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VULCAN NEWS

Rustons Marine Role

RUSTON DIESELS continue to play a major part in the protection of Britain's interests in North Sea Oil.

The Ministry of Defence have ordered ten Ruston engines for their Jura class offshore patrol vessels which have been designated for oil rig protection duties. The first of the engines has just been delivered.

The engines are 12RK CM's each of which develop 2190 bhp at 750 rev/min. The equipment is to be installed on five vessels being built by Hall Russell Limited at Aberdeen.

Still on the marine scene a new concept in refrigerator

ships has led to an order for 12, 8ATC engines. They are to be fitted to two fast refrigerated container ships being built in the Bremen shipyards of A.G. Weser. These are twelve 1500 Kw alternator sets and the engines will run on heavy lie fuel. Ordered by the Ellerman Line and Ocean Containers Limited, the ships are likely to be used on the South African run.

Wellington Harbour Board, New Zealand, have ordered two 6RCKM engines as propulsion units for a new tug.

Two 6RKCZ generating sets have been ordered for container ships belonging to Associated Container Trans-

port and the Australian National Line.

Nearer home, Manchester Liners have ordered six 6RK CZ sets, each producing 700 kW, for two new container-ships currently being built.

The future of the shipping industry seems to lie in the building of smaller general purpose cargo vessels as the developing nations increase their national fleets - with the construction of mammoth tankers very much on the decline. Growing Japanese competition has meant that western shipbuilders are having to work even harder to secure orders.

HARNESSING WASTE HEAT

Boiler Division have recently developed a waste heat boiler and this was shown to the public for the very first time at the Heating and Ventilating exhibition in Birmingham.

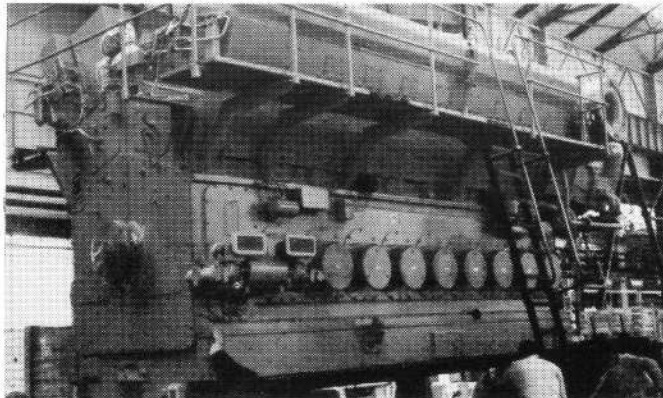
This has been acclaimed as a positive contribution to the Government's National 'Save It' campaign and has excited a great deal of interest throughout industry.

By harnessing waste heat which would otherwise be vented to the atmosphere, this boiler can save for users many thousands of pounds per year on their fuel bills.

Already Boiler Division have been inundated with enquiries from all sectors of industry and new applications are coming to light daily. We will feature this new boiler in depth in the next issue of 'Vulcan News'.

FIRST OF THREE

PICTURED being loaded for despatch is the first of three 18AT gas engines to be supplied to W.D. & H.O. Wills, for use as stand-by generating equipment at their new factory at Hartcliffe, Bristol. The engine, which weighs 55 tons, will produce 4950 bhp on diesel fuel and 4380 bhp on dual fuel (gas and diesel) at 600 rev/min. The photograph was taken by John Tomkins, a charge-hand on AT assembly.



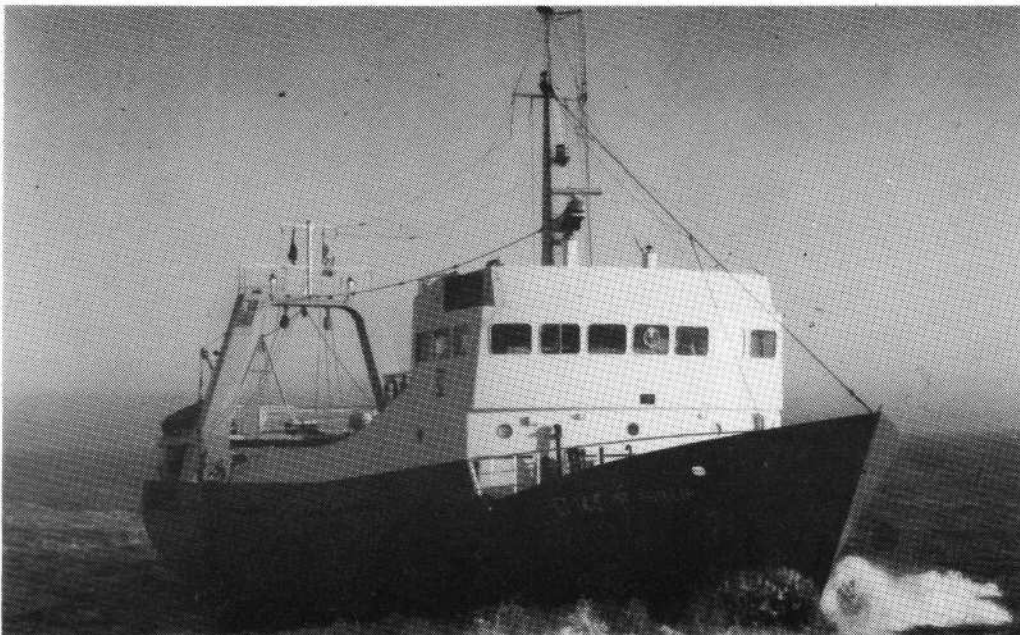
SUCCESSFUL SISTER SHIPS

Ruston power is certainly proving profitable for two new Lowestoft stern trawlers - both of them having made record catches on their maiden voyages. The successful vessels are the St. Patrick and sister ship the St. Phillip, both of whom have established new port records for Lowestoft, the St. Patrick having netted 735 cwts. on its maiden voyage.

