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OLYMPIA (P. 1081)

30 June 1962. Vol. 87. No. 2242

THE WEEKLY NEWSPAPER OF THE CHEMICAL INDUSTRY

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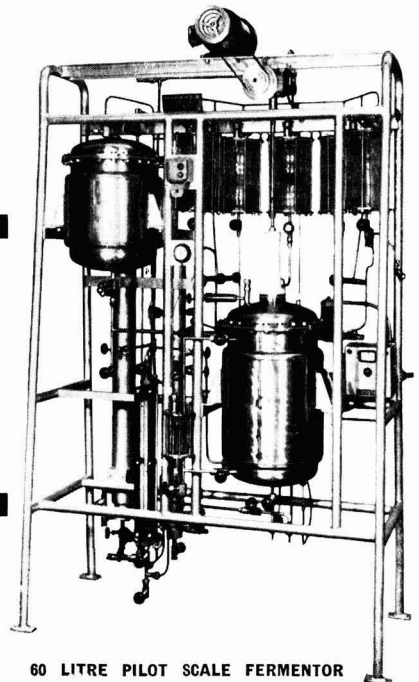
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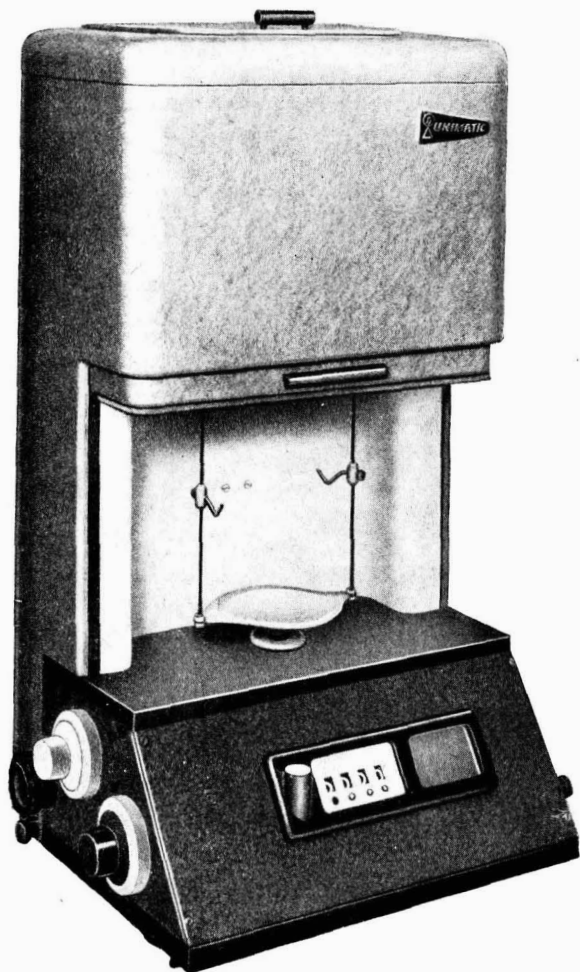
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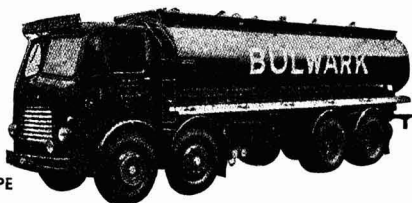
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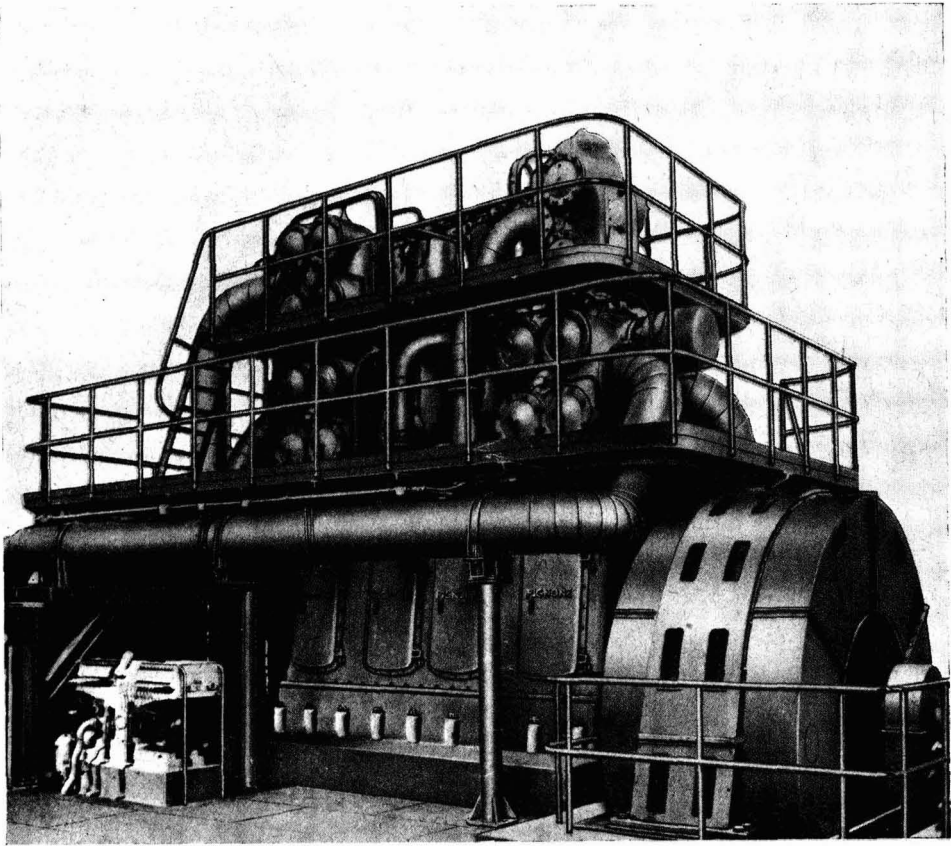
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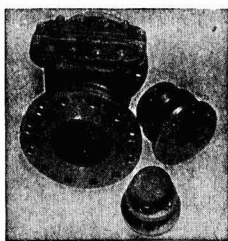
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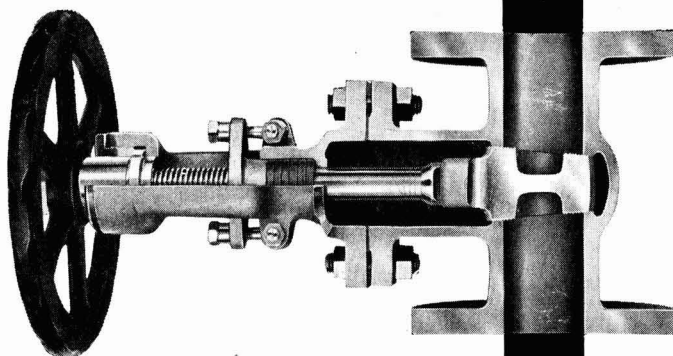
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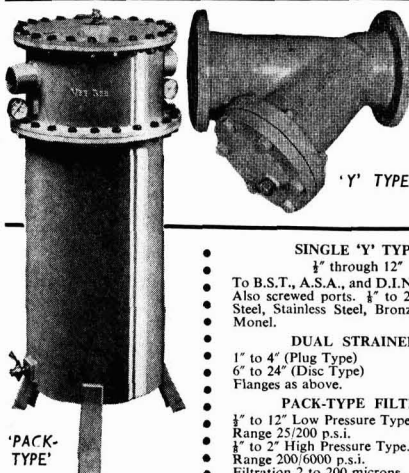
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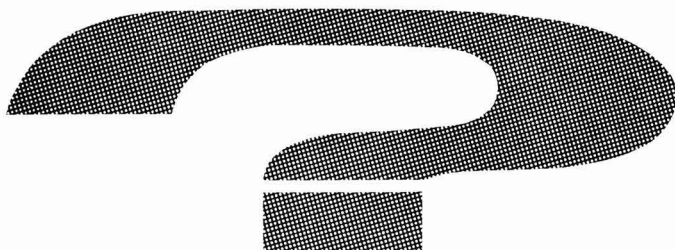
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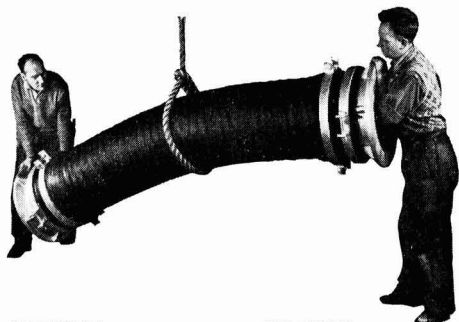
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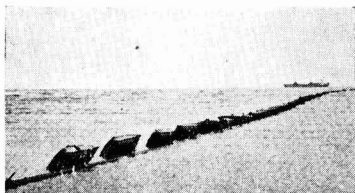


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SOLUTION

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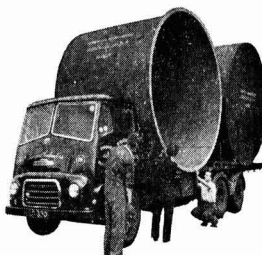


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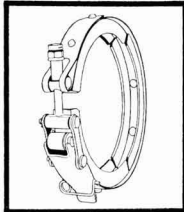
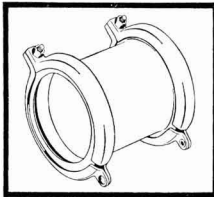
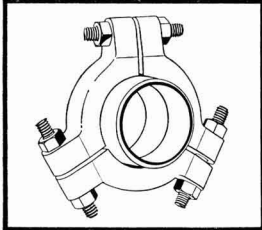
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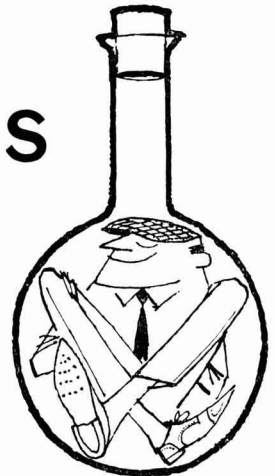
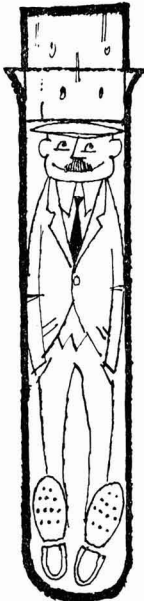
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On my left, Bert;
on my right, Joe.
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There is nothing at all remarkable about either of these two willing workers except that one is standing in a test-tube full of Acid, the other in a flask full of Alkali. In an interview with a representative of the Society for the Protection of Cruelty to Workers, both firmly rejected any suggestion of victimization, and stated that they were "quite comfortable in their Heafield Protective Clothing, thank you." Which all goes to show that



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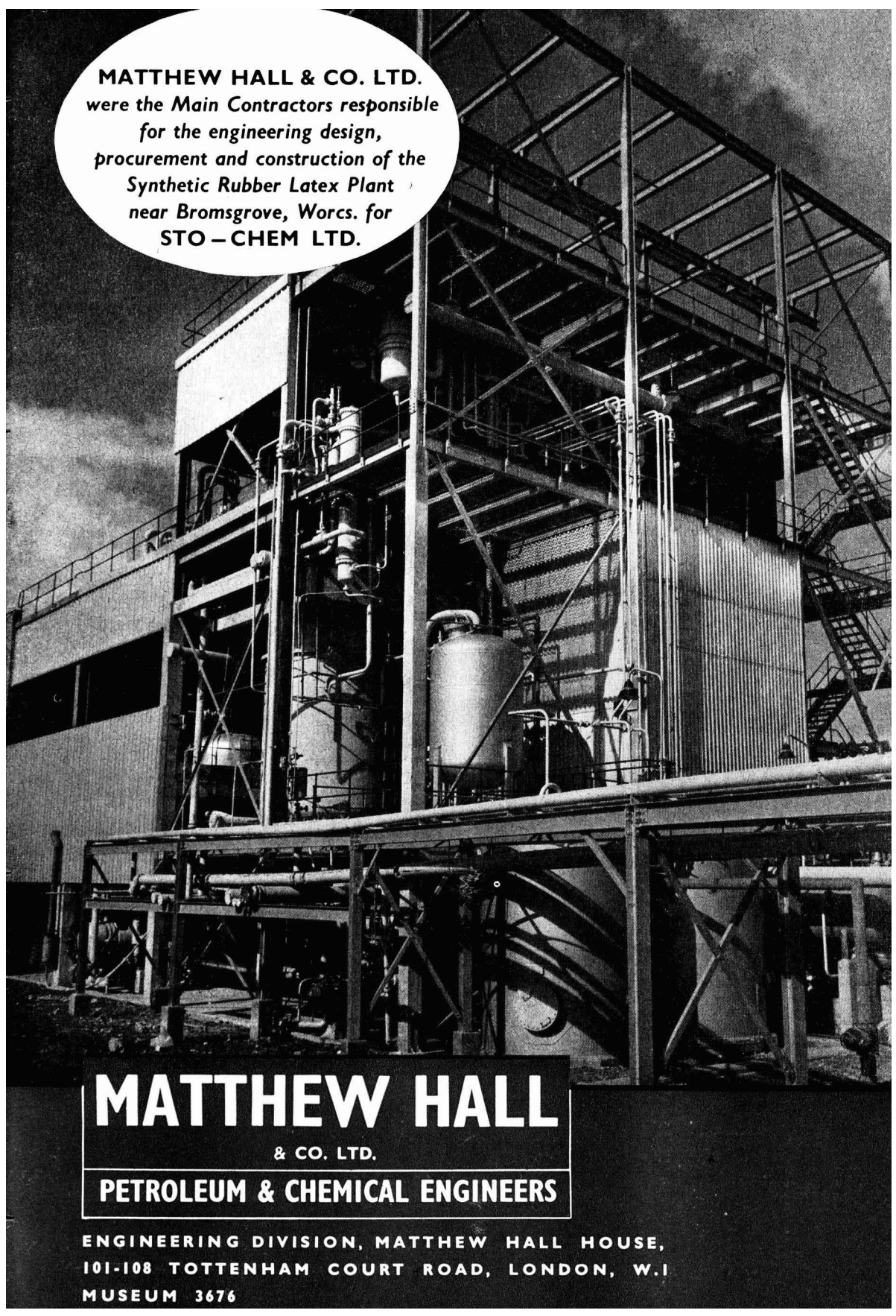
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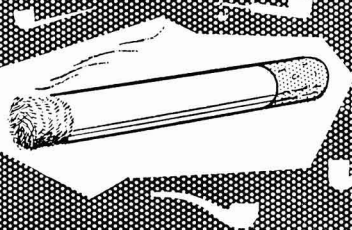
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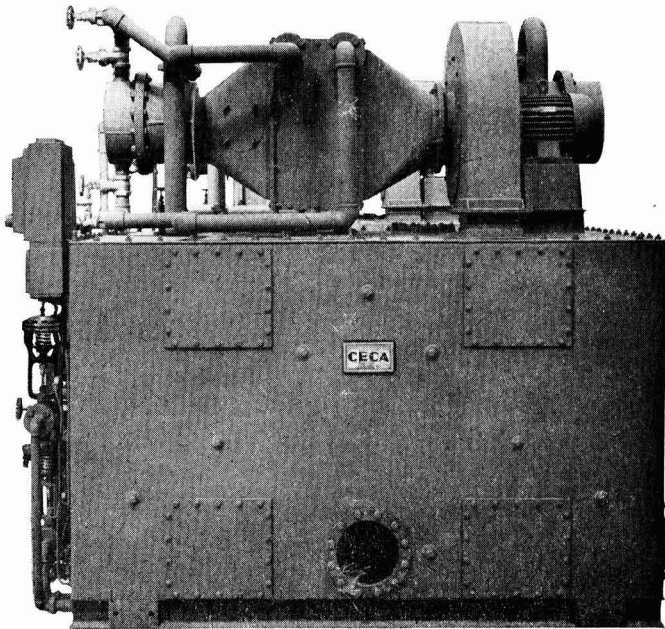
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ANTI-SECREC Y SUPPORT

