could trade beneath that ice, then her sea routes to and from Japan could be shortened by thirteen days and more than 4,000 miles.

Leading oil companies are seriously considering oil tanker submarines which could not only carry oil under the Arctic ice-cap but could even service oil wells drilled beneath the ice-cap at the bottom of the sea. As long as four years ago a British engineering firm was trying to obtain backing for a scheme to build bulk carrier submarines able to transport iron ore. The idea was that these should carry iron ore away from the rich fields in Labrador and Nova Scotia during the nine months of the year for which the ports on the North East coast of Canada are ice-bound.

Submarines would be able to travel three or four times as fast as surface merchant vessels, and the power required to drive a submarine only 200 feet or so beneath the surface is far less than that required for a surface ship carrying the same amount of cargo. And the submarine is independent of delays and dangers due to any kind of weather.

* * * *

Computer to control traffic lights

TRAFFIC LIGHTS CONTROLLED by computers are to be introduced in Britain to help cut road accidents. They will prevent lights changing from green to amber when drivers are too close to crossings to stop safely. Detectors which measure speed will be installed 500 feet from the stop lines at lights where there are high-speed approaches. A computer will then estimate whether a vehicle is going too fast to stop safely should the lights change to amber. If it is, the lights will be held at green until the vehicle has crossed the intersection. The lights will remain at green for only a certain length of time, however. After the maximum period has elapsed they will change automatically.

In a booklet published by the Road Research Laboratory of the Ministry of Transport, the problem is described. 'This is a dangerous situation which has been a contributing factor in a number of accidents at signal-controlled intersections. The problem might be overcome if drivers could be made to slow down to less than 30 mph as they approached the signals, but in practice this may be difficult to achieve. Although it may be said that the proposed method caters for the fast driver, it also protects the driver on the cross-road who might otherwise be involved in an accident.'

* * * *

Computer cargo checks at Bristol

EARLY NEXT YEAR the port of Bristol will start operating a traffic control system, through an automatic data transmission link. This will give details of every ship's cargo arriving at Avonmouth and its subsequent discharge, and will be controlled on a computer equipped with random access memory files. At present a large clerical staff is required at Avonmouth to maintain the numerous traffic ledgers in which are manually recorded details of all the many different kinds of cargo discharged from vessels, delivered to merchants or stored in the port's granaries, warehouses and transit sheds. The new system will mean that experienced personnel can be released from routine clerical work to spend more time on controlling the increasing flow of traffic.

As soon as each vessel arrives at Avonmouth, details of the cargo are punched into paper tape which is then fed into a special transmitter unit. This transmits data over a Post Office line

(Continued on page 264)

AIR INDIA'S COOPERATIVES

TO TRACE THE BEGINNING of co-operatives in Air-India, one must go back to the year 1940 when Air-India Ltd. introduced a fair price grainshop as a staff welfare measure. The Second World War at the time had made the supply of the basic necessities a critical problem in almost every country of the world. In certain states in India this led, among other measures, to the opening of fair price shops which today are a feature of every major city in India.

The grainshop was run by the Personnel Department. With a monthly sale of Rs. 20,000,* it had an annual establishment cost of almost an equal amount because the staff of the grainshop had to be paid on airline scales. However, it acquired a new and a more significant status in 1962, when the Indian Labour Conference initiated a scheme to launch Consumers' Co-operatives for industrial workers throughout the country and the Air-India Staff Colony Consumers' Co-operative Society was born.

The new unit, now operating from its spacious premises in the amenity block of Air-India Staff Colony in Kalina, near Santa Cruz, was formed by the cooperative effort of members of the staff. With a share capital of Rs. 47,500, working capital of Rs. 75,000 and average monthly sales of Rs. 55,000, it has made steady progress since its inception in 1962. While last year it declared a dividend of 7.5 per cent. the estimates for the current year show a record for the Society.

Its 1,337 members, who are employees of Air-India and Indian Airlines Corporation, enjoy special facilities for the purchase of rationed and non-rationed items at a fair price. Other privileges offered to them by the Society include credit facility, 20 P. bonus for purchases totalling Rs. 100, and home delivery of non-rationed items and milk to the members residing in the Colony and within its three-mile radius.

The Air Corporations Employees' Cooperative Bank Ltd., which had also an equally modest beginning, grew out of the Air-India Employees' Credit Society Ltd. Registered in 1952, the Society was formed to encourage the habit of thrift, self-help and cooperation amongst the employees while tackling their financial problems.

Excellent results achieved in this sphere can be gauged from the fact that during the first $3\frac{1}{2}$ years of its operation the Society was converted into a fully-fledged 'A' Category Cooperative Bank run by an elected Board of Directors. Last year the performance record of the Bank reached an all time high when it declared a dividend of 9 per cent and bonus on fixed deposits and loan interest.