Both vessels have been built by Richards Shipbuilders Limited for Colne Fishing Limited.

The St. Patrick and the St. Phillip are both powered by Ruston six cylinder ATCM diesel engines each producing 1650 bhp at 600 rev/min.

The sister ships have recently been featured in Ruston advertising campaigns.



TOTAL ENERGY AIDS CONSERVATION

ONE OF the most urgent problems currently facing the whole world is that of fuel conservation. Soaring costs and dwindling supplies of energy resources are making manufacturers and consumers take a long hard look at the ways in which they are using the precious fuel.

Oil consumption is particularly worrying and with this in mind people are looking to ways of getting maximum efficiency from diesel engines. This can be achieved by utilizing a 'total energy' package and also by the use of dual fuel.

There is growing interest in the 'total energy' system and because of its proven efficiency more and more applications are being found for it. Until a couple of years ago its major application was in sewage plants and pumping stations.

The idea behind 'total energy' is simple, to get the maximum energy output from an engine — using only the normal amount of fuel.

In the past diesel engines in industry have been used solely for the generation of electricity but now they can be used to provide a lot more services.

The diesel engine is the most efficient of modern prime movers, but its Brake Thermal Efficiency — or the percentage of heat from the fuel which is converted into useful work at the output shaft — is in the region of 36% to 41%. It is therefore an important economical proposition if we can use more of the heat generated by burning the fuel in terms of useful work: in other words, to increase the Overall Thermal Efficiency of the installation.

Of the heat wasted, the major portion is dissipated in the exhaust gases and jacket cooling water.

The exhaust heat is of high grade (or temperature), while useful supplementary low grade heat is available from the jacket water. By making use of either or both of these sources of heat a remarkable

increase in the Overall Thermal Efficiency of the plant can be achieved. For example with a normally aspirated engine, if only the recoverable exhaust heat is used, an extra 22% of the total heat is converted to useful work — raising the Overall Thermal Efficiency to 58% and, furthermore, if an additional 22% is recovered from the cooling water and lubricating oil, an Overall Thermal Efficiency in the region of 80% can be achieved.

MANY USES

The amount of heat actually available for recovery depends of course, upon the type of engine and the operating conditions but, we can look at the principles of Waste Heat Recovery and the way in which it can be applied to diesel engine installations.

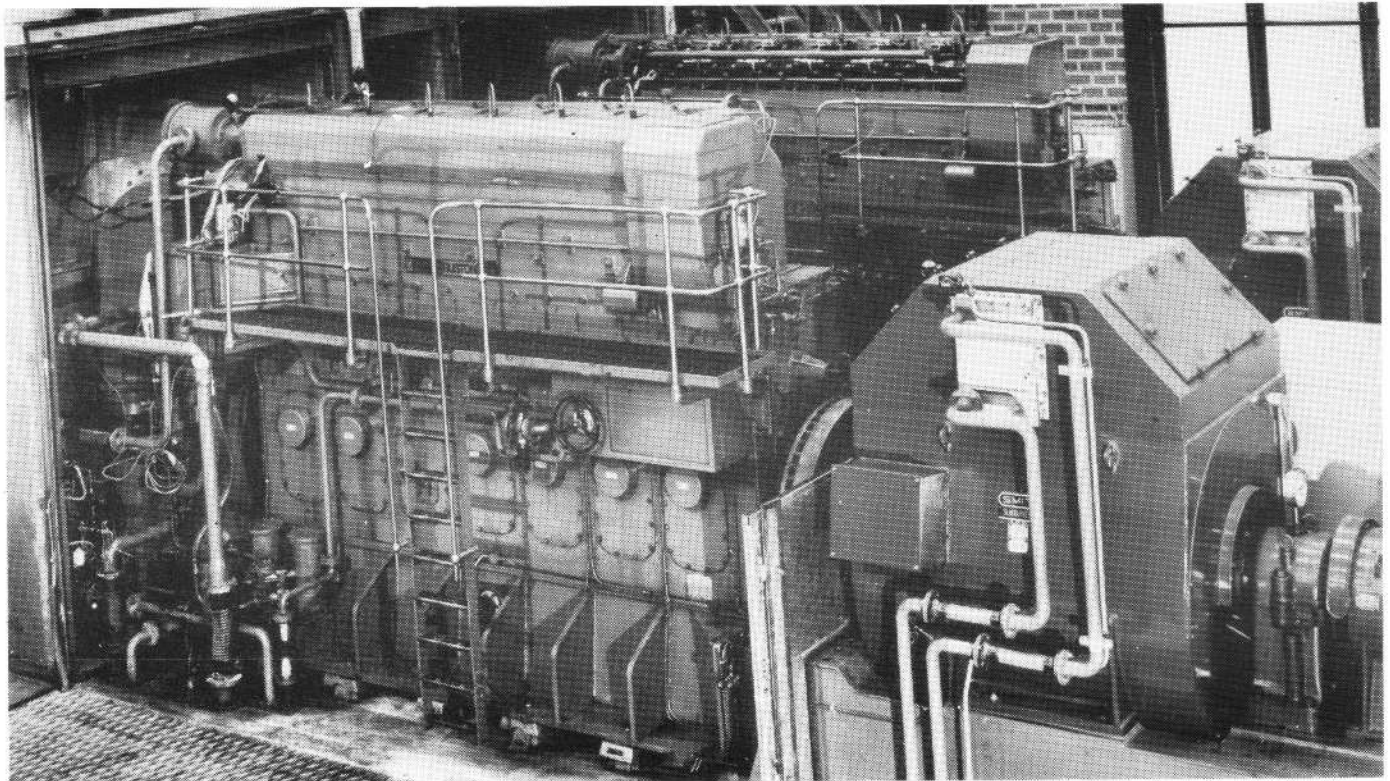
In such schemes the diesel installation is considered as a combined power and heat generating plant, the latter being applied to such uses as:

- Generation of steam for process work.

- Production of hot water for process or domestic purposes.
- Space heating by hot water, steam or warm air.
- Drying purposes, using either exhaust gases diluted with air or hot air from a heat exchanger in the exhaust system.

The exhaust and water alone carry away about 60% of the waste heat of a normally aspirated engine and about 50% for a pressure charged engine. Generally about two thirds of this can be recovered enabling an Overall Thermal Efficiency of 75%-80% to be achieved. The increase in Overall Thermal Efficiency will, however, depend upon the way in which the waste heat is utilised.

In the majority of industrial base load installations there is always a great demand for hot water or steam for either office or workshop heating, process work, or even domestic hot water supply. Since the form in which the heat is required will vary, i.e. medium or high temperature water, low or high pressure steam, the equipment required and the efficiency of waste heat recovery will vary. The most usual procedure, however, is to pass the exhaust gases through a waste heat boiler, and to pass the jacket cooling water through a heat exchanger for either additional



6ATG Engines at Amsterdam University

space heating, domestic services, or feed water for steam raising.

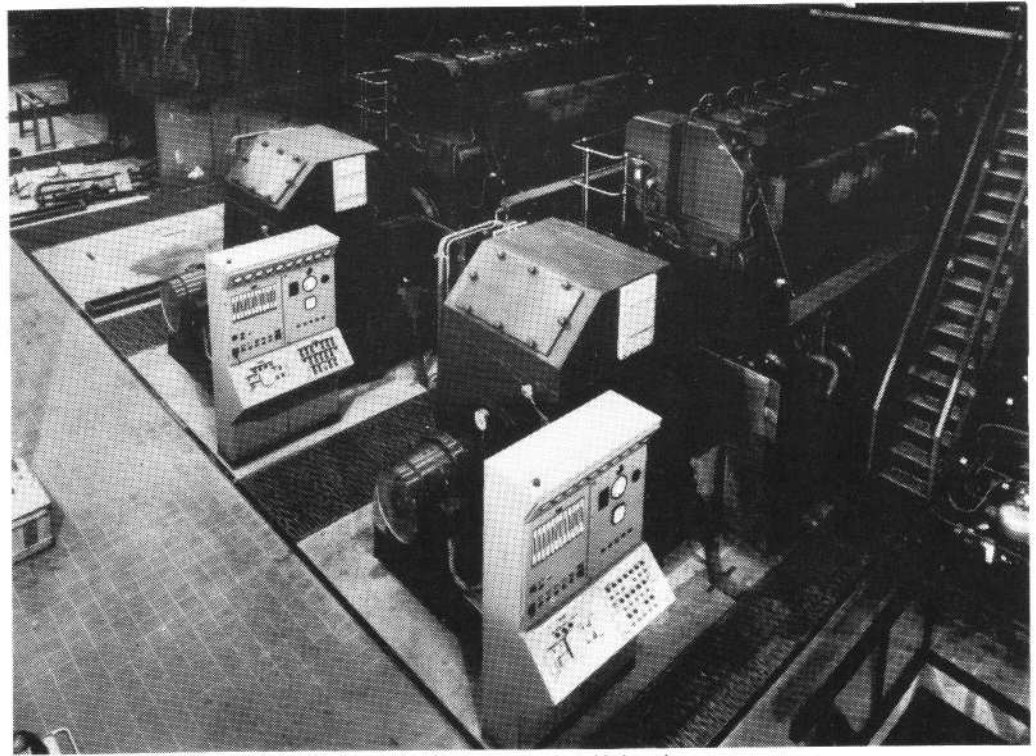
To increase energy efficiency to a maximum the dual fuel system is introduced. This means that the engine is started using diesel fuel and when running is switched to the more economical natural gas.

Two of the latest major applications of the Ruston 'total energy' system are the recently completed Free University of Amsterdam and the Leeds General Hospital, which is currently undergoing a massive re-development programme.

Amsterdam Free University is one of the largest and most advanced complexes of its type in Europe and is powered completely by Ruston. Six gas diesel engines are located in the University's energy centre each producing 1000 kW.

The engines, 6ATG's, normally run on natural gas but, if the gas pressure or quality should fall below predetermined standards, the unit is changed over automatically to oil. Directly coupled to each Ruston engine is an alternator of 1300 kVa, 10 kV.