THOSE who feel that the chemical industry could well be less secretive found strong support last week from an unexpected source. No less a person than the chairman of Imperial Chemical Industries Ltd., the biggest chemical company in Europe and the Commonwealth, speaking at the dinner held to mark the third congress of the European Federation of Chemical Engineering, made a plea for companies to allow process problems to be discussed more freely. He also felt that some sections of industry should be less secretive.

Rightly, Mr. S. P. Chambers talks of nineteenth-century thinking in the way the industry keeps hidden much process information about which secrecy is thought to be more important than it really is.

Mr. Chambers did not say anything about the very real progress that has been made in the past few years; neither did he say anything about his own company's attitude towards secrecy charges. Attitudes towards secrecy in an organisation as vast as I.C.I. differ from division to division, with, as is to be expected, a more liberal frame of mind shown by those newer sections of the company dealing with products of the mid-twentieth century—petrochemicals and plastics.

Of course, as Mr. Chambers says, there are occasions in process industries when secrecy is essential to safeguard the £multi-million investments made in research and development. The dangers in this respect are clearly reflected in recent charges that secret know-how on antibiotics has been sold to overseas companies (see p. 1088).

There are however many occasions when companies hide behind a plea of secrecy, facts and figures that could not possibly cause harm if they were made public.

It is particularly appropriate that Mr. Chambers should have made his plea at the opening of the Chemical and Petroleum Engineering Exhibition. Some of the most unrealistic secrecy pleas occur in the chemical contracting field. Even after the signing of a contract, contracting companies are frequently refused permission to release the news.

This is particularly galling, since in the competitive world of contracting, the gaining of a large contract is an event that deserves publicity. In all fairness to the contractor concerned, he should be allowed by his client to 'blow his trumpet' on such occasions. Yet there are many projects already half-completed, and in some cases on stream, on which the chemical producer has remained silent. In such instances, the hands of the contractors are tied, if only because they cannot afford to offend an important client, who presumably will want other plants built in the future.

Although the chemical company may in such cases insist on secrecy, it seldom gets it. This attitude overlooks the fact that a chemical plant cannot be built without the aid of several hundred sub-contractors.

This journal in its weekly feature 'Project News' regularly publishes details of contracts for which no official announcement has been made. It cannot justifiably be said that such publication has harmed the companies concerned.

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Stop-gap chairman for Courtaulds as Wilson resigns

MAJOR board changes announced by Courtaulds this week indicate that the repercussions from the takeover battle with I.C.I. will continue to be felt by the board for some time to come.

Although Sir Alan Wilson was appointed chairman-elect only just before the I.C.I. bid, his resignation is not

John added that it would take some time to get back to the old friendly relations.

It is generally felt that the appointment of Sir Dallas Bernard, who is 74 and four years older than the retiring chairman, is an interim one. Sir John intimated that this was so when he said that his successor had all the qualities necessary to guide the company for a year or so through a period which is likely to prove challenging for the whole of British industry.

Speculation as to who will succeed Sir Dallas when the time comes is rife. During the struggle with I.C.I., three younger directors emerged as key men—Mr. C. F. Kearton and Mr. H. R. Mathys,

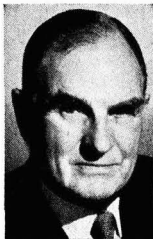
both deputy chairmen, and Mr. A. W. Knight, the finance director. These men symbolised the new spirit of Courtaulds which emerged when the image of the quiet family company was so rudely shattered during the takeover battle. Stockholders will hope that the new appointments do not mean an end to the promising change.

In spite of the promising rise of younger directors, it is not felt that any of them is likely to be appointed chairman. It is generally thought by many that a future chairman of Courtaulds will be sought outside the company, but this is still far from certain.

The office of additional deputy chairman, left vacant by Sir Alan's resignation, will be filled by Mr. W. P. Courtauld, a great-great nephew of the original founder of the company. Since 1945, Mr. Courtauld has held various directorial appointments in the company in London, Coventry and Manchester.



Sir Alan Wilson



Sir Dallas Bernard



W. P. Courtauld



F. C. Kearton

altogether a surprise. He had been the negotiator with Mr. S. P. Chambers in the merger talks, a fact that, it is believed in some circles, is likely to have made Sir Alan's position untenable.

Sir John Hanbury-Williams, chairman, denied that the chairman-elect had been asked to resign. The change was made in "complete harmony and by mutual consent." In fact, he said the board had tried very hard to persuade Sir Alan to stay, but "in the circumstances" he had decided to resign. Sir John declined to explain further what he meant by "in the circumstances."

The chairmanship of the company will be taken over by Sir Dallas Bernard in July when Sir John retires. Sir John said that it was the unanimous feeling of the board in view of all the circumstances, to ask Sir Dallas to succeed him.

I.C.I., who hold a 38% interest in Courtaulds as a result of the unsuccessful bid, were not consulted about the board changes although they were informed of them by Courtaulds' "friends and advisors."

I.C.I. have not asked to be represented on the Courtaulds' board. Discussions continue with I.C.I. on melt-spun fibre rationalisation through the joint subsidiary British Nylon Spinners, but Sir

Philblack to enter chlorine field with rights to new low-cost U.S. process

IN order to give more stability to the company's business, Philblack Ltd. are seeking to expand their activities. For their first venture in this direction, announced in the chairman's annual statement (see also 'Commercial News'), the company have picked on a field which is at present arousing considerable interest.

Philblack have recently entered an agreement with a U.S. company for exclusive rights in the U.K. and several other countries for the use of a new process for the production of chlorine. Details of the process, which is still in the development stage, are not released, but Philblack believe that it holds considerable promise for the production of chlorine and certain alkali metals at a substantially reduced cost.

With demand for chlorine outstripping that of caustic soda, interest in non-electrolytic processes—or electrolytic processes which do not give rise to

sodium hydroxide—has been revived. Shell have recently released details of a process which uses by-product HCl (see CHEMICAL AGE, 7 October 1961, and 9 June 1962) and other processes are also being investigated. The electrolysis of fused chlorides is still being used (Du Pont, Ethyl Corporation and National Distillers and Chemical have plants which use this method), and Hercules Powder and Allied Chemical have non-electrolytic plants. Of particular interest is the new chlorine plant of South West Potash of the American Metal Climax Group, which is now under construction and due to go on stream later this year, at Vicksburg, Miss. The process used involves the oxidation of potassium chloride. Nitric acid will be obtained from Spencer Chemical.

Meanwhile demand for chlorine is expected to continue to rise. Estimated world production in 1970 is around 25 million tons; current U.K. consumption is in the region of 500,000 tons.

Japan studies new amino acid fibre

RESEARCH and development studies have begun in Japan on a new amino acid fibre, which is said to differ from existing synthetic fibres, resembling more closely natural silk and woollen yarns.

Principal raw material for the new fibre is D-monosodium glutamate. Manufacturers of monosodium glutamate, such as Asahi Chemical Industry and Ajinomoto, are carrying out a fully integrated research and development programme from the raw material stage through to the final spinning. In addition, chemical fibre manufacturers, such as Toyo Rayon and Teikoku Rayon, are endeavouring to develop polymerisation

and spinning techniques using raw material supplied by Ajinomoto.

According to Ajinomoto, a monomer called glutamic acid gamma ester N-carbonyl anhydride is produced by reacting D-monosodium glutamate with phosgene. The polymer is produced by a solvent polymerisation technique. Ajinomoto have so far carried out their investigations on a bench scale. The object of further experiment is to improve touch and to lower costs. In the event of commercial production of the new fibre, the company intend to supply the raw material from Yokkaichi where production of petrochemicals is planned.

Project News

First contract placed for I.C.I. synthesis gas process

FIRST contract for use of the I.C.I. synthesis gas process, other than by I.C.I., has now been placed with one of the licensees. The East Midlands Gas Board has ordered a 60 million cu. ft./day continuous reforming unit from **Humphreys and Glasgow Ltd.**, London. Based on a primary flash distillate feedstock, the reformed product will be enriched either with LPG or methane. Neither the company nor the gas board will confirm the contract, but it is understood that methane for enrichment will eventually come from a branch of the pipeline that is planned to run from Canvey Island on the Thames Estuary to Merseyside.

I.C.I.'s joint Danish polythene plant opened

THE new polythene plant in Denmark, in which I.C.I. hold an interest—**Danbritem**—was officially opened last week with Danish Government officials present, as well as the British Ambassador and Mr. A. P. Moeller, the Danish partner in the venture. Financed jointly by I.C.I. and Mr. Moeller's Maersk shipping lines, the new plant takes ethylene from the nearby Maersk refinery.

With capacity for 15,000 tons/year of polythene, the plant will be able to meet most of Denmark's needs for polythene.

Lummus fight heat problem in India



Intense heat has created special problems at Bareilly, India, where Lummus Co. Ltd. are erecting a £10.5 million, 30,000 tons/year SBR, plant for Synthetics and Chemicals Ltd. Shown here are measures adopted to keep air tolerably cool and moist for native labour fitting bubble cap trays inside a fractionating column

which are currently estimated at 11,000 tons/year.

Newells plant for expanded polystyrene

WHAT is said to be one of the largest U.K. plants for the production of expanded polystyrene will be put into production in July by **Newells Insulation Co. Ltd.**, at Washington, Co. Durham. Initially production will be concentrated on an extensive range of slab and pipe sectional insulation, with slab sizes ranging from 3 ft. by 1 ft. to 12 ft. by 4 ft. in thicknesses up to 20 in. The material will be known as Newells XPS.

Equipment contracts

Sheepbridge contract for Svenska Esso

AN important contract, won by **Sheepbridge Alloy Castings Ltd.**, was announced at the Chemical and Petroleum Engineering Exhibition at Olympia this week. This involves the supply of 27-ft. long centrifugally cast tubes in a high chrome/nickel alloy for the **Svenska Esso** polythene project in Sweden. The company said that this was probably the first time that such tubes had been supplied for the thermal cracking of ethylene in Europe. The order was placed with Sheepbridge by the Lummus Co. Ltd., who handled mechanical design, on behalf of main contractors, Fluor Engineering and Construction Co. Ltd.

Burton firm's contract for I.C.I. gas process

Lloyd's, iron and steel founders of Burton upon Trent, announced during the exhibition that they had received a large contract from I.C.I. The contract, which is nearing completion, is for supplying metal mould centrifugal spun tubes cast in Thermanloy heat-resisting material.

The tubes will be used in the new synthesis gas process plants that are being built by I.C.I. at Billingham and Severnside.

Luwa spray dryer ordered by Poland

AN order worth £26,250 for a 105N Luwa system spray dryer was secured by **Steels Process Plants Ltd.**, Eastcote, Middx., in the face of fierce competition at the 1962 Posnan Fair. The contract is with **Polimex**, the central Polish import agency for chemical plant.

With a water evaporative capacity of 500 kg./hr., the dryer will process urea formaldehyde glue solution and the resultant product, some 7,400 tonnes/year, will be used for special plastics adhesives.

Equipment will be fabricated at the company's northern plants and shipped to Kedziny, Poland, where the U.K. company will install and commission the plant.

Oil terminal control system successfully commissioned

THE centralised control system for the **Basrah Petroleum Co.** oil loading terminals at Fao and Khor-Al-Amaya, designed and supplied by **Automatic Control Engineering Ltd.**, has been successfully commissioned. The new terminal at Khor-Al-Amaya and the associated modernisation of the Fao terminal is part of the petroleum company's extensive development programme, now nearing completion, for the expansion of capacity in Southern Iraq.