With its rates of interest on a par with the scheduled banks — $2\frac{1}{2}$ to 7 per cent on fixed deposits and 4 per cent on savings deposits — the Bank enjoys enormous support: its members total 4,475. Besides the facility for paying insurance premiums from salary — almost gratis, it also offers the services of a well-known optician. The expenses incurred for the latter are deducted from salary in easy instalments.

However, the popular feature of the Bank's operation is the special loan facility given to the members. While these loans to any needy permanent employee who has completed six months as a member place the Bank in a better earning position, the interest of $6\frac{1}{4}$ per cent it charges on the reducing balance also forms its major income. Its other sources of revenue are agency commissions earned from life insurance and the sale of National Defence Certificates.

Another highlight of the Bank's operation is the Death Relief Fund. Introduced on August 1, 1962, as a Social Security measure, the scheme provides help of Rs. 1,000 to the family of a member on his death. A member can join this scheme by an initial payment of Rs. 2. However, Rs. 1 is deducted from his salary for every call made on the Bank.

Just as the war determined the need for fair price shops, its after-effects and the impact of partition of India led to the formation of cooperative housing societies to solve the problem of housing shortage.

This aspect of cooperation in Air-India had its beginnings in 1954 when Mr. Willie Williams, a Leading Hand in the Engineering Department's Maintenance Division, became the first employee to apply for a loan of Rs. 2,500 to build a five-room house at a total cost of Rs. 4,800.

An individual employee can now get a maximum of 36 times his basic salary, or three-fourths of the total cost of property, whichever is less. The ultimate maximum allowed to him is Rs. 75,000/-. This facility is extended up to 80 per cent of the total cost of the project in the case of housing societies. The number of monthly equated instalments for repayment are 180 for the employees and 240 for societies.

This loan, limited to members of the staff based in India, is given in instalments of 20, 30, 40 and 10 per cent. Each phase is determined by the extent of the work carried out.

Since the inception of this scheme in 1954, 105 employees and 10

* 1 Rupee = 100 Pice; RS. 13.33 to £1.

cooperative housing societies have obtained a total loan of Rs. 16.80 lakhs (Rs. 1.68 m.) and Rs. 74.45 lakhs (Rs. 7.445 m.) respectively from the Management.

Expressing his views on the subject, Mr. A. S. Banavalikar, Personnel Manager, said, 'In any community where members are prepared to work hard, forget petty jealousies and give a helping hand to their fellow men, no scheme of cooperation requires excessive funds. There is, therefore, considerable scope for cooperation in the Airport community if you can find a band of selfless workers who will devote a fraction of their energy during their hours of leisure, as has been convincingly shown by the manner in which the Cooperative Bank and the Consumers' Society are operating.'

'It is noteworthy', Mr. Banavalikar pointed out, 'that the leadership for the Cooperative Societies has come from the ranks. One of the peons has been a President and Vice-President for a number of years like some other clerical and administrative workers who are members of the Managing Committee.'

He stated that in the near future it should be possible to hand over all the industrial canteens, canteenettes and the restaurant to a powerful Co-operative which would enable large economies to be made in the cost of administration, the savings from which could be transferred to the beneficiaries in the shape of better and cheaper food.

Tourism and safety

The following article by Georges Hendrickx, National Secretary of the Belgian Transport Workers' Union, appeared in De Werker, *weekly newspaper of the Belgian national centre ABVV.*

THE 1965 TOURIST SEASON is over, and now we take a look at some of the journeys that have been made during this period.

During the holiday period we have read reports of at least three accidents to British tourists who went on Belgian coaches from Ostend. One day we had a visit from a member, a coach driver, who had been dismissed by his employer on 27 August and who still had some pay to come. The man had worked for the employer seven weeks and had received a total of 7,000 Francs as an advance, i.e. 1,000 Francs per week.