At Leeds five 16RK3CG's provide the entire power supply for the hospital complex — making it completely



Control area, Amsterdam University

independent of outside sources of power. The Ruston engines provide light, heat and steam. Because of the enormous amount of laundry at the hospital the provision of steam is especially important. Running on dual fuel the engines are believed to be the first hospital power generating units to run on North Sea Gas/Diesel.

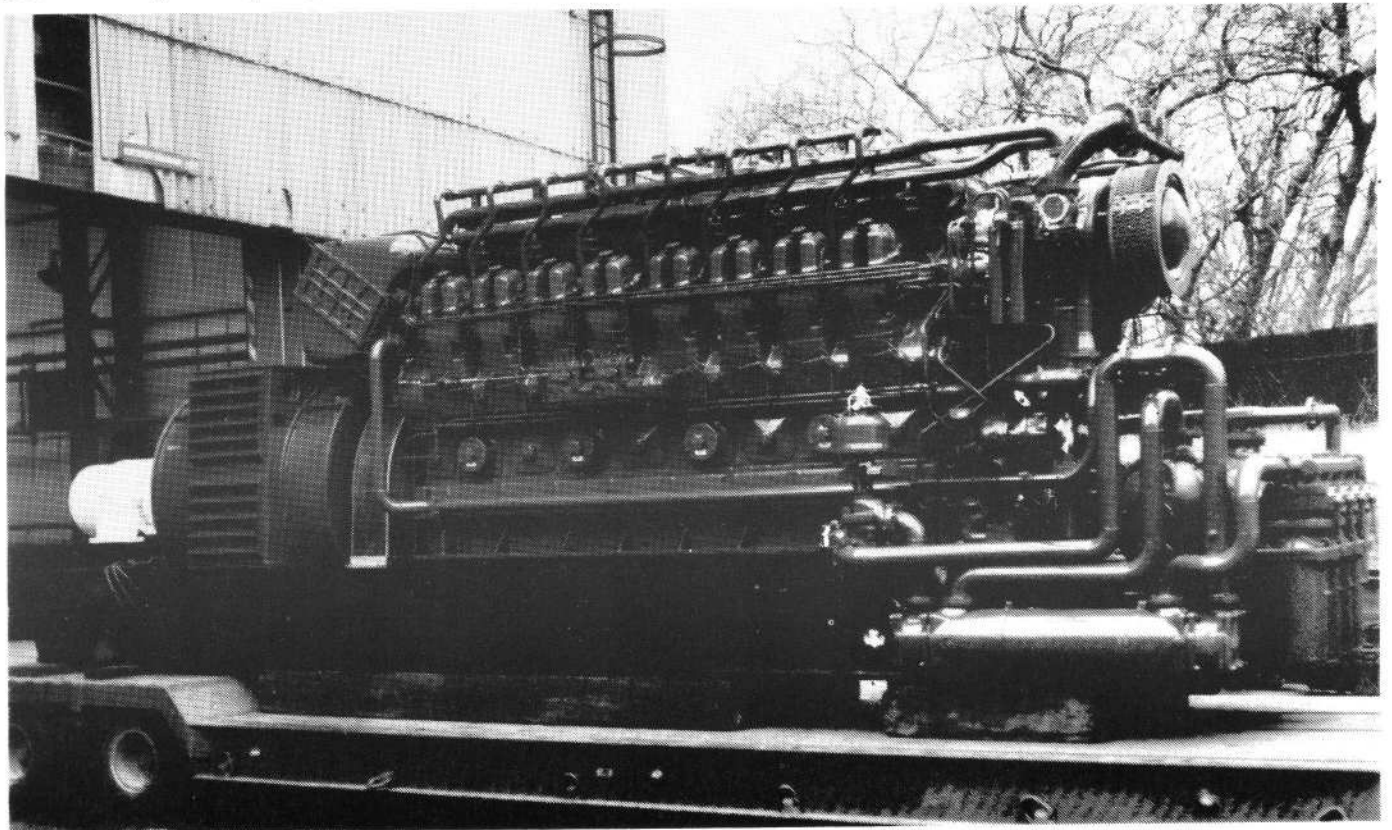
As well as general power the engines provide the power

for the highly sensitive medical machines used on patients suffering from heart, kidney and blood complaints — as well as X-ray machines, incubators and iron lungs, so a high degree of reliability is essential.

Part of the University is a large teaching hospital and, as in Leeds, the accent is on reliability and continuity of supply. The University of Amsterdam is almost a town-

ship in its own right and the Ruston powered Energy Centre is responsible for the safety and day to day well being of many thousands of people and of course vehicles.

In Leeds and Amsterdam is living proof of the value of the Ruston 'total energy' package and it clearly indicates that this fuel conserving system will feature more and more often in our order book.



16RK3CG engine leaves the Works for Leeds Hospital

TRAINING FOR TOMORROW



TRAINING IN TODAY'S industry is undergoing radical changes to equip the companies of the future with the technical specialists which are becoming increasingly essential.

The demand is for men and women who are able to cope with the increasingly sophisticated technology and increased efficiencies that modern industry demands. Conscious of this trend many companies have recently introduced training schemes to try to meet this new demand and Rustons are very much to the forefront in this approach to training. The company has had a training department for more than 20 years and today it caters for an ever increasing range of trades and occupations.