Under revamp, H.W.P. absorb McKee H.W.

FULL details of the departure last year of McKee Head Wrightson from the chemical contracting field are given by Sir John Wrightson, chairman of Head, Wrightson and Co. Ltd., in his statement to shareholders circulated with the company's report and accounts for 1961. The year proved a difficult one for McKee Head Wrightson, he says, due to a shortage of projects throughout the sterling area coupled with an increase in the number of competitors. Consequently, Arthur G. McKee and Co., Head Wrightson's partners in the venture, approached them to revise their agreement. The outcome, which left their other long-standing agreement in respect of the iron and steel industry undisturbed, was a decision, taken immediately after the financial year in question, for Head Wrightson to purchase the McKee holding.

Subsequently, a major reorganisation involved the re-amalgamation of McKee Head Wrightson with Head Wrightson Processes Ltd., the resultant company reverting to its previous status as a wholly-owned subsidiary.

Sir John comments that the pattern of events made possible the reinforcement and expansion of Head Wrightson Processes, which was warranted by the company's success to that date.

Fisons link in African phosphate venture

SOUTH AFRICAN newspapers this week reported that the Sanlam Group finance company, **Federale Volksbeleggings**, have made a R1.5 million investment in **Fisons Pty. Ltd.**, associated with **Fisons Ltd.**, London. It is believed that this investment will lead to a joint venture in which the two companies, plus African Explosives and Chemical Industries Ltd. with other interests, will develop large phosphate deposits in the north of Transvaal. The finance company is to be represented on the board of Fisons Pty.

In 1959, Fisons opened an ammonium sulphate complex at Sasolburg.



★ To lose the centre-piece of an exhibition stand 24 hours before the exhibition is due to open is something of a disaster. But this is what happened to Humphreys and Glasgow last week. Focal point of their display at Olympia was to have been the £10,000 model of the Varga hydrocracking plant that was illustrated in our exhibition preview number of 16 June.

When the model was uncrated at the company's Essex works the day before the exhibition was opened by Lord Strathalmond, it was found to be completely ruined. Sea water had seeped in to destroy the jointing compound and several days' work would have been needed to make even temporary repairs. The plywood base was also badly warped. Front of the stand was completely redesigned to make good the loss, and visitors at Olympia who looked in vain for the model were confronted by an attractive floral display.

The company's plan to highlight the Varga process were fated from the start. Ten days before the start of the exhibition they were informed that the crate had arrived in the U.K. and was being held in bond since there were no Customs documents. A lengthy process of negotiation, plus payment of £2,000, was needed to get the crate, accompanied by a Customs officer, to the Humglas works, where the seals were officially broken. A director of the Hunerian-Varga Research Company in Budapest was at least able to answer questions on the process, even if he could not use the model to demonstrate his points.

★ THE race to get on stream in the U.K. with a completely biodegradable synthetic detergent has a rich prize at the end of it. While the British Government is unlikely ever to go to the lengths of proscribing material that foams, obviously the non-foaming product must eventually get the lion's share of the total syndet market, which is running at around 250,000 tons/year.

Last week this journal reviewed developments in the U.S. on the production of alpha-olefins and alpha-alcohols and pointed out the existing links between U.S. companies interested in this field and U.K. companies, including detergent alkylate producers, Grange Chemicals.

That thrusting Albright and Wilson company, Marchon Products, must not be discounted in this race. In fact for my money they are likely to be first in the field. While at Whitehaven last month, I tried to find out more about

rumoured links between Lurgi of Frankfurt and Marchon for a new fatty alcohol process, for which Lurgi hold licence rights. Lurgi representatives were present at the opening by Lord Fleck of Marchon's new extensions, which make them Europe's biggest producers of sodium tripolyphosphate. Chairman Frank Schon also admitted that the newly named Fleck Road, which currently leads nowhere, would eventually be the scene of a large new plant. I am convinced that Marchon will shortly announce a new fatty alcohols plant, to be built by Lurgi, to make fatty alcohols for non-foaming detergents.

At the moment, Shell Chemical have the 'soft' market very much to themselves with a product, which while not completely biologically degradable, goes a long way to meet the demand for a non-foaming detergent. Shell can also be counted on to do all they can to retain this lead.

★ A MAJOR research breakthrough on the part of I.C.I.'s pharmaceutical Division has provided the world's first drug to combat heart diseases (see p. 1080). Five years' work at the division's £3 million Alderley Park, Cheshire, laboratories lies behind this new drug, one of a number developed for the treatment of cardiovascular disorders.

For many years, medical researchers throughout the world have been seeking a drug which would bring the concentrations of fatty substances in the blood back to normal without producing dangerous side-effects. I.C.I. now believe they have found such a drug, which in addition, acts to correct blood-clotting normalities.

A team of their research workers is now carrying out trials with patients under hospital control not only in the U.K., but also in the U.S., Italy, Switzerland, Belgium, Holland, Scandinavia, South Africa, Australia, New Zealand and Canada. Although the company is convinced that it has achieved important progress in this field, it is not releasing the drug, known as Atromid, until these extensive clinical trials have been completed.

★ WRITING in *The Times* this week as hon. secretary of the 19th I.U.P.A.C. congress which will come to London next July, Francis J. Griffin, who is also general secretary of the Society of Chemical Industry, calls attention to the complete lack in London of adequate facilities for large-scale con-

ferences. The I.U.P.A.C. congress will attract thousands of chemists to London and the Albert Hall, hardly ideal for the purpose, has been booked for the opening ceremony.

Griffin makes a good point and I hope that one of the Clore's or the Cotton's will take him up. And having spent many frustrating hours trudging to and from Olympia this week, I should like to point out that London also lacks an adequate exhibition centre.

★ I AM sure readers will join me in extending birthday greetings to that doyen of British chemical engineers, Mr. J. Arthur Reavell, who celebrated his ninetyeth birthday on 13 June, appropriately just before the opening of the Chemical and Petroleum Exhibition at Olympia.

Mr. Reavell founded the Kestner Evaporator and Engineering Co. Ltd., in 1908 and it has grown steadily ever since. The company's new works at Greenhith, on Thames-side, on a site of approximately 12 acres, is now nearing completion. There are subsidiary companies in South Africa and Australia. Now president of the company, he still keeps contact with its affairs.

Mr. Reavell has been chemical engineering consultant to a number of Indian States, as well as the famous Tata group. He is a founder member of the Institution of Chemical Engineers, and was its president in 1929-30. He has been twice chairman of the Chemical Engineering Group, Society of Chemical Industry. A founder member of the British Chemical Plant Manufacturers' Association of which he is a past chairman, he has also served on a long list of committees in scientific fields.

During his numerous visits to South Africa (where his company has a subsidiary), he has interested himself in the problems there of university education: in 1955 the Witwatersrand University named their then new laboratory the J. Arthur Reavell Chemical Engineering Laboratory.

★ FOR those of my readers who cannot face the massive Jenkins report published last week, I offer a brief layman's guide. To me the most interesting points were the recommendations that companies should publish their turnover results and that the Board of Trade should set up rules for take-over bids. Other points: all company accounts should be available for inspection; a call for tighter control of directors' share deals; nominees of holdings of over 10% should be disclosed.

Alcembic

U.K. COMPANIES START JOINT RESEARCH ON FLUOROAROMATICS

American workers use I.S.C. materials

A VERY considerable expansion in the fluorochemicals industry is foreshadowed by the announcement contained in the D.S.I.R. annual report for 1961 that a D.S.I.R. grant has been awarded to Professor Maurice Stacey of Birmingham University to set up a small-scale plant there to produce organic fluorine compounds (CHEMICAL AGE, 23 June, p. 1039).

Professor Stacey has recently written that "fluorine chemistry has now come-of-age". By this he may have been referring to several things.

It is, indeed, approximately 21 years since war-time atomic needs inspired a tremendous surge forward in researches into fluorine and its compounds. On the other hand, he may have had in mind the rate of publication of scientific papers, steadily increasing industrial activity, or the fact that fluorine chemistry now has its own series of 'advances' monographs and regular international symposia. But, most probably, he was referring to the fact that in the last three or four years, for the first time, fluorine chemists have had at their disposal the means to synthesise and study a vast new range of fluorinated compounds—the highly fluorinated aromatics and heterocyclics. As the D.S.I.R. report puts it: "This work has now reached the stage where it can be claimed that almost every hydrocarbon compound can be 'modelled' by the corresponding fluorocarbon compound".

Joint discovery

This statement could be discounting the next few years of research by Professor Stacey and his colleague Professor J. C. Tatlow, at Birmingham, by Professor R. N. Haszeldine, at Manchester, by Professor W. K. R. Musgrave at Durham and by Dr. L. A. Wall at the National Bureau of Standards in Washington. One thing about which there is no doubt, however, is the synthetic possibilities opened up by the simultaneous discovery at Birmingham University and in the research department of Imperial Smelting Corporation Ltd., Avonmouth, that perfluoroaromatic and heterocyclic compounds can be made by passing suitable alicyclic compounds over iron or nickel gauze heated to temperatures in the range 250-450°C. As well as their contribution to the laboratory work which showed that these compounds can be made, Imperial Smelting have carried out considerable process development and are now in commercial production—the only source in the world.

Prior to the joint Birmingham/Avonmouth discovery, the absence of practicable

methods for the synthesis of perfluoroaromatics meant a heavy concentration of research effort on aliphatic fluorine compounds. The organic products which are industrially significant are, in fact, all of the aliphatic type. These include: (1) the chlorofluoromethanes and -ethanes; (2) the fluoropolymers; (3) non-flammable anaesthetics; (4) specialised surfactants; and (5) bromofluorocarbon fire-extinguishants.

The chlorofluoromethanes and -ethanes are known under many trade-names including Freon (Du Pont); Arcton (I.C.I.); Isecon (Imperial Smelting Corporation); Friger (Hoechst); Genetron (Allied Chemical Corporation); Ucon (Union Carbide); Isotron (Pennsalt Chemicals) and others. Compounds of this type, particularly CCl_2F_2 , CCl_3F and $\text{CClF}_2\text{CClF}_2$ are very extensively used as refrigerants and aerosol propellants.

Fluoropolymers

Of the fluoropolymer resins, polytetrafluoroethylene (Du Pont Teflon; I.C.I. Fluon; Hoechst Hostafon) is by far the most important, but polychlorotrifluoroethylene, polyvinyl fluoride, polyvinylidene fluoride and the copolymer of tetrafluoroethylene with hexafluoropropylene are also made on the industrial scale.

Many fluoro-elastomers have been studied and the Du Pont material Viton appears to possess the best all-round balance of properties. A copolymer of hexafluoropropylene with vinylidene fluoride, it is also made by the Minnesota Mining and Manufacturing Co. under trade-name Fluorel.

Much effort has gone into the investigation of fluorine-containing compounds which would eliminate the hazards of using ether as an inhalation anaesthetic, particularly in the laboratories of Imperial Chemical Industries Ltd. and the chemistry department at Birmingham University. I.C.I. already have Halothane (CF_3CHClBr) in successful commercial production; its stability, non-flammability and non-toxicity are conferred to a large extent by the trifluoromethyl grouping.

As regards specialised surfactants, long-chain fluoroalkyl sulphonates combine detergency with a high degree of chemical stability. 3-M make such compounds as the active ingredient of additives (Zero-mist) which reduce very considerably chromium losses through foaming in electro-plating baths. Only highly fluorinated compounds will withstand the severely oxidising conditions encountered in this application.

Vaporising-liquid fire extinguishing agents are widely used to deal with incipient or small fires in aircraft engines,

submarines, diesel trains and other forms of transportation. The agents in current use (e.g. methyl bromide, chlorobromomethane and carbon tetrachloride) are either low in efficiency or undesirably toxic. The bromofluorocarbons are highly efficient and almost non-toxic, particularly CF_3Br .

In all of the above examples the presence of fluorine atoms in the organic molecule confers a high degree of chemical inertness and, frequently, valuable physical characteristics as well. In the highly fluorinated aromatic series it is already known that hexafluorobenzene is highly resistant to degradation by heat and by gamma-radiation. One aspect of the promise of these compounds is that they will ultimately provide useful resins, films, fibres and fluids which retain these properties, which are assuming ever-increasing importance in both defence and day-to-day applications. Another aspect lies in the fact that the range of synthetic possibilities is considerably greater in the aromatic fluorocarbon field than in the perfluoro-aliphatic series.

The Birmingham University/Imperial Smelting process referred to earlier has been applied to the preparation of basic highly fluorinated aromatics such as hexafluorobenzene, pentafluorobenzene, tetrafluorobenzenes, decafluorobiphenyl, octafluorotoluene, decafluoroxylenes, octafluoronaphthalene and pentafluoropyridine.

Work at Birmingham and Manchester has shown that, while these molecules, as expected, do not undergo the conventional substitution reactions of hydrocarbon aromatics (e.g. nitration, sulphonation, halogenation), fluorine atoms can be removed by nucleophiles such as OH^- , OAlk^- , SH^- , NH_2^- , and N_3H_2^- . Such reactions therefore provide simple intermediates such as pentafluorophenol, pentafluoroanisole, pentafluorothiophenol, pentafluoroaniline, pentafluorophenylhydrazine and pentafluorotoluene.

Grignard reagent

The Grignard reagent, which is readily obtained from bromo- or iodopentafluorobenzene, undergoes conventional transformation from which may be obtained pentafluorobenzaldehyde, several carboxylic acids containing the pentafluorophenyl group and olefins such as pentafluorostyrene and 3-pentafluorophenylpropene-1, while Dr. Wall at the National Bureau of Standards has used pentafluorophenyl magnesium bromide to prepare pentafluorophenyl silanes and phosphines.

There is therefore being built up in this country a knowledge of the basic chemistry of this entirely new field, which will be of immense value in their subsequent commercial development.