In accordance with the collective agreement, the minimum wage per day is 350 Francs, plus bonuses for work performed between 10 p.m. and 6.30 a.m. The man should have received a total of 17,150 Francs, apart from the extra due for night work. On examining his records we found that he had worked as follows: —

4 July - from 5.45 a.m. to 11.30 p.m.;
5 July - from 5.00 a.m. to 7.30 p.m.;
6 July - from 6.30 a.m. to midnight;
7 July - from 7.30 a.m. to 8.00 p.m.;
8 July - from 8.00 a.m. to 9.00 p.m.;
9 July - from 8.00 a.m. to 11.00 a.m.;
10 July - two days in Austria;
12 July - six days in the Black Forest;
18 July - eight days in the Tyrol;
26 July - stopover for repairs in Germany: two days and one night;
28 July - in Germany until 30 July;
31 July - from 7.00 a.m. to 1.00 p.m. and from 4.00 p.m. to 9.30 p.m.;
1 Aug. - from 7.30 a.m. to 3.30 a.m.;
2 Aug. - in the garage until 12 noon, then to Munich, finishing at 11.30 a.m. on 4 August;
5 Aug. - from 8.00 a.m. to 9.00 p.m.;
6 Aug. - to Lourdes until 12 August;
13 Aug. - in the garage from 8.00 a.m. to 1.30 p.m., and then to Austria, finishing at 8.00 p.m. on 15 August;
16 Aug. - to Cologne from 5.30 a.m. to half-past midnight;
17 Aug. - from 7.00 a.m. to 11.30 p.m.

And so it continued, until on 27 August the man did not show up for work any more. Apart from the excessively long hours, there are a number of other abuses which require comment. One of these relates to the trip of 13, 14 and 15 August, on which the member had a relief driver with him. According to the instructions he was given, the coach was to be ready in Breda at 10.00 p.m. and arrive in Munich (about 400 miles) at 2.00 p.m. the following day; it was due to arrive in Wörgl, Austria (about 50 miles) at 5.00 p.m., and in Innsbruck (about 36 miles) one hour later. On the return journey the coach was to leave Innsbruck at midnight, leave Wörgl at 1.00 a.m., leave Munich at 3 a.m. and arrive back in Breda at 6.00 p.m.

The instructions also contained an *urgent* warning, which has been brought to the attention of the authorities. It read as follows: *'The engine of the small Fiat (Fiat Coach* 375*) is not capable of covering such distances at constant high speeds* (our italics). The revolution count must not exceed 2,500. When climbing the engine speed must not be allowed to drop below 1,500 revs., so be sure to change gear in time when at low speed. The same applies to going downhill. Change drivers every 200 km (125 miles), and give the engine a rest. Frequently check the temperature!! *This small Fiat has already broken down several times this season* (our italics); the engine is now in good condition, but I would ask you most emphatically to treat it sensibly and carefully!!'

The union demands 'most emphatically' that the labour and safety inspectors take a look at this company, which treats neither its drivers nor its passengers sensibly and carefully.

(Continued from page 261)

to the port's computer centre where an identical tape is created. The tape is then fed into the computer which stores the information on its random access memory files.

One of the major advantages of the new traffic system is a high-speed interrogation facility. When, for example, an urgent inquiry is received from a merchant the traffic clerk concerned has immediate access to the information stored in the computer's memory on that particular cargo.

The computer system is part of a large-scale, long-term modernization programme which includes new cargo-handling equipment and new warehouses and berths.

* * * *

Traffic authority for Sweden

A COMMITTEE SET UP by the Swedish Government to look into certain road traffic questions has recommended the setting up of an official traffic authority. The authority would be structured around a central administration divided into six departments: (1) a secretariat to deal with planning, coordination, rationalization, information and statistics and to follow road traffic developments; (2) a department for training, which would deal with all questions connected with driving instruction; (3) a technical office, which would follow technical developments in the road transport field and carry out vehicle inspections; (4) a work inspection department, which would ensure compliance with the regulations on driving hours, rest periods, use of tachographs and the keeping of time sheets in commercial road transport; and (5) a commercial traffic department; (6) an office to deal with judicial and administrative matters. Coupled with this central administration would be seventeen regional traffic inspection offices with 30 inspection centres, and a central training establishment with 3 regional establishments.

Other recommendations put forward cover a reform of the system of driving licences and of the labour inspection system. The licensing recommendation calls for four different licences: A — for cars and delivery vehicles under 3.5 tons; B — for vehicles whose total weight exceeds 3.5 tons; C — for motor cycles; D — for tractors.

It is emphasized that programmes for driving courses should be radically revised, and that driving instruction should be the responsibility of the community. Instruction could still be provided on a private basis, but this would have to be on the lines laid down in the programmes offered by state-sponsored schools and the teachers would have to hold proper driving instructor's certificates.

* * * *

IATA discusses noise and radiation hazards

A WARNING TO AIRPORT staff to wear protective equipment to avoid ear damage from jet engine noise is contained in a report presented to the International Air Transport Association conference in Vienna recently. The report, by the IATA medical committee, says: 'It is evident that many personnel exposed to jet noise are not wearing the protective equipment supplied and that cases of ear damage are still occurring.'