These years of experience with a far sighted training policy, has resulted in a steady flow of highly skilled young men and women to meet the company's requirements. Training and further education are available to all those who have a genuine desire to better themselves, whether it be in the field of accountancy, production,

computers or indeed catering. The key word in the company's training policy is 'involvement'. Though a major part of the Ruston training effort is directed towards producing top-class engineering craftsmen, this is just one aspect of the work of training department. There is hardly a department on the site that does not have staff under training, whether they are trainee accountants or aspiring chefs, they all have a planned programme of training. Most trainees are part-time students at local technical colleges operating on a day or block release and this, combined with on site instruction, gives a complete education in a chosen career. Entry to Ruston training schemes is at all levels ranging from the 16 year old starting an apprenticeship to the graduate seeking higher qualifications.

Apprenticeships feature strongly in the Ruston training programme but even in this more 'traditional sphere' there is a swing towards the more technical. More and more young men are joining the company as technician apprentices with a view to

becoming draughtsmen, planners, etc., and to achieve this they combine shop-floor engineering instruction, day release at a technical college and specialist instruction in the office. Considering apprenticeships generally, there are more than 300 applications from school leavers who have heard of the Ruston reputation for the quality of its training. In May they all sit a written examination and from this a 'short list' of about 100 is drawn up. These applicants are then interviewed by Personnel and Training Staff and a final intake is decided - this is usually only 30 out of the original 300 - which illustrates the competition for places. A shop floor training programme is spread over four years and the first year is spent in the training area for off the job training. After an initial diagnostic period the apprentices are taught all the basic engineering skills, including turning, grinding and fitting, and when this is complete they are re-assessed. In consultation with their training staff, trainees decide which skill is the most suitable and they move on to what is

known as the module training area.

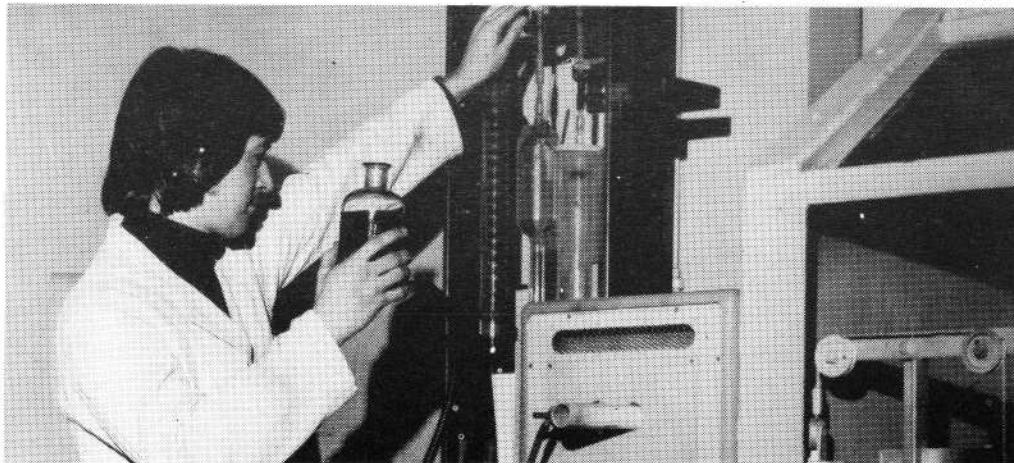
This is a relatively new idea, as Training Manager Alan Murray points out, "Module training was introduced in order to standardise training methods throughout the engineering industry. It is a system by which each trainee is instructed on a planned basis in different aspects of his trade, attaining set levels of competence in each before progressing. The scheme is so successful at Ruston that we have been highly commended by the Engineering Industry Training Board".

To complete this module training, each trainee must earn a certificate for his trade, but before he attains this, he must spend a year in the production area to gain working experience.

Many members of management and supervision started their careers as Ruston trainees and the fact that Alan Murray, and the present assistant Works Managers are products of the training system would seem to speak for its quality. The reputation of Ruston trainees goes before them and lecturers of many technical colleges have commented on the standard of courtesy and discipline of the Ruston people.

But it is not all work for the trainees. Outside working hours activities include weekend adventure courses, Outward Bound courses and there are even some who have taken part in the voluntary service overseas scheme.

Both the training staff and the young people in their charge, are justifiably proud of their reputation and the results they achieve both in qualifications and productivity would seem to prove the point.



Technician apprentice Dave Arnold in the laboratory determines the carbon content of steel.



Harold Dutton, Product Cost Supervisor, gives a little advice to Patricia Callaghan, Accounts Trainee.



Roger Teare and David Lee — Graduates — AED

A FINANCE OFFICER who has obviously hit on the right figure is Christine Bentham who has been chosen as the new Miss Vulcan.

One of a line-up of nine contestants Christine was the unanimous choice of the three judges at the Final, which was held at the annual Halloween Dance at Lowton Civic Hall.

The oldest entrant, at the ripe old age of 21, Christine carried off a considerable collection of prizes, including a trophy, cheque, hair-dryer and a cassette player.

However, this is not her first win on the beauty circuit — early last year she won a beauty title at a Spanish holiday resort.

A delighted Christine, who works as an assistant export finance officer in the financial accounts department told Vulcan News, "I was really overwhelmed when I heard the result — before the contest I had persuaded myself that I had no chance — so that I wouldn't be too disappointed.

Among Christine's hobbies are gardening, painting, dress-making and now — cassette recording.

Runner-up was Donna Robinson, 18, who works in Spares Department. Third place went to Carolyn Travis, 16, a data processing machine operator.