Some leading British companies are already starting collaborative research programmes with Imperial Smelting Corporation (e.g. Monsanto in the field of fluoroaromatic β -polyesters, functional fluids and rubber chemicals). In addition, quantities of the basic materials produced by I.S.C. are now going to America where there is growing interest in their potentiality.

Two new B.S. could boost U.K. p.v.c. pipe market from 4,000 to 30,000 t.p.a. by 1965

THE British market for p.v.c. pipes could jump from a current 4,000 tons a year to somewhere between 20,000 and 30,000 tons/year by 1965, following introduction of two new British Standards.

This belief is based on experience in West Germany where consumption jumped from 6,000 tons in 1960, when new standards were introduced, to a current level of between 18,000 and 20,000 tons/year. Since French standards were issued, consumption has risen from 3,000 tons to 12,000 tons/year.

Potential U.K. market for all plastics pipes is put at 50,000 tons a year, but the likely tonnages within five years are between 5,000 and 7,000 tons for polythene and 20,000 to 30,000 tons of p.v.c. The upper limit of the p.v.c. figure depends on the success of development work now in hand to produce p.v.c. pipe capable of withstanding temperatures of 100°C for 50 years or more. Such development calls for the tailor-making of compounds, and because of the market potential it is likely that research will be intensified in this field.

The current rates of consumption of p.v.c. pipes, pressure and non-pressure, is estimated at about:

	Tons/year
France	12,000
Germany	18,000
Holland	9,000
Italy	14,000
Japan	9,000
U.K.	4,000

Price is an important consideration and the present U.K. price per lb. of p.v.c. pipe is about 3s including socket. Japanese pipe of good quality is being offered in the U.K. at a c.i.f. price of around 2s 3d/lb. At the British Plastics Federation Torquay conference last month, Mr. E. O. A. Mange, of Stewarts and Lloyds Ltd., said the low Japanese price was not due to cheap labour, but to more capital spent on machinery and equipment.

In a paper to be presented this week at the annual conference of the British Waterworks Association, Mr. Delwyn G. Davies, engineer and manager of the Mid- and South-East Cheshire Water Board, will state that "plastics is the cheapest water main in the world".

Addressing a meeting in London last week to mark the two new British Standards, Mr. R. L. H. Damerham (Durapipe and Fittings Ltd. and chairman of the B.P.F. Thermoplastics Pipes and Fittings Group) stressed that the use of unplasticised p.v.c. pipe had expanded slowly in the U.K. because of the absence of the requisite British Standards.

There should now be a considerable fillip and most tonnage sales were, he

said, expected to be made of $\frac{1}{2}$ in. diameter to 6 in. diameter pressure pipe and $1\frac{1}{4}$ in. to 10 in. waste and soil pipes.

Referring to a standard for hot water piping, Mr. Damerham said much work remained to be done, because p.v.c. would not do at present and polypropylene, although it would stand high temperatures, would not take pressure. The most promising material for high-temperature water work was ABS.

The two new standards cover unplasticised p.v.c. pipe for cold water supplies and industrial uses.

B.S. 3506/1962—'Unplasticised p.v.c. pipe for industrial uses', now nearing completion, deals with both pressure and non-pressure, but is not intended for the conveyance of foodstuffs, drugs or potable water. Sizes range from $\frac{1}{2}$ in. to 10 in. Outside diameters, wall thicknesses and manufacturing tolerances are laid down for seven classes of pipe, plus a minimum short-term burst pressure. A long-term hydraulic test and comprehensive composition needs are included.

I.C.I. develop drug to combat heart diseases

A NEWLY developed I.C.I. product for the treatment of heart disease, referred to in the current issue of *Lancet*, is not yet generally available for prescription. It will not be released until extensive clinical trials now in hand in many parts of the world are completed. I.C.I. add, however, that experience with this new drug is already sufficient to indicate a "major research achievement".

The new drug stems from the company's £3 million pharmaceuticals research organisation, which has for a number of years concentrated on the search for new methods of treating cardiovascular disorders. Important progress is said to have been made in the de-

velopment of promising drugs—the one referred to in the *Lancet* is for the treatment of atherosclerosis, a disease of the arteries which can lead to angina pectoris and coronary thrombosis.

I.C.I. state "The drug gives promises of being a significant contribution to the control of various heat conditions which have become a scourge of civilised man." It controls the concentrations in the blood of certain fatty substances, the best known being cholesterol.

The new drug, known as Atromid, is a mixture of the male sex hormone, androstosterone, and the solvent, ethyl *p*-chlorophenoxyisobutylate, and is administered orally in capsule form.

B.S. 3506 will include in its coverage applications where corrosive fluids are concerned and will serve, pending completion of current work on specific British Standards, to provide quality and performance standards for non-pressure pipes for use in the building industry. B.S. 3505/1962—'Unplasticised p.v.c. pipe (type 1140) for cold water supply', already published, covers p.v.c. pipe in nominal sizes ranging from $\frac{1}{2}$ in. to 6 in. It calls for hydraulic proof, short-term and long-term tests which should ensure a minimum satisfactory life of 50 years, and specifies tests to ensure that the pipe will have no harmful effect on the water carried.

The 24 members of the B.P.F. Thermoplastics Pipes and Fittings Group are (* shows makers of rigid p.v.c. pipe and fittings):

A.B. Plastics Ltd.*; BTR Industries Ltd.*; Chemidus Plastics Ltd.*; Durapipe and Fittings Ltd.*; Extrudex Ltd.*; Fairey Engineering Ltd.; Formica Ltd.*; Foster Bros. Plastics Ltd.*; Hozelock Ltd.; L. and P. Plastics Ltd.; LaBrecque Engineering Co. Ltd.*; Marley Extrusions Ltd.; David Moseley and Sons Ltd.; P. H. Muntz and Barwell Ltd.*; Osma Plastics Ltd.*; Plastics Tube and Conduit Co. Ltd.; Stewarts and Lloyds Plastics Ltd.*; Telcon Plastics Ltd.; Tenplas Ltd.*; Thermoplastics Ltd.; United Ebonite and Lorival Ltd.; Wednesbury Tube Co. Ltd.; Wellington Tube Works Ltd.; Yorkshire Imperial Metals Ltd.*

Science minister opens Olympia congress



Lord Hailsham opens the congress of the European Federation of Chemical Engineering. With him is Mr. Colin Spearing, president, Institution of Chemical Engineers

Big overseas interest shown in plant and processes at Olympia

AFTER a slow start with low attendances last week, interest in the second Chemical and Petroleum Engineering Exhibition, Olympia, picked up this week. In the opening days most firms were reporting that they had received few visitors, although some exhibitors had been busy dealing with visitors from the times the doors opened.

Taking practically all the space in the Grand, National and Empire Halls at Olympia, the exhibition is an impressive sight with many stands dominated by large items of chemical and oil equipment. Several stands displayed intricate models of chemical plants and oil refineries, depicting the part played by companies either in contracting or the supply of major items of equipment. On several stands, too, there were animated flow-sheets illustrating some of the many processes available from exhibiting companies.

Outstanding standard of display

The standard of display was generally outstanding and particularly impressed the many overseas visitors who were interviewed by the CHEMICAL AGE team of reporters that covered the exhibition. One declared that this was the finest exhibition of its type in the world. Keen interest was shown by overseas visitors not only in processes and items of plant and equipment, but also in the services of the contracting companies that exhibited at Olympia.

Many exhibitors told CHEMICAL AGE that were it not for this overseas interest they would not have exhibited. The large firms did not expect to interest U.K. visitors in processes or big items of plant, for they were already familiar with the range available in this country and would be unlikely to place orders on a visit to an exhibition.

The exhibition, however, provided visitors from other countries with an opportunity of assessing the services, facilities and products of the British chemical plant and petroleum engineering industries.

By Wednesday evening, visitors from 52 countries had attended, including every oil producing state in the world, as well as all the highly industrialised nations where consumption of oil and chemicals is high. Visitors also attended from such countries as Spain and Portugal where chemical industries are currently being built up. Soviet-bloc countries represented included the U.S.S.R., China, Czechoslovakia, Hungary, Poland, Rumania and Yugoslavia.

Among the official delegations was that from the Chinese People's Republic, comprising Mi Kuo-Chun, technical

adviser of the China National Machinery Import and Export Corporation; Lung Hsien Lieh, professor at Peking Petroleum College; Lu Huan-Chang, professor at Peking College of Chemical Industries; Kao Shih, deputy engineer-in-charge of China National Petroleum Machinery Installation Corporation; Chang Lin-Hu, deputy secretary-in-charge of Institute of China Chemicals and Chemical Industries; Tsai Hui-Lin, engineer of the China Industrial Distribution Corporation.

Complaints were made by some exhibitors that the staging of conferences to run jointly with the exhibition meant that many visitors who might have been expected to spend time around the stands were attending symposia sessions from early morning until about 5 p.m. On the other hand, a great many exhibitors felt that the conferences had attracted engineers to Olympia who might not otherwise have come. In fact a third of the 2,200 delegates who registered for the chemical engineering congress came from overseas.

The following is a round up by CHEMICAL AGE reporters of exhibition news up to Wednesday this week, C.A. Press day. Later developments will be reported next week.

Lord Hailsham, Minister for Science, toured the exhibition last Wednesday on the opening day and was followed by his Parliamentary Secretary on Tuesday this week. Mr. Freeth was particularly interested in seeing for himself how research work was being translated into reality. He visited Metallurgical Engineers Co. Ltd., who are building a new type of

heat exchanger designed by the D.S.I.R. Warren Springs Laboratory and based on an air/water froth-type of heat exchange medium. Japanese, U.S., Spanish, and German industrialists have already shown interest in this development.

Mr. Freeth later visited the stand of C.J.B., where he was particularly in-



Lord Hailsham, right, studies a 3-D model illustrating the 'critical path' sequence in project programming on the stand of C.J.B. On the left is Dr. Mark Guter and behind Mr. N. Neill-Fraser, both of C.J.B.

terested in a display of model-making techniques that showed how easily complicated models could be built-up and later modified.

One of the stands to attract a num-



General view of the main floor of the exhibition

ber of overseas visitors, including the official Rumanian and Chinese delegations, as well as Russians who are working with the company on the two plants that it is engineering in the U.S.S.R., was that of **Constructors John Brown Ltd.**, London. C.J.B.'s exhibits underlined the theme 'From flowsheet to completed plant—on time.' Large illuminated display panels emphasised the diversity of the company's services to industry. In particular, C.J.B. demonstrated modelling and planning techniques, both as an aid to design engineering and project progress, as well as in respect of major contracts already completed.

Stand of **John Thompson Ltd.**, Wolverhampton, was dominated by a vacuum distillation column over 50 ft. high and a Kittel plate, fabricated to the design of Constructors John Brown Ltd. for a polyester fibre plant that is being supplied to Poland. Other exhibits included a bulk liquid CO₂ storage vessel, Demipac package boiler for process steam and a reinforced pressure vessel of layered wall construction, a method of fabrication in which John Thompson (Wolverhampton) Ltd., have been carrying out considerable research.

Much interest was shown in models displayed on the Davy-Ashmore group stand. **Power-Gas Corporation Ltd.** have received a number of serious enquiries for the I.C.I. synthesis gas process, and a model of one of these plants was featured. Other models included the continuous tubular reforming plant now under construction for the Southall works of the North Thames Gas Board, which will use feedstock supplied by Esso Petroleum. A model of the Toyo Koatsu urea process first European plant for which is now under construction by Power Gas in Poland was also shown.

One of the features of the I.C.I. process is flexibility of design for the high pressure reforming furnaces and related equipment. For instance, design can incorporate steam recovery for use elsewhere in the works. Inlet pressure at the top of the reforming tubes is about 16 atm. So far the process has been based on straight run light distillates containing not more than 1% of unsaturated material; aromatic fractions can also be treated, but should be confined to mono-nuclear fractions.

Level of sulphur content in the feedstock is important and is related to the economics of removal in pre-treatment stages. Vapour phase desulphurisation, involving the use of a hydrogen contain-

ing gas, gives feedstocks with sulphur contents of between 100 to 500 p.p.m. This is suitable for synthesis mixtures or towns gas. I.C.I. are carrying out further work aimed at extending this method of desulphurisation to include feedstocks with even higher sulphur content.

The catalyst used has been developed to inhibit carbon formation while retaining full catalytic activity. The catalyst has a high sintering temperature and it is said that regeneration need not be a regular occurrence; future units may need no regeneration at all.

Reformed gas comprising, hydrogen, carbon monoxide and carbon dioxide with a methane content, usually needs further treatment.

The reforming plant at Southall will have capacity of 60 million SCF/day. Rather less than half the hydrocarbon feedstock, which is to be piped from Esso's Fawley refinery, is passed through the reformer to produce a lean gas, which is then enriched with base feed to a calorific value of 500 Btu/SCF and specific gravity in the range 0.47-0.52. Cold gas efficiency varies between 87.6% and 88.8% depending on the specific gravity of the final gas and quality of the feed; final gas is produced at 10 p.s.i. with a CO content of less than 2.5% and negligible sulphur.

Power-Gas will shortly announce the award of an overseas contract for ammonia production based on the high pressure reforming of distillate feedstock.

A new miniature leakproof valve for use in radioactive and otherwise dangerous fluids was introduced by **Teddington Aircraft Controls Ltd.**, nuclear division, Cheapside, Reading. The valve, named the Pigmy, is only 2½ in. high, and its greatest body diameter is 1½ in. With a ¼ in. nominal bore, rating up to 1,000 p.s.i. and 450°C, it joins the Teddington range of bellows sealed small-bore valves.

Visitors to the stand of **Humphreys and Glasgow Ltd.** were surprised that the model of the Varga hydrocracking process, for which Humglas have exclusive rights in many countries, was not shown on the stand as previously indicated (CHEMICAL AGE, 16 June, p. 997). As stated in 'Distillates', only 24 hours before the exhibition opened the model was found on delivery to be so badly damaged that repairs could not be effected in time. The front of the stand was redesigned to take a floral arrangement.