Airline managers are asked to instruct their employees on when and how to use protective gear and to warn them of the danger to their health. Regarding radiation hazards in supersonic aircraft, which would fly at altitudes up to 100,000 feet, the Association's doctors believe they would pose no serious threat to health. But special filters may have to be used to reduce cabin ozone concentrations.

Statistics for the number of deaths occurring in flight show that during 1964 there was one death for every 1,666,000 passengers carried. The average for the five previous years was one for every 1,724,000.

A report by the IATA technical committee debated at the conference criticized governments for giving insufficient help in dealing with noise abatement near airports and for inadequate new terminal buildings.

PUBLICATIONS RECEIVED

The Defence of Trade Union Rights, second of a series of booklets entitled *The ICFTU in Action*. Price 1/-, 15 US cents, or equivalent in other currencies. This gives a brief history of the struggle for trade union rights, including the part played by the ILO, and details the work done in this field by the ICFTU in countries such as Spain, Portugal, Cuba, Thailand, Venezuela, Tunisia, Cyprus, Aden, Southern Rhodesia, Japan and Turkey.

Euratom, bulletin of the European Atomic Energy Community, No. 1 of 1965, contains an informative article about nuclear-powered merchant ships, giving details of the research ship *Otto Hahn* launched at Kiel in June 1964, and other projects supported by Euratom. The article describes the measures for improving safety incorporated in the *Otto Hahn*, and the tests to be carried out.

Women workers, by Viola Klein, first of the OECD's *Employment of special groups* series, is the result of an inquiry into the working hours and time schedules of working women with family responsibilities. The inquiry's aim was to discover, by a comparative study of prevailing conditions in twenty-one countries, what adjustments were most desirable and practicable to enable women to perform their dual function of housewife and worker efficiently and with the minimum of stress.

* * * *

NMU's new-style publication

October, 1965, saw the publication of the National Maritime Union of America's *Pilot* as a 36-page monthly magazine. The new-style publication contains, in addition to news of the union and the shipping industry, features on significant issues affecting maritime unions and the nation in general and regular columns by national officers on questions of major importance, and on union operations and projects.

International Transport Workers' Federation

General Secretary: HANS IMHOF

President: HANS DÜBY

---

7 *industrial sections catering for*

RAILWAYMEN
ROAD TRANSPORT WORKERS
INLAND WATERWAY WORKERS
PORT WORKERS
SEAFARERS
FISHERMEN
CIVIL AVIATION STAFF

- Founded in London in 1896
- Reconstituted at Amsterdam in 1919
- Headquarters in London since the outbreak of the Second World War
- 340 affiliated organizations in 82 countries
- Total membership: 6,500,000

The aims of the ITF are

to support the national and international action of workers in the struggle against economic exploitation and political oppression and to make international trade union solidarity effective;

to cooperate in the establishment of a world order based on the association of all peoples in freedom and equality for the promotion of their welfare by the common use of the world's resources;

to seek universal recognition and enforcement of the right to organize in trade unions;

to defend and promote, internationally, the economic, social and occupational interests of all transport workers;

to represent transport workers in international agencies performing functions which affect their social, economic and occupational conditions;

to furnish its affiliated organizations with information about the wages and working conditions of transport workers in different parts of the world, legislation affecting them, the development and activities of their trade unions, and other kindred matters.

Affiliated unions in

Aden * Argentina * Australia * Austria * Barbados * Belgium Bermuda * Bolivia * Brazil * British Guiana * British Honduras Burma * Canada * Chile * Colombia * Costa Rica * Curaçao Cyprus * Denmark * Dominican Republic * Ecuador * Estonia (Exile) * Faroe Islands * Finland * France * Gambia Germany * Great Britain * Greece * Grenada * Guatemala Honduras * Hong Kong * Iceland * India * Indonesia * Israel Italy * Jamaica * Japan * Kenya * Lebanon * Liberia * Libya Luxembourg * Madagascar * Malawi * Malaya * Malta Mauritius * Mexico * The Netherlands * New Zealand Nicaragua * Nigeria * Norway * Pakistan * Panama * Paraguay Peru * Philippines * Poland (Exile) * Republic of Ireland Republic of Korea * Rhodesia * St. Lucia * Senegal * Sierra Leone * South Africa * Spain (Illegal Underground Movement) Sweden * Switzerland * Taiwan * Trinidad * Tunisia * Turkey Uganda * United Arab Republic * United States of America Uruguay * Venezuela * Zambia

editions of journal

International Transport Workers' Journal

Internationale Transportarbeiter-Zeitung

ITF Journal (Tokyo - Japanese version)

Transporte

ITF-aren

publications for the world's transport workers

editions of newsletter

Informationsblad

Informationen

Informations

Boletín de Noticias (Lima)

Newsletter