THE MISS WHO IS A BIG HIT

The judges were Mr. Norman Hall of McCorquodales, Mr. Ken Phillips of Ken Phillips Music and Entertainment Agency and Mr. Eddie Fuller of the Warrington Guardian. Non-voting Chairman was Mr. Gordon Haynes, Personnel Manager.



MALAYAN RAILWAY OFFICIALS

TWO TOP MALAYAN railway officials were among recent visitors to Ruston Diesels.

They were Mr. Sinapoo Appethurai, Marketing Manager, and Mr. Encik Hamzah bin Ismail, Mechanical Engineer, both of the Malayan Railway Administration.

Their visit to the works was arranged by the Central Office of Information as part of their programme in this country of studying aspects of railway commercial practice. At Vulcan they were shown processes in engine building.

NEWS IN PICTURES



Watched by his colleagues and friends Norman Dearden of the cylinder head machine line, is presented with a travelling clock by Eric Rowe, Foreman Bay 1, to mark his retirement after a total of 40 years service with the company.

Charles Edwards, a Turner in the Detail Machine shop, retires after 48 years service. He is pictured being presented with a portable radio by Phillip White, Assistant Works Manager, on behalf of his colleagues.



A former 'Miss Vulcan' has been chosen as 'Miss England 1976'. She is 22 year old Pauline Davies who became Miss Vulcan in 1972 when she was working as a draughtswoman with GEC Traction Limited at Newton.

Millions of television viewers saw Pauline elected from a glamorous line-up which represented the best of British beauty. It was the biggest triumph of her 'beauty career' to date.

In 1974, the year she left Vulcan to take up photographic modelling, she was a finalist in 'Miss England' contest and the following year she was placed 4th. As part of her prize Pauline will visit Athens and Rhodes for the 'Miss Europe' competition and will later go to Hong Kong for 'Miss Universe 1976'.

Her success in the Miss England contest was a real family effort as her sister, Brenda Tootle, also a draughtswoman with GEC Traction at Newton, designed and made her dress for the competition final. Brenda is married to Barry Tootle, Senior Contracts Engineer who works in the same office as Pauline's proud dad Norman Davies, who has been with Rustons for eleven years.



LONG SERVICE AWARDS AND RETIREMENTS

ELEVEN employees received retirement and long service awards in August. Jack Laybourne, Chief Time Clerk in the Wages Department, retired after 47 years service. Reg Hawkey, Diesel Spares, also retired after 36 years service with the company. Awards commemorating 25 years service were received by N. Gillingham, Senior Contracts Engineer; E. Hodson Test, Foreman; W.A. Morris, Inspector; E. Swift, Miller; A.J. Cottrill, Senior Design Engineer; Frank Hall, Contract Engineer; J. McGowan, Sawyer; P.J. Taylor, Chief Applications Engineer and W.B. Forshaw, Heat Treater.



Reg Hawkey is congratulated by Jim Pearson, Spares Manager, on the occasion of his retirement as Section Leader in the Spares Department. He leaves after 36 years of service.

ARCHERS RIGHT ON TARGET

MAKING a national name for themselves are the junior section of the Vulcan Archery Club. They recently boosted the club's already impressive reputation when they carried off two national championships.

The junior team of four won the two major divisions, Bare Bow and Hunting Tackle at the National Field Archery Society Championships, Mansfield. To emphasise their strength they carried off the second and third positions in the Bare Bow Division.

The two-day event attracted more than 200 entrants including the English and Welsh National Champions, but all were beaten for the honours by the Vulcan team.

Another recent success for the team was in the Lincoln Silver Tree Archers competition, in which Vulcan won the challenge outright, beating their rivals by one thousand points. In addition, Mark Pimblett (son of Ron Pimblett, Transport), was first in the Bare Bow event followed by Tony Williams taking second place and John Jamieson, son of Club Secretary, Drawing Office, is the Lancashire Junior Champion, taking first place in the Hunting Tackle event.

Archery is rapidly growing in popularity and the Vulcan Club is in a really healthy position. They practice regularly in a small private wood at Lowton, and during Winter months they use an indoor range in the Heavy Equipment Stores.

The Vulcan archers take part in competitions most weekends, travelling all over the country, and they are in the Lancashire League. Commenting on the Club's activities Secretary Bob Jamieson says, "Field Archery is an ideal hobby. It involves skill, exercise and self discipline. When we are out practising in the woods we have strict rules for safety and an unwritten law against the shooting of wildlife".

"Now that we have our new indoor range there is scope for newcomers to join our club. Equipment is provided and the club coaches, Alec Grant and Ken Cockburn are on hand to help and advise. Anyone who would like to come along and find out a little more about Field Archery will be very welcome".

Shortly before going to press we heard that the Vulcan Archers had carried off two 1st prizes, two 2nd, two 3rd and a 5th at the recent Lancashire Field Archery Championship at Clayton-le-Moors and the Ladies Team were placed second in the Hunting Tackle Division.