However, a Hungarian expert from the Varga Research Co., Budapest, was able

to explain the process which upgrades asphaltic and sulphur-bearing crudes to lighter products of excellent quality. The medium pressure two-stage process operates with little hydrogen consumption; chief products are sulphur-free diesel oil, sulphur-free light distillates and light fuel-oil or lube-oil component.

The Varga process operates at pressures of 880 to 1,200 p.s.i. and at temperatures between 790° and 840°F. Chemical hydrogen requirement depends on the charge stock but is generally between 0.7 and 1.5 wt. % of feed. The process has been tested in a 10 tonnes/day pilot plant in Hungary and in a 400-tonnes/day plant in Bohlent, near Leipzig.

This company report a number of enquiries for the I.C.I. synthesis gas process.

Two new valves were introduced at Olympia by **Saunders Valve Co. Ltd.**, Cwmbran. Mon. Type R diaphragm valve was designed to withstand working pressures twice as high as those normally recommended for standard type A valves. Currently produced only in the



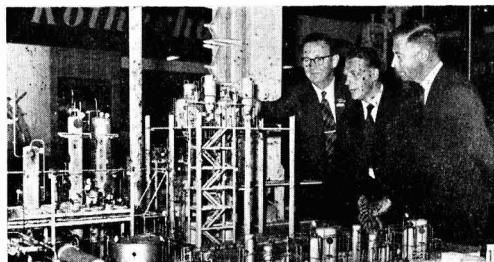
Mr. F. Wyler (left), Saunders Valve Co., explains a point regarding one of his company's new valves to a prospective customer

2 in. size, construction is of cast steel with a sealed bonnet assembly that has a rising spindle with position indicator, limit stop and ball thrust. Bodies can be Penton-lined. Maximum working pressure is 400 p.s.i. with working temperature of up to 100°C. Additional sizes and extended specifications will follow.

Also under development is the new type S quick acting valve with an operating range extending from commercial vacuum to 1,500 p.s.i. and temperatures from -60°C to +250°C. A variety of material specifications to suit a wide range of fluids and gases is available.

Stand of this company reflected the many new materials now being used to line valves and pumps, including high styrene-butadiene, butyl, nitrile and neoprene rubbers, p.v.c., polythene, p.t.f.e., Prodorglass, Lithcote, etc.

Among a number of chemical pumps that attracted interest on the stand of the **Permutit Co. Ltd.**, London W.4, was the new Mark 8, which has two independently adjustable heads and is capable of operating at speeds between 2 and 50 g.p.h., per head, at pressures from 100 to 1,000 p.s.i. The company also exhibited a de-aerator able to deal with 30,000 lb. of feed water per hour, reducing the oxygen content to 0.005 cm³/litre



Mr. H. Hopwood, Power Gas, points out a feature of one of several plant models shown by the company

or less, and carbon dioxide to a level at which the residual cannot be detected by titration.

An industrial scale diffusion cell, using silver/palladium alloy for the preparation of ultra-pure hydrogen from cracked ammonia, impure hydrogen and other gases containing hydrogen, was shown for the first time by **Johnson Matthey and Co. Ltd.**, London E.C.1. The cell utilises thin-walled tubes of silver/palladium alloy to provide a strong diffusion membrane with a large surface area and small volume. The unit has no moving parts, and is simple and safe to operate.

A new bi-directional meter proving unit, which, it is claimed, will revolutionise the present system of meter testing, was introduced by **J. S. Webber Ltd.**, London E.4. Other exhibits on the same stand included the new Ekameter for very low rates and a new coin-operated dispenser for two-stroke mixtures.

A new steam cleaner, the Metaforma Fradic, which has no boiler, exciter, pump or other moving part, drew visitors to the stand of **Metal Formations Ltd.**, Woodseton, Dudley. Energised by an ordinary works' compressed air, supply, this cleaner is claimed to be the cheapest steam unit produced in the U.K. Metal Formations also showed a 2-ton capacity storage tank for liquid propane. The tank has been built to B.S.1500 Class 1 requirements and has a maximum working pressure of 210 p.s.i.

New developments shown by **Associated Electrical Industries Ltd.**, London W.C.2, included flameproof motors designed to meet B.S.2960, Part 3 draft, and phase-separated explosion-proof terminal boxes with glass fibre inserts and double steel walls. A 150 h.p. drip-proof squirrel-cage induction motor with sealed stator winding was shown in operation under a water spray.

A 750 kVA, 3-phase, 1100/443 volt dry-type hermetically sealed transformer filled with nitrogen and equipped with a tank of welded construction, which prevents the entry of dirt and dangerous gases, was also exhibited on the same stand.

A new type of flexible coupling, known as Flexsil, and claimed to incorporate the advantages of both rubber and synthetic fibres, was shown for the first time at the exhibition by **Wm. Kenyon and Sons Ltd.**, Dukinfield, Ches. These new units will accommodate several different forms of shaft misalignment and displacement. The flanges or end pieces of Flexsil couplings are manufactured from cast iron and machined to very close tolerances.

A new mobile shot blast apparatus operating at pressures up to 100 p.s.i. and with a storage capacity of 600 lb. of metallic abrasive was featured by **Tilghman's Ltd.**, Altrincham, Ches, together with a new 3 ft. by 3 ft. hand-cabinet for cleaning small items of equipment. Other exhibits included a new range of fabric filters designed for the cleaning of hot corrosive gases as well as all normal applications, and ultra filtration air filters.

William Boulton Ltd., Burslem, Staffs, showed a new grinding medium HI-DEN

Dr. M. C. Royston, of the A.P.V. Co., uses a model of an A.P.V.-designed batch distillation plant to explain a point to visitors to his company's stand



(Z) manufactured by W. Podmore and Sons Ltd. HI-DEN is a hard (Moh scale 9) abrasion-resistant, ceramic material consisting basically of sintered zircon. The density of the media is 3.7; it is produced in two shapes—cylindrical and natural. Cylindrical HI-DEN is available in $\frac{1}{2}$ in. by $\frac{1}{2}$ in., and $\frac{3}{4}$ in. by $\frac{3}{4}$ in. sizes, while natural HI-DEN is produced in $\frac{1}{2}$ in. by $\frac{1}{2}$ in., $\frac{1}{2}$ in.-1 in. and $1\frac{1}{2}$ in.-2 $\frac{1}{2}$ in. sizes.

Largest exhibit on the stand of **British Oxygen Co. Ltd.**, and which soared to the glass roof of Olympia, was a 63 ft. high, 14 ft. diameter, rectification column for a tonnage oxygen plant. The column weighs 20 tons and was one of the largest single items of equipment on show at the exhibition. A feature of the large B.O.C. stand was an illuminated flow sheet of a tonnox plant.

A new type of coating, designed to protect heat exchangers, pumps and pipelines handling hot distilled water to condensate, has now been developed by **Wolsey Holdings Ltd.**, Lancaster. The new coating has been severely tested in steam and boiling water and is claimed to maintain the purity of the product during sterilisation.

Lancaster and Tonge Ltd., Manchester 6, introduced a new thermodynamic steam trap and an entirely new design of vacuum or pumping trap, which employs a permanent magnet to give a trip action ensuring positive operation of the trap at all speeds of flow. The new fluid ring expansion joints for pipelines, in which the gland is sealed by packing an annular space between the two sets of piston rings with a high viscosity sealing fluid which also acts as a lubricant, were shown. Servicing of the joint can be carried out without shutting down the plant.

A new mechanical seal introduced by **Flexibox Ltd.**, Manchester 17, will handle pressures up to 1,000 p.s.i. and speeds up to 15,000 f.p.m. The Pactaflex seal has interchangeable components, and its overall length can be specified to close tolerances. A number of pumps in the exhibition are fitted with standard Flexibox seals incorporating a patented spring drive. On the Flexibox stand a working demonstration unit fitted with two standard seals showed the degree of shaft

misalignment which these seals can accommodate.

Metaducts Ltd., Brentford, Middx., featured a new range of stainless steel flush-bottom valves of fabricated construction, together with a liquid/liquid separator valve claimed to be the only one of its type in the world. Other new equipment on the same stand included miniature all-steel flexible couplings in the MES series and 3 sizes of stainless steel Buchner filter.

A new brochure available on the stand of **Petrocarbon Developments Ltd.**, London, details the services available from this company. Among processes briefly described is the new route for the catalytic air oxidation of cyclohexane to cyclohexanol and cyclohexanone under which plant can be designed to produce wholly cyclohexanone or cyclohexanol. Special reactor design and heat recovery techniques give high yields and low utilities consumptions, leading to minimum production costs. This is of considerable importance in the further utilisation of cyclohexanone as an intermediate for caprolactam production and its use as a solvent.

Other processes cover polystyrene and styrene copolymers; maleic anhydride; ethylene; benzene; resins; sulphones; substituted pyridine products; air separation; gas separation, etc.

A new piece of equipment, fully automatic in operation, that will monitor up to six streams at a crude oil distillation unit, was introduced for the first time by **F. J. Hone Co. Ltd.**, London. The unit, the distillation-point monitor, was developed by the Hone company in collaboration with British Petroleum.

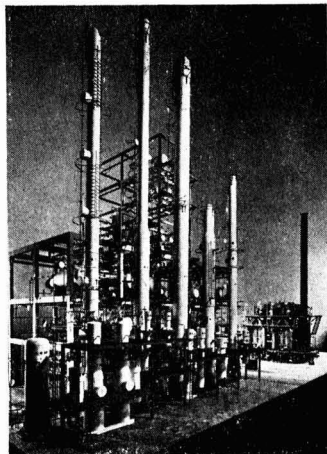
For the economic operation of a refinery, it is essential to know the boiling range of the incoming crude oil distillate; this has been found out previously by periodic laboratory testing of distillate samples. The new unit will provide this information quickly and accurately on site, or make recordings at a remote point. Hone claim that the monitor is unique in that it is a single piece of equipment that will continuously monitor the boiling range of up to six streams, and automatically give continuous information on plant conditions.

One of the working exhibits at the exhibition was earning its keep. Two

girls were operating a weaving loom on the stand of **G. A. Harvey and Co. Ltd.**, Greenwich, and the finished product—a metal filter cloth 48 in. wide—will be used at Mobil Oil's Coryton refinery.

The wire mesh will be used in the filter made by Harveys for the de-waxing plant at the refinery. It is being woven in 29 gauge (0.0136 in. diameter) brass wire to produce 24 mesh. The loom, looking very much like a cotton weaving loom, has been designed to work in wire from 0.0024 in. diameter to 0.024 in. diameter to give a mesh ranging from 100 to 40,000 aperture per square inch.

Talbot Stead Tube Co. Ltd., Walsall, Staffs, who are making and fabricating the stainless steel pipework and fittings for the combined ethylene and hydrocarbon processing plant now under construction for British Hydrocarbon Chemi-



Model of part of the new B.H.C. plant at Baglan Bay shown by Talbot Stead

icals Ltd., at Baglan Bay, highlighted the fact with a $\frac{1}{4}$ -in. scale model showing the fractionating section and one of the three cracking units. Also shown with the model, which was the centrepiece of the Talbot Stead stand, were examples of the fittings and flanges from the Talbot Stead and Forgend ranges being used in the project.

Industrial ceramic products ranging from porcelain vessels and porous tiles to a new and unique centrifugal chemical pump were shown by **Doulton Industrial Porcelains Ltd.**, Tamworth, Staffs. Central feature of the stand was a new Doulton-Harland centrifugal pump which, it is claimed, enables virtually all acids, alkalis, oxidising agents and solvents to be handled with complete immunity from corrosive attack and with greater efficiency than hitherto. The increased strength of the new pumps, which are being marketed by the Harland Engineering Co., is claimed to be due to the use of Roydalox, an alumina porcelain developed by Doulton, for all parts in contact with the pumped liquor. The company's staff claimed that exhaustive tests with prototypes,

working under operational conditions and preceded by years of research, have confirmed that components made of this material will enable new standards of efficiency and reliability to be attained in the pumping of chemicals.

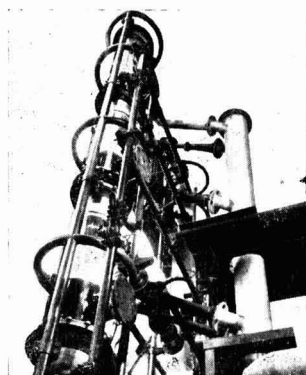
Frenkel C-D Co. Ltd., London N.16, displayed a new series of continuous processing units for the treatment of bulk flows including liquids, powders, pastes and semi-solids. The equipment can be used for mixing, kneading, heat exchanging, shear working, melting, dissolving, reacting and pumping. A 5-in. Frenkel unit was demonstrated on the stand as part of a process line for the production of Snowplast interior finishing plasters and Sandtex decorative finishes manufactured by Cement Marketing Co. Ltd.

The production line on show included a new pneumatic weigh feeder by L. A. Mitchell Ltd., and Fisons Ltd., metering pumps from E.C.D. Ltd., control equipment by George Kent Ltd., as well as a distributor and elevator unit manufactured by Arenco-Alite Ltd.

An international designing, engineering and contracting service to the chemical industry is the main theme of **Simon-Carves Ltd.** Individual displays deal with fertiliser plant, synthesis and fuel gas production and purification, polythene plants, biochemical engineering, naphthalene and benzene purification and gas cleaning by electrical precipitation.

Five continuous slide projectors with linked sound commentaries illustrate some of these subjects. In addition, a complete fertiliser plant at Madras, India, is featured as an example of turnkey contracting on an international scale by this group.