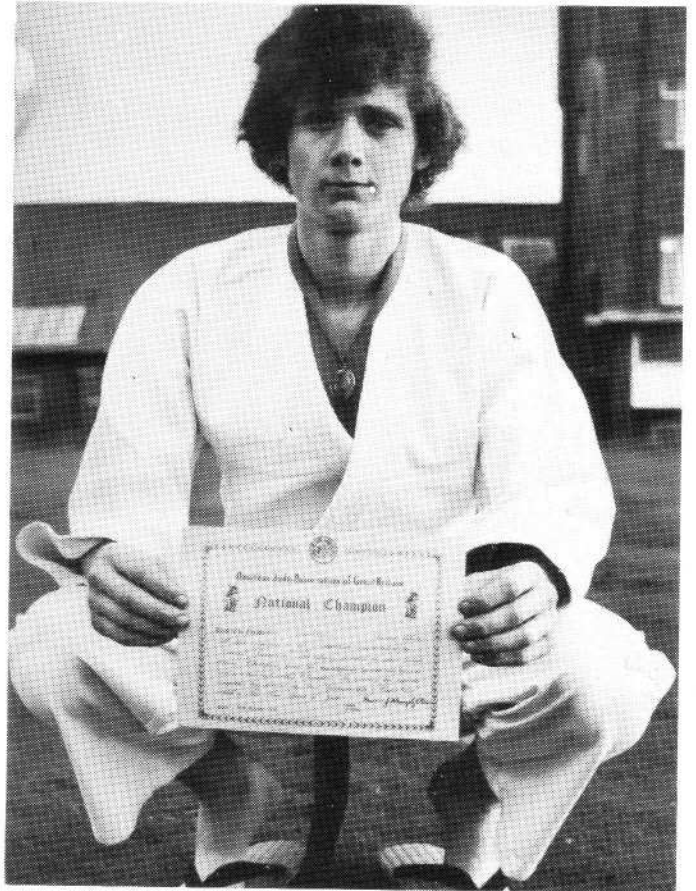
JOHN IS NEW JUDO CHAMP

NEW JUDO CHAMPION OF GREAT BRITAIN is an 18 years old apprentice fitter, John Brown.

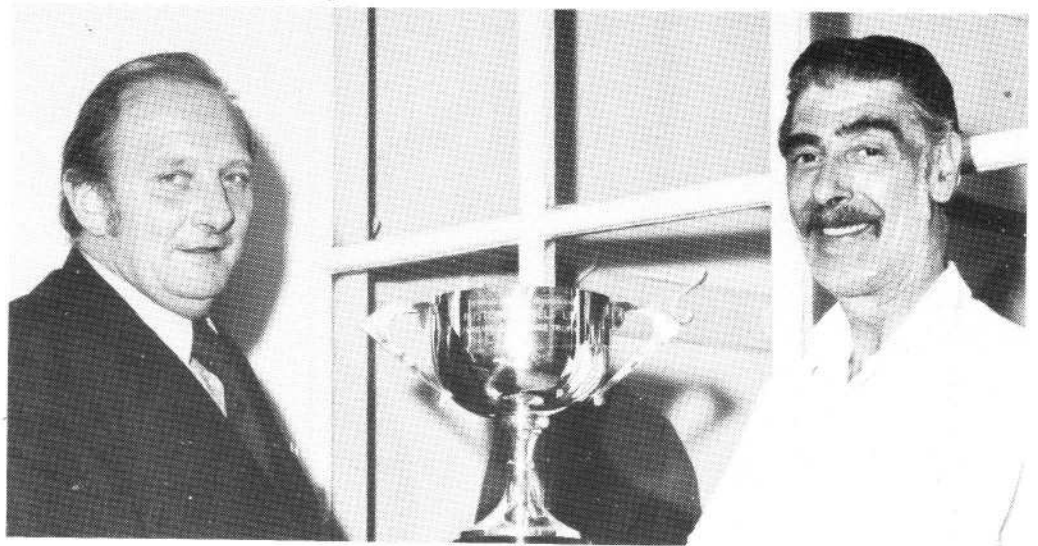
At the recent National Championships of the British Amateur Judo Association of Great Britain held at Blackburn, John carried off the Mens Lightweight Kyn Grade title - after winning ten fights in one day, despite the fact he was the youngest senior finalist.

John took up Judo only four years ago after he had been mugged by a gang of youths. "I felt then that I had to find some way of defending myself and, after looking around at the various martial sports I decided on judo - which places more emphasis on defence than attack," John told Vulcan News, "I now have my brown belt and I am an instructor at the Newton Judo Club - the Sumo Keido Kwan (which roughly translated means 'Fighting Man in the Willows')"

Dedicated to his sport, John practices six nights a week and admits to having his eye on the next Olympics after Montreal. "The biggest problem will be maintaining my enthusiasm during the coming years and cramming in as much match experience as possible".



Judo Champion John is pictured with his title medal and certificate.



Quite a catch

RUSTON DIESELS have presented to the recently formed Newton Anglers Association a trophy for an annual competition. More than 200 of the Association's 700 members are employed in Vulcan Works. Personnel Manager, Gordon Haynes, is pictured handing over the trophy to the Association's Secretary, Harold Blinston, who is a fitter in Bay 2.

ENGINEERING SOCIETY FOR VULCAN

Plans are well in hand to form a Society at Vulcan of people interested in the preservation, conservation and, where possible, the construction of historic company products - including those from all constituent companies now making up Ruston Diesels Limited.

The first product planned by

the new Society will be the construction of a replica of the "Tayleur", the first locomotive to be built by Vulcan.