A continuous multi-stage high vacuum crystalliser made its appearance at the stand of the **Kestner Evaporator and Engineering Co. Ltd.**, London. This new plant economises by having no moving parts, all agitation is done instead by air under vacuum. It can cool liquors continuously to 5°C. Of the well-known Merilene heating systems, Kestner were showing a compact laboratory size portable unit. As a self-contained unit it is only necessary to connect it to the heat



Kestner's continuous multi-stage high vacuum crystalliser shown at Olympia

user and fill it with circulating oil. Contrary to belief, it was confirmed that the unit can be used for heating glass vessels.

Joshua Hindle and Sons Ltd., Leeds, have now developed a leak-proof gate valve which has made it possible to do away with the older method of employing two valves with a bleed-cock situated between them. This valve has proved itself to be 100% leak-proof following tests equivalent to 3 years of service, and was on display on the stand.

Hindle's experience with Fluon as a valve seating material has led to the development of a leak-proof ball valve. The exhibit showed how effective sealing is for both up and down stream flow. A large version of the new valve has just been completed for the acetic acid plant at Hull of the D.C.L. Chemical Division.

On view for the first time, the Weir-Davidson automatic semi-solid de-watering press attracted the attention of many visitors. It is a pneumatically operated continuous cycling machine for pressure de-watering wet granular fibrous or flaked materials, while at the same time filtering the expressed liquid. Also exhibited by **G. and J. Weir Ltd.**, Glasgow, was a model of the Weir multiflash vacuum distillation plant for producing fresh water from sea water. The model is based on a plant being constructed in the Netherlands Antilles, which will produce 11,200 Imp. gall. daily of fresh water.

As exporters of plant machinery, **John Dalglish and Sons Ltd.** reported that they do a considerable amount of business with the U.S.S.R., particularly in synthetic rubber plant. Business overseas is hoped to run at the £million level. Typical exports are extruders, feeders, weigh belts, conveyor dryers and spray dryers.

The **Elliott-Automation Group** were exhibiting in force, and several new interesting pieces of equipment were on show. The valves group reported very promising contacts for new business and were exhibiting a gold plated Fisher valve to symbolise the long service this valve has given to industry. Manufactured under U.S. licence, this valve was stated to be a most successful venture. A modification to the valve positioner was made in January.

In a different field a process chromatograph has just gone into production in the U.K. by the quality control division, following sales of a few U.S.-made models in this country. Primarily designed for the petroleum and plastics industries, it is capable of automatically synchronising a complete analytical process.

The process control division showed a new temperature or pressure indicator. A neat and compact piece of equipment, it can receive an air signal in the range 3-15 p.s.i. It also incorporates high and low alarm contacts.

Nordac Ltd., Uxbridge, reported considerable interest in their phosphoric plant construction activities for which they now use Terylene filters. A model of this plant was on view on the stand.

Where older methods of weighing and metering involved batch processes,

Wallace and Tiernan Ltd., London, are now solving this problem by means of proportional weigh feeding and pumping machines. These machines have the advantage that they can be coupled together to perform their various functions at the required moment. Suitable for solids, liquids and gases, these labour-saving devices represent a significant achievement in chemical processing; the equipment, it was said, can be used for fluorine, ammonia and sulphur dioxide gases. This firm reported a number of contacts made at the exhibition of which initially 8-9% were overseas, in particular from Germany and Holland.

A transportable aluminium storage tank for liquid oxygen and other liquid atmospheric gases such as nitrogen and argon was shown by **Alcan Industries Ltd.**, Banbury. The tank, which is vacuum insulated to reduce oxygen loss by evaporation, has a capacity of 416 Imp. gall. (56.650 cu. ft. of gaseous oxygen at 30 in. Hg. and 60°F), it is 11 ft. long by 5 ft. 6 in. wide and 6 ft. high. Dry weight is 2,360 lb. The complete unit is mounted on skids and has two outer stiffening members which carry four rings to enable it to be lifted and secured on a vehicle. The inner and outer shells of the tank, which was made at British Oxygen's Edmonton engineering works, are insulated from each other by a combination of high vacuum and a powder insulant of low thermal conductivity.

Two first-time exhibits at the stand of **Davey, Paxman and Co. Ltd.**, Colchester, were a working model of a new sludge concentrator, designed for the dewatering of industrial as well as municipal effluent sludges, and a continuous pressure filter, believed to be the only British designed machine of its type. The first, shown operating with waste pulp sludge, is said to use a minimum of power and to eliminate the need for chemical pretreatment, dry cake being produced irrespective of ambient conditions. Visitors to the stand were informed that the continuous pressure filter works at sufficiently high operating pressures to give greatly improved rates of filtration, high cake washing efficiencies and exceptionally dry filter cakes.

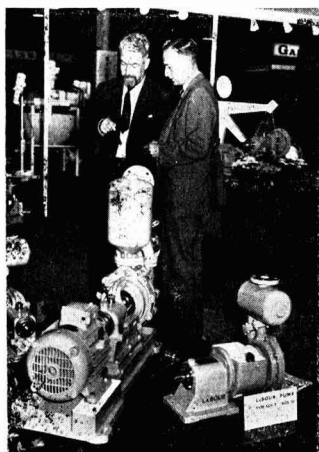
Centre feature of the exhibit by the **Wayne Tank and Pump Co. Ltd.**, Bracknell, was a new large positive displacement meter claimed to be the largest of this type yet seen in Britain. Known as the Wayne-Smith Model B.875, capable of a throughput of 12,500 bbl./hr. and flanged for 16-in. pipelines, this huge meter, like all other models in the range, is said to retain all the proven characteristics of accuracy and low pressure loss inherent in the breed and to open up new fields of usage not yet explored. In addition it is equipped with the latest in compensating and read-out devices enabling it to be integrated into any known modern system of operational control.

All the auxiliary equipment exhibited on the model B.875 can also be supplied for use with other Wayne-Smith meters in the range.

Wayne also featured a new range of

internal gear rotary pumps in capacities to handle from 3 to 250 gall./minute at pressures up to 100 p.s.i. A development of the pumping unit used in the Wayne petrol pump, they are of the positive displacement type operating on the 'wheel within a wheel' principle. An important feature is the exclusive Wayne 'Round Tooth' design, described as a big improvement over square tooth internal gear pumps.

With emphasis on export, **British LaBour** claimed that particular interest was shown in their SZ-range of horizontal centrifugal pumps. Over 40% of



Mr. L. C. Stork (right), **British LaBour Pump Co.**, discusses one of his firm's exhibits with Mr. Charles Gull, of **Burnett and Rolfe**

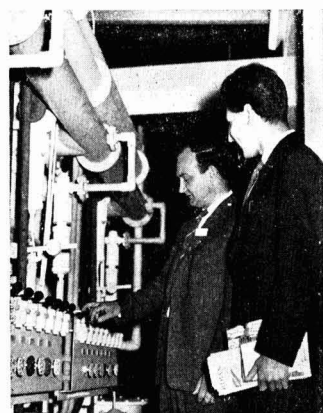
their business is now export and compared with 2% in 1954-55 this is a significant achievement. The use of catalogues printed in English, French and German was said to have paid off rewardingly, an important factor when exporting to 53 countries. Standard ranges of vacuum extracting, flooded suction, self-priming and centrifugal units were well displayed.

Two exhibits by **Sheepbridge Equipment Ltd.**, Chesterfield, demonstrated very clearly conveyance by means of air. The Sheepbridge-Kennedy air float conveyor makes use of air and gravity to convey powdered material over a ceramic plate, inclined at 6-10° to the horizontal, through which air passes. This method is recommended for cements, grain, fly ash, lime, ceramics and non-oily substances; it is not suitable however for carbon blacks. For pumping material 1,000 ft., whether horizontally or vertically, an automatic pneumatic conveying pump was successfully demonstrated and is satisfactory for ¼ in. square mesh size material.

Much of the interest on the **Johnson Matthey and Co. Ltd.**, London, stand was shown by overseas visitors. In particular three Russian professors from Moscow discussed a new diffusion cell for the purification of hydrogen. Less than 0.1 p.p.m. impurities are obtained

by diffusion through Ag/Pd alloy, which is highly permeable to hydrogen at 200°C and stable under operating conditions. In the form of thin-walled tubes within the diffusion cell, the alloy can be used for the preparation of ultra pure hydrogen from impure H₂, cracked NH₃, or oil reformat gases. The output from the largest unit cell is up to 320 ft³/hr (9,400 l/hr).

Although it was only one day after the opening of the exhibition when **CHEMICAL AGE** called on their stand, **Tylors of London Ltd.** felt that attendance was flat, and they had had no overseas visitors to the stand. It was suggested that the exhibition was badly timed and earlier in the year or autumn were proposed as more suitable dates. The newest piece of equipment being exhibited was the 'DPC-1 pre-set counter.' A semi-transistorised well finished unit, it gives full automation which can be incorporated into process control in the sphere of mixing and blending.



Sutcliffe, Speakman's new carbon disulphide recovery unit, brought to Olympia after a period on trial with a provincial textile firm, attracted a good deal of attention from visitors. Here Mr. A. Moores explains its mode of action

Although a liquid/liquid extraction unit has been used for about eight years by Graesser for tar acids, the combination MPL-Graesser to manufacture extraction plant (Patent 860880) is a comparatively new marketing arrangement. A lot of interest was stated to have been shown by Russian visitors to the stand of **Metal Propellers Ltd.**, Croydon, in the liquid/liquid counter-current extraction plant. This statement was extended to include Dutch visitors, many tar acid producers, and visitors from Israel. At a cost of something of the order of £6,000, patents for this process have been applied for in 16 countries, of which 10 have granted a patent.

Under the terms of their agreement with I.C.I. (Nobel Division), M.P.L. can now supply complete plants for the manufacture of formaldehyde according to I.C.I.'s exclusive process and inclusive

of I.C.I.'s know-how. Three standard sizes of plant are available, i.e., producing 8,000, 15,000 and 30,000 tons of commercial formalin/year (37% w.t. formaldehyde). Within the last few months the system has been tried and proved satisfactory, and the licence will be exclusively for export. The availability of this plant has created a considerable overseas interest, and negotiations with prospective buyers were said to be in progress, e.g., in the Middle East and South American markets. In many cases M.P.L. feel that success in these markets can be a question of credit transfer versus delivery date.

A Bowser Fig. 842 vertical filter separator, capable of removing both solid and water haze contamination from fuel oils, will be featured by **Bowser International Ltd.**, London W.1. Each unit will dehydrate and filter several million gallons of product before a cartridge change is needed.

W. C. Holmes and Co. Ltd., Huddersfield, say that the cost of the Stretford process for removing H_2S from gases is considerably cheaper today than it was three years ago. A working model illustrating the process was on show at the stand, along with another model showing a typical plant design for generating inert gas by burning the oxygen out of air. The latter may be oil or gas fired. To date, three H_2S removal plants are working and two are under construction in the U.K., including one commissioned by Courtaulds in Northern Ireland.

Holmes claim a good proportion of overseas interest from Belgium, Japan and Canada. Visitors from the U.K. included the Parliamentary Secretary for

Science, Mr. Denzil Freeth, who asked for details of the Stretford process. A guaranteed annual running cost of the plant inclusive of the reagent costs is part of the service rendered.

Chinese discuss fibre deal with Courtaulds

THE Chinese trade mission now in this country to attend the Chemical and Petroleum Engineering exhibition (see page 1081) were expecting to see representatives of Courtaulds this week to continue talks which the company has been having over the past two years about the possible sale to China of a complete fibre plant. Mr. Frank Kearnton, Courtauld's managing director, has only recently returned from the latest of a series of visits to Peking, during which the proposed deal has been discussed.

The six-man delegation expects to remain in the U.K. for another two weeks or so during which its members hope to see officials of various chemical and petroleum concerns and to visit a number of plants. Afterwards they expect to tour units in France before returning home.

I.C.I.'s Swiss loan heavily oversubscribed

The I.C.I. S.Fr.60 million (£5 million) $4\frac{1}{2}\%$ loan, for which subscription lists opened last week (CHEMICAL AGE, 23 June, page 1036), was heavily oversubscribed, it was announced in Zurich at the weekend. Arrangements are now in hand to allot reduced numbers of shares to subscribers.

Major advances in cold dyeing with Procions

MAJOR advances in the continuous cold dyeing of wool with reactive dyestuffs, in particular the I.C.I. Procion range, have been reported by Precision Processes (Textiles) Ltd., a subsidiary of Stevensons (Dyers), of Derby. The advances, which apply to the dyeing of wool pretreated by the parent company's permonosulphuric acid process to render it shrink-resistant, are said to result in excellent fastness to washing, alkaline milling, potting and water.

In a paper presented recently to members of the Textile Institute it is claimed that a full colour yield can be achieved in as little as two minutes in certain cases, which brings the process well within the scope of continuous processing techniques.

New edition of D.S.I.R. research reference book

"SCIENTIFIC Research in British Universities and Colleges 1961-62" published by the Department of Scientific and Industrial Research lists for the first time research being carried out in colleges of advanced technology, national colleges and regional technical colleges in England and Wales, and equivalent colleges in Scotland and Northern Ireland.

It describes the nature of the projects in sufficient detail to indicate the scope of the research done by the various science departments and individual teams of investigators. The book (H.M.S.O., 32s 6d, is the only publication of its kind in Britain.

E.F.T.A. accelerate next tariff cut

Next reduction in tariffs of the European Free Trade Association which was due to take place on 1 January 1965, will now be made on 31 October 1962, which will bring E.F.T.A. countries down to 50% of their initial tariffs, the same basic level as the Common Market countries. Austria and Norway will make the reduction not later than the end of 1962 and 30 April 1963, respectively.

Draft European law on patents

A draft for a European patents law has been adopted by a committee of experts from the European Economic Commission, which was set up in November, 1959, to consider harmonisation of legislation patent.

The document will now be studied by top Government officials from the Common Market headquarters.

F.D.A.-type control sought for British drugs

The Minister of Health will be asked in Parliament on 9 July if he will set up a statutory authority comparable with the U.S. Food and Drug Administration with powers to supervise clinical trials of new drugs and to authorise their marketing and prescription.

Newly developed blow-moulded plastics barrels push for carboy and drum trade

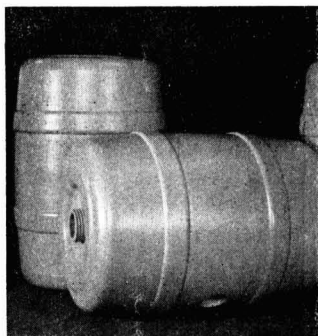
BRITISH dyestuff and chemical manufacturers, detergent and solvent makers have in the past few weeks been receiving sample 13-gall. plastics barrels made in high density polythene by the test and development department of Emerson Walker Ltd., of Gateshead, manufacturers of blow moulding machine tools. These are the first plastics barrels to be produced by blow moulding in the U.K. and were made to show that large blow mouldings can pass tests easily when well designed moulds and good techniques are used.

Produced in less than 6 minutes these 13-gall. containers weigh about 10 lb. each—a quarter the weight of similar articles in wood or metal. Drop tests from $4\frac{1}{2}$ ft. and internal pressure tests of over 100 p.s.i. are said to be regularly passed. Colours can be incorporated during moulding and are used for product identification. Reclaiming plastics barrels after use is said to require lighter and less expensive machinery; there is no difficulty in disposing of old and damaged barrels.

Every type of container can be manufactured by blow moulding from chemical carboys, oil drums and liquid gas

containers to water cisterns, fire extinguishers and milk tanks.

Although the chemical resistance and strength of high density polythene offer great versatility for manufacturers it is not the only plastics that can be blow moulded. For instance, the light weight of ABS barrels provides economy in transport while the stiffness of toughened polypropylene offers safety in barrel handling.



Polythene barrels of 13 Imp. gall. capacity

● Following acquisition of the General Electric Co. Ltd.'s holding in Columbian-General Blacks Ltd. by Columbian Carbon Co., U.S., the board of the U.K. company is now **Mr. C. A. Watts**, chairman; **Mr. F. J. Jansen**; **Mr. C. A. Polachi**, president of Columbian Carbon International Inc.; and **Mr. D. G. Trickett**.

● **Mr. R. E. Tritton**, manager of the information department of British Petroleum, has been elected chairman of the six-man council of the newly-formed British Industrial Film Association. Other members of the council include **Brigadier G. B. Still**, public relations officer, British Oxygen Co., **Mr. Brian Trench**, Shell International Petroleum Co., and **Mr. B. W. Galvin Wright**, publicity controller, I.C.I.

● **Mr. Michel Coussement**, who has joined Allied Chemical, S.A., as technical representative, will make his headquarters at Allied's Monaco office, where he will be responsible for assisting Allied Chemical distributors and customers in proper processing and handling techniques. Before joining Allied, Mr. Coussement was assistant plant manager of Manufacture des Produits Chimiques de Jouyen-Josas, France, at the company's plant in Macon (Saone et Loire).

● **Mr. E. W. Hardiman** and **Mr. K. C. Hunt** have been appointed directors of Esso Petroleum Co.

● Officers nominated for the Plastics Institute for 1962-63 are: President, **T. L. Birrell** (director, Yarsley Research Laboratories Ltd.); chairman, **L. M. Read** (staff manager, D.C.L. Plastics Group); hon. treasurer, **A. W. Sherwood** (group sales manager, Bakelite Ltd.); hon. general secretary, **J. Taylor** (consulting

PEOPLE in the news

chemist). There will be a ballot to elect four members to the council from the following nominations: **T. C. Corbett** (sales manager, I.C.I. Plastics Division), **Dr. E. M. Evans** (research manager, British Resin Products Ltd. and Distrene Ltd.), **J. L. Fergus** (director and general manager, Telcon Plastics Ltd.), **E. Gaspar** (technical director, machinery division of Projectile and Engineering Co. Ltd.), **H. Jones** (deputy chairman and joint managing director, the Geigy Co. Ltd.), **J. M. Lassen** (polythene sales manager, Bakelite), **Dr. E. S. Narracott** (manager of Shell Chemical Co. Ltd. plastics advisory service department), **G. E. H. Smock** (Rigidex sales manager, British Resin Products Ltd.).

● **Dr. R. W. H. Sargent**, senior lecturer at the Imperial College of Science and Technology, London, has been appointed

professor of chemical engineering at the college.

● **Dr. L. Batt**, a research fellow at Cambridge University, has been appointed a lecturer in physical chemistry at Aberdeen University with effect from 1 October.

● **Sir Howard Florey**, Professor of Pathology at Oxford University since 1935, and a joint winner of the Nobel Prize for medicine in 1945 for his work on penicillin, has been elected Provost of Queen's College.

● **Colonel F. T. Davies**, senior vice-president of Gulf European and a director of International Computers and Tabulators, has also joined the board of British Enkalon Ltd., affiliates of Algemene Kunstzijde Unie, N.V., Arnhem, who have under construction a nylon 6 plant in Northern Ireland.

● In line with their consolidation of technical operations, involving the move into Houston, Tex., of United Carbon Co.'s research and development staff, a number of important appointments have been made. **Dr. A. G. Susie** becomes director of research and development, with **Mr. Travis S. Whitsel** as assistant director. **Dr. W. R. Peterson** is research division manager and **Dr. R. A. Forrester** and **Dr. Norman Smith** become senior research associate and research associate respectively.

● **Dr. Laurence H. Cragg**, vice-president of Alberta University, has been elected president of the 6,000-member Chemical Institute of Canada. **Dr. Richard H. Manske**, a research chemist at Guelph, Ont., becomes vice-president.

Pfizer group set up New York group to study chemical diversification programme

TO stimulate their chemical diversification programme, which has led to the U.K. company's plans to make propylene oxide and polyethers, the Pfizer group have set up a project development division at the New York headquarters. This division assists overseas organisations in surveying and assaying opportunities. A number of possible new projects are now being considered.

This is stated in the annual report for 1961 of Chas. Pfizer and Co. Inc. A highlight of the year was completion of plant at Sandwich, Kent, to make Sabin oral polio vaccine. It is the world's only unit licensed to make this vaccine under both M.R.C. (U.K.) and N.I.H. (U.S.) regulations. Research is in hand with the Medical Research Council for vaccines against the common cold and trachoma.

New fermentation plant is about to start production in the Argentine, while in Italy a new organic synthesis unit for specialities is virtually complete. A programme to develop new products for bulk chemicals has been started in Italy through a joint research venture with Italian companies on itaconic acid.

A new broad spectrum antibiotic, methacycline, has been developed by Pfizer and is undergoing clinical trials. Derived from Teramycin, it is unique in that it was created through partial synthesis.

Narrow and broad spectrum antibiotics showed increased sales of 24%. While Combiotic remains the leader, the synthetic penicillins made good progress in Britain, Germany, Belgium and Sweden. Sales of packaged vitamins were up 30%.

Research spending in 1961 amounted to nearly £5 million. Dividends received from overseas organisations by the U.S. parent company last year totalled more than £3 million.

New laboratories for Unilever subsidiary

A new block of buildings containing laboratories and technical service departments was opened recently by Loders and Nuoline Ltd., a wholly-owned subsidiary of Unilever, at a cost of over £230,000. The completion of the new laboratories enables the company to offer a fully comprehensive technical service.

E.N.I.'s Mattei visits A.N.I.C. Gela site



Enrico Mattei, president of the E.N.I. group, pictured during a recent inspection of progress on the erection of A.N.I.C.'s petrochemical plants at Gela, Sicily. Mattei likes to ensure personally that everything is proceeding satisfactorily at the 30 E.N.I. concerns

SALE OF ANTIBIOTICS SECRETS

Cyanamid sue former employees, allege deals with Italian drug firms

PURCHASE of cheap drugs on the Continent to help cut the National Health Service bill could prove an embarrassment to the Ministry of Health. The Minister's attention has just been drawn to proceedings started last week in the New York Supreme Court by American Cyanamid Co., who allege that their secret processes for Lederle broad spectrum antibiotics have been stolen over recent years and sold to Italian and other companies for large sums of money.

So far the Ministry has cut its drug bill for hospitals by some £500,000; after deduction of royalties the total saving is likely to be around £300,000. The Ministry is already negotiating on royalties and if payment is not agreed then recourse could be made to the High Court for settlement.

Cyanamid claim that losses as a result of the sale of their know-how have totalled £14 million. Mr. O. N. Williams, managing director of Cyanamid of Great Britain Ltd., says his company wants the Ministry to decide whether it is in the best interests of all to continue to import unlicensed drugs that might have had their origins elsewhere.

Inadequate compensation

Cyanamid do not consider that payment of negotiated royalty is adequate recompense to the company for having discovered drugs and developed costly plant or to maintain their position in the world's competitive markets. The company feels that Italy does not develop drugs, but only manufactures them.

U.K. Cyanamid have also asked the Association of British Pharmaceutical Industry to examine the implications in this country of the proceedings in New York.

In these proceedings, American Cyanamid are suing Dr. Sydney Fox, a former development chemist at Lederle's chemical process improvement department, Pearl River, N.Y., for some £1.3 million, and Kim Laboratories Inc., a firm set up by Fox and other scientists, with the alleged purpose of selling Cyanamid's Lederle drug secrets to Italian and Israeli firms. Nathan Sharff and Elio Salvetti are also being sued. (Sharff is being sued by Merck on charges of illicitly turning over trade secrets on Vitamin B₁₂ to an Italian firm.)

In a signed affidavit lodged with the New York Supreme Court last week, John Cancelarich, an employee at Pearl River until 1961, and now residing in Milan, gives details of how he obtained

information and samples from Lederle and passed them on to Dr. Fox, who left Cyanamid's employ in 1959. In the summer of 1960, he claims that Fox told him that he had a sample of the culture used to produce the new broad spectrum antibiotic dimethylchlorotetracycline (DMCTC) which is sold by Lederle as Declomycin.

Fox is alleged to have asked Cancelarich for details of the process for DMCTC, a Lederle trade secret. Cancelarich borrowed confidential reports and photocopied them at Fox's home. With Leonard Fine, an analytical chemist, formerly with Squibb, Fox and Cancelarich set up Kim Laboratories.

Fox is said to have stated that certain Italian firms were keen to buy secret processes and organisms developed by U.S. antibiotic producers, particularly auroemycin and tetracycline, as well as DMCTC and steroids, such as triamcinolone. Fox is said to have already obtained cultures, including chlorotetracycline and tetracycline micro organisms, plus *Streptomyces Roseochromogenus* used by Lederle to produce 16-hydroxylation, which in turn was used for triamcinolone.

Cancelarich says he removed from Lederle 12 grams of triamcinolone which he turned over to Fox who is said to have given it to Elio Salvetti for sale in Italy. Salvetti is alleged to have quoted a price of \$50,000 for the DMCTC culture and know-how; it is also said that the Italian firm interested in purchasing these was Pierrel S.p.A. of Milan and Capua. Leo Industrie Chimiche Farmaceutiche, Rome, are alleged to have been interested in buying tetracycline and chlorotetracycline cultures and know-how.

Met under assumed names

Fox and Cancelarich met Count Niccolo Visconti di Modrone, a top official of Pierrel in New York, under assumed names because Fox was said to have previously sold a Lederle DMCTC culture to LePetit of Milan, affiliates of Pierrel. This sale was said to have been made through another American, formerly with Schenlabs Pharmaceutical Inc.

In addition to the royalty payment on DMCTC, Cancelarich alleges that Visconti would pay Fox and Salvetti a royalty for one year of 25 lire per bottle of eight capsules produced by Pierrel. It is stated that fermentation, refining and extraction procedures were typed from hundreds of Lederle reports which it is said were removed by Fox from Lederle files. Cancelarich adds that he was driven to the Lederle buildings

by Fox where he took lyophilised samples of DMCTC.

In November 1960, Cancelarich says that he and Fox flew to Rome on different planes, Fox taking the procedures and samples. In Rome they were met by Visconti and Salvetti and visited the Pierrel plant at Capua. Cancelarich did a complete DMCTC extraction at Capua for the benefit of their staff. With Fox and Salvetti, he says he then visited the Leo plant where they met Dr. Auletta, president, and Professor Paoline, technical director. During this visit, both Americans are said to have used assumed names.

On this occasion, know-how on chlorotetracycline and tetracycline plus cultures are said to have been handed over for \$50,000, which would be paid partly in cash and the balance in antibiotics. During the next few days, Cancelarich said he demonstrated the extraction of these antibiotics to the Leo staff.

On his return to New York, Cancelarich said he removed more of Lederle's reports on antibiotics, plus blueprints for equipment. These were microfilmed at Fox's house. Cancelarich resigned from Lederle in January 1961, but says he was becoming disillusioned with Kim Laboratories, mainly because Fox failed to live up to his agreement on stock ownership.

Cancelarich says that with Salvetti in March 1961 he negotiated the sale of DMCTC know-how and cultures to Istituto Bio chimico Italiano (I.B.I.), Milan, for some \$50,000; negotiations were stated for a similar sale with M.I.B.A. (Soc. Prodotti Chimiche Farmaceutici) Milan for \$60,000; know-how on DMCTC and tetracycline was also said to have been turned over to Ankermann Italiana S.p.A., Milan.

In his affidavit, Cancelarich says that he recently returned to Lederle the papers and microfilms that he took to Italy in April 1961 and that Fine had turned over to Peat Marwick Mitchell and Co., New York, the boxes of misappropriated Lederle records and drugs and microfilms received from Fox.