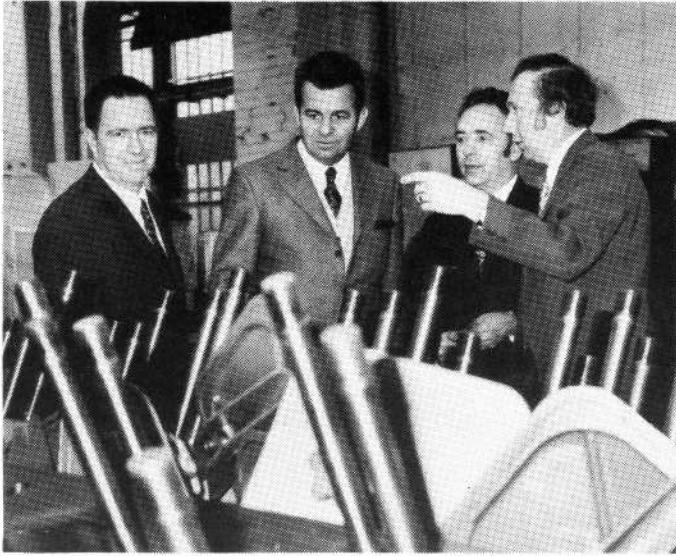
The necessary design and drawing work will be carried out by Society members outside working hours and the manufacture of components will be integrated into the Training

Department schedule in a manner which will satisfy the Engineering Industry Training Board.

Assembly and Testing will be carried out by members outside working hours and, on completion, it is intended that the engine will feature in such activities as the Works Gala and other local events.

ROUND UP

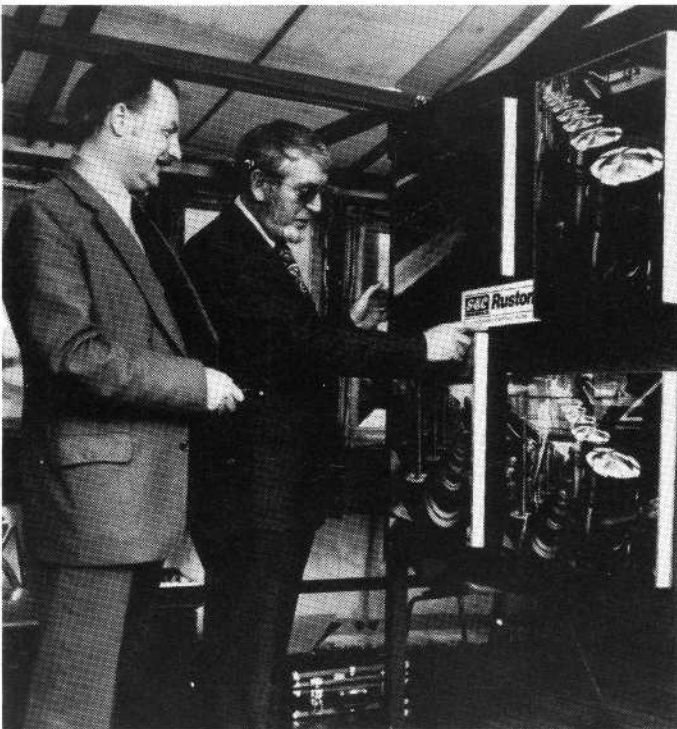
MUMS A REAL BEAUTY.....



TWO MEMBERS of our French associate company, Moteurs Baudouin, were recently in Vulcan Works on a liaison visit.

They are: Monsieur J. de Saint Victor, Spares Manager and Monsieur Feraud-Prax, shown here in the Spares Department with Jack Chisnall, Materials Manager, and Jim Pearson, Spares Manager.

A REAL CROWD STOPPER



ONE OF the most unusual and eye-catching exhibits at the last internationally renowned Southport Flower Show was a display of colour photographs taken at Vulcan Works.

The photographer who took the pictures, Harold Cantor of Paul Yaffe Limited, the Southport based international photographers, was so delighted when he saw the results of a recent assignment at Vulcan that he approached Rustons for permission to use the pictures in his Company's display.

The assignment at Vulcan was to produce unusual colour pictures for publicity purposes, to supplement the work of staff photographer Dorothy Eaton.

Attendance at the three-day Southport show was more than 150,000 and many visitors commented on the impact of the Vulcan pictures. Our picture shows photographer Harold Cantor with Ruston Publicity Manager, Ray Williamson, inspecting part of the display prior to the opening of the show.

A 36 years old Vulcan mum has carried off a beauty title in a competition she hadn't planned to enter.

Mother of two, Mrs Barbara Metcalfe, was on holiday with her family in the country town of Thame, near Oxford. One evening she and her husband Norman were invited to attend a dance held at the town's social centre.

Half way through the evening she found herself 'press-ganged' to join 47 other pretty entrants in the final of the 'Miss Thame' competition.

On stage before a large audience and a panel of judges, Barbara, the oldest contestant in the Final, was

awarded the title and walked away with a huge bouquet of flowers and a sash.

"It all happened so quickly I don't think I realised what was happening until I found myself in the line-up", says Barbara, a supervisor in the Spares Department, "most of the other entrants were only aged 18 or 19 and not knowing about the competition I was wearing just an ordinary long evening dress - so you can imagine how I felt. I was amazed when I heard the result".

And is Barbara, a vivacious brunette, planning to continue on the beauty circuit? "Not likely - this was my first and last beauty competition".



Congratulating their beauty queen mum are Elaine 15, and 5 years old Phillip.



PICTURED during a tour of the works with Mr. J. Moore, Commercial Director, is Mr. Pravit Uawithya, Managing Director, and Mr. Chalerm, Technical Manager of Term Engineering, Bangkok.