Footnote: The Italian Ministry of Industry is studying a draft Bill dealing with the patenting of drugs in Italy. The draft contemplates protection of products and processes but would ban the patenting of serums and vaccines in the public interest and would enable the Government to issue a 'production licence' to a company on a patent held by another company. The 'licensee' would have to pay compensation.

Berk move part of Wolverhampton works

Part of the manufacturing units of the Bailey Street, Wolverhampton works of F. W. Berk and Co. Ltd. have been moved to other factories, although some production will be continued there. There is no intention of closing the works.

Overseas News

U.S. PLASTICISER PRODUCTION REACHES RECORD LEVEL IN 1961

PRODUCTION of plasticisers in the U.S. last year reached a record 630 million lb., a rise of 28 million lb. on 1960, according to the U.S. Tariff Commission. Sales in 1961 totalled 536 million lb., valued at \$155 million, compared with 500 million lb. worth \$149 million in 1960.

Of the 1961 production total, some 472 million lb., compared with 445 million lb., were in cyclic plasticisers (phthalic anhydride and phosphoric acid esters and complex polymeric-type materials). Sales, amounting to 405 million lb. were valued at \$106 million, compared with 384 million lb. worth \$103 million in 1960.

Output of acyclic plasticisers (esters of adipic, azelaic, oleic, phosphoric, sebacic and stearic acids, and complex polymeric and epoxy plasticisers) totalled 157 million lb. last year, or around the 1960 level. Sales of 131 million lb. were worth \$49 million, compared with 1950 totals, which are not strictly comparable, of 116 million lb. valued at \$45 million.

India cuts import quota for established importers

The Government of India has announced cuts of 50% in the import quotas of established importers for the period to September 1962 and has reduced quotas issued to actual users. Imports of 95 items, mainly consumer goods, are banned; quotas for 23 items, including foodstuffs are to be cut to 25% of the 1961 figures; while 21 items, mainly industrial raw materials, chemicals and some equipment, will be liberally licensed.

Lederle lead tetracycline price cuts

A 15% drop in the price of some tetracycline products has been announced by Lederle Laboratories. Other producers have adjusted their prices to the new level. Lederle antibiotics affected by the cuts are the principal forms of Decloxylin dimethylchlorotetracycline, Anchromycin dimethylchlorotetracycline and Aureomycin dimethylchlorotetracycline.

Phillips to build petrochemical complex in Spain

Phillips Petroleum are to build a petrochemical complex in Spain in conjunction with Empresa Nacional Calvo Sotelo de Combustibles Liquidos y Lubricantes. It was announced in CHEMICAL AGE (17 June 1961) that Calvo Sotelo were expected to go ahead with a refinery and a petrochemical complex for which official approval was obtained in 1960.

The complex will include plants to make high density polythene, butadiene,

carbon black and *cis*-polybutadiene rubber. Calvo Sotelo, a subsidiary of Instituto Nacional de Industria, also plan to expand plants to produce feedstocks for polythene, polypropylene and other petrochemical products.

Bayer expect satisfactory 1962 results

Although feeling concern over the drift towards shorter working hours, the chairman of Farbenfabriken Bayer expressed confidence that 1962 results would be maintained at a "satisfactory level". The firm is expanding in new products.

Nitto/Du Pont agreement on Teflon and Freon

AN agreement has been signed, subject to the approval of the Japanese Foreign Investment Council, between Nitto Chemical Industry Co. and Du Pont for the manufacture of fluorinated hydrocarbon products in Japan.

A joint company, Nitto Fluoro Chemicals Co. Ltd., owned on an equal basis by the Japanese and U.S. concerns, will produce 900 tonnes of Teflon a year and 15,000 tonnes of Freon. Production will be carried out at Nitto's Yokohama factory which will be expanded for the purpose. Completion of construction is scheduled for 1964.

Under the agreement Du Pont have granted the use of their patents and know-how and will also supply assistance in the design of plant and production. Payments by Nitto involve royalty and 5% of the sales but no down payment. For Freon 11, 12 and 22, the payment is 2½%.

Phillips set up joint feedstock venture in Italy

In co-operation with Dr. Pietro Boschetti, Dr. Giuseppe Ravasi and Dr. Antonio Scarsarelli, Phillips Petroleum Co. of Bartlesville, U.S., have set up in Milan the new company Petrolchimica Idrocarburi to supply petroleum and sulphur derivatives to petrochemical concerns operating in Italy.

New joint Chemical venture planned in Austria

Donau-Chemie AG have stated in Vienna that negotiations are at an advanced stage between Donau-Chemie and an unnamed non-Austrian concern for the opening of new chemical capa-

Austria favours link between East and West pipelines

Controversial statement that it favoured a direct link-up between the projected Trieste-Vienna pipeline and the Comecon pipeline system which terminates at Bratislava in Czechoslovakia, was made last week by the Austrian Government. Only a short connecting link would be needed as Bratislava is 40 miles from Vienna.

At present Austria imports some 670,000 tonnes/year of Soviet crude; domestic consumption of petroleum products is rising at a rate of well over 10% a year (or 3.1 million tonnes) and a moderate rise in imports from the U.S.S.R. is envisaged. It is proposed that the Schwechat refinery should be supplied only with domestic and Middle East crude.

Two new Mexican projects authorised

President Mateos of Mexico has authorised the formation of two new private enterprise chemical concerns. One of them, Silicatos de Mexico, will invest the equivalent of some £71,000 in a plant to produce benzoic acid and other toluene derivatives. The other new plant, in which will be invested the equivalent of nearly £86,000, will produce other derivatives, among them monochloroacetic acid.

cities at the former company's Moosbierbaum, Austria, plant. Work on the new unit could start by the end of this year and production begin within two years of this. The foreign partner would provide capital and process know-how.

Sulphur acid production of the Moosbierbaum plant has recently been expanded to 30,000 annual tonnes (capacity is some 45% higher), while it is planned to build a £1,600,000 chlorine electrolysis unit there in the future. Although it has not been disclosed what the 'new' capacities would be, it seems likely that they will be in the fields of plastics.

'Rep' group may enter French petrochemicals

The so-called 'Rep' group of companies, including Finarep and Cofirep, are likely to enter the petrochemical field, according to latest reports from Paris. The 'Rep' firms, independent companies set up some years ago to finance and carry out mineral oil exploitation in the Sahara, were restricted to such activities by Government decree in 1955. It is now planned, however, to allow up to 25% of the companies' funds to be spent on such other branches of the oil industry as processing, petrochemistry, transport and distribution.

I.C.I. chairman pleads for less secrecy in chemical industry

A PLEA for less secrecy in the chemical industry was made by Mr. S. P. Chambers, chairman of I.C.I., when speaking at a dinner for delegates to the third congress of the European Federation of Chemical Engineering held in London last week.

Mr. Chambers wondered if some sections of industry could not help the cause of chemical engineering a little more by allowing problems to be discussed more freely in academic circles and in being less secretive. There was still a measure of nineteenth-century thinking in the way in which companies kept hidden a lot of process information about which they thought secrecy was more important than it really was.

Clearly, declared Mr. Chambers, there were times when secrecy was essential, but there usually came a time when with mutual advantage the door could be opened a little without putting a company's business in jeopardy.

With only a limited number of chemical engineers to solve many problems, it was important that those working in universities and research establishments should understand the basic problems in industry so that they could play their part without hindrance. It was more difficult for them to understand the industry's current problems if the door

was kept bolted and barred. He added: "Perhaps all that is needed is a change of emphasis in some sections of industry."

Mr. Chambers said it was now more important that new processes and developments to existing processes should be exploited on full-scale plant as soon as possible. To remain successful in the chemical field, meant that there was no longer ample time to carry out this operation. "A year's or even six months' advantage over competitors could be of major importance to the success of a project."

It was no longer good enough to make a process work so that a product of high quality emerged. The industry had to fight all the time to economise not only in the amount of labour required for a process, but also in the amount of capital needed so that total costs per unit of product were kept to a minimum.

Mr. Chambers proposed the toast of the European Federation, to which Mr. Colin Sparing, president of the Institution of Chemical Engineers, responded. Mr. Sparing made a plea for scientists and engineers to cut out jargon in their communications and to write in plain English. He asked chemical engineers to use the simpler words in their proper sense.

New, cheap, colour service for plastics

A NEW colouring service for polythene, polystyrene and acrylics, offered by the plastics division of Ferro Enamels Ltd., of Wombourn, Wolverhampton, will allow customers to select their material from any manufacturer, which, up until now, has not been possible. The service includes free-of-charge colour matching combined with quick delivery on short runs of special colours, for the first time in the U.K.—a considerable economic advantage to the smaller user. The charge made is said to be less than that of manufacturers who colour their own polymers.

Ferro will collect polymer from the supplier, colour it, extrude and granulate it. The compounds to which the service applies are low and high density polythene, conventional and high-impact polystyrene, in addition to the dry powder pigments and pigment dispersions previously offered.

Ferro's prices range downwards from 9d per lb. on a range of 2 cwt to 6d where a contract is made for 100 tons a year or more. Also, various colours on one order are charged at the rate for the total quantity ordered. Delivery is seven days on receipt of polymer.

I.S.R. may make Flosbrene at Hythe plant

REASON why Anchor Chemical Co. Ltd., Manchester 11, have handed over the exclusive distribution in the U.K. of the Flosbrene range of SBR to International Synthetic Rubber Co. Ltd., Hythe (CHEMICAL AGE, 16 June, p. 1020), is that I.S.R. are considering the production of these products under licence from the producers, American Synthetic Rubber Corporation, Louisville.

First essential of such an arrangement is to complete a market survey and establish the precise needs of the U.K. market. Anchor Chemical state this can best be done by direct marketing of the current material as imported from A.S.R.C.'s plant in the U.S.

Hungarian trade team arrives in London

A TRADE mission from Hungary arrives in London this week on a 10-day visit to the U.K. at the invitation of the London Chamber of Commerce. The 12-man team will visit Government Departments and the Chemical and Petroleum Engineering Exhibition.

The mission includes representatives of Hungary's chemical industrial equipment and agricultural industries.

CIBA/Shell epoxy patent agreement continued

The agreement concerning patents relating to epoxy resins, which has existed between CIBA (A.R.L.) Ltd., and Shell Chemical Co. Ltd. for many years, is being extended and continued for a further period. Both CIBA and Shell enjoy strong patent positions with regard to epoxy products.

Most of Courtaulds' £16.5 million capital spending goes on fibre developments

IN keeping with the board policy of publishing more information about the company, which emerged during the takeover struggle against I.C.I., the annual statement of Courtaulds Ltd. issued this week contains far more details than it has in any previous year, particularly on fibres. In general, the results have followed the predictions made by the company earlier in the year.

During the year ended 31 March, Courtaulds spent £16,551,000 on capital investment, just over £1 million of which was derived from the sales of assets. The major portion of this sum was spent on fibres and related activities—£5 million on viscose fibres, £3 million on acetate and £2.7 million on synthetic fibres. The packaging field accounted for another £2.7 million and paint for £646,000.

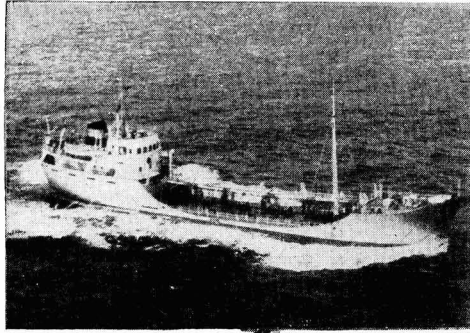
The cost of research throughout the group during the year was £3 million, a figure marginally higher than last year. Substantial improvements have been made in the properties of the company's established fibres, and a programme of research has been devoted to reducing the cost of manufacture. The search for new fibres continues, and sufficient progress was made in the development of

mod-acrylic yarns for a new flame resistant fibre, BHS, to be produced on a pilot plant scale. The future of the new fibre is considered promising and plans are in hand for increasing the scale of production at an early date.

A new research laboratory at the Celanese factory at Spondon, primarily concerned with new chemicals and plastics, and designed to bring together existing scattered units, will be completed this summer.

Of the total profit before tax of £17,706,000 (£18,697,000), £8.3 million (£8.9 million) came from viscose fibres, and £4.7 million (£3.6 million) from acetate fibres, £323,000 (£582,000) from synthetic fibres, £3.1 million (£3.7 million) from packaging and £1.3 million (£987,000) from paint. The sum of trading profits from all activities less central expenses was £14,157,000 (£15,003,000).

The group external sales for 1961-62 were £173,332,000 (£171,922,000), of which fibres and related activities were responsible for £102,480,000 (£101,845,000). U.K. sales were £110 million, £1 million down on last year, and direct exports from the U.K. totalled £25 million compared with £26 million for the previous year.



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Company Meeting**PHILBLACK LTD.****Lieutenant-Colonel C. P. Dawnay's Statement**

THE twenty-sixth Annual General Meeting of Philblack Limited will be held on Monday, the 16th July 1962, at The May Fair Hotel, London W.1.

The following is an extract from the Statement by the Chairman, Lieutenant-Colonel C. P. Dawnay, C.B.E., M.V.O., circulated with the Report and Accounts for the year ended 31st March 1962:—

The group profit for the year to 31st March 1962, before taxation, is £778,383, which figure includes a first full year's trading by the subsidiary company—Philtankers Limited. This figure is approximately £130,000 lower than that of the previous year, owing to a decrease in sales of carbon black abroad, only partly made good by a small growth of business in the home market.

The m.t. "Avon Ranger", which is operated by our subsidiary company, was fully occupied throughout the year. The Consolidated Accounts include a full year's depreciation on this vessel, but at a higher rate than previously, which entails an adjustment in respect of the previous six months' trading. The basis of the depreciation charge for the Avonmouth Works is unchanged. Total depreciation for the year, as shown in the Consolidated Accounts, amounted to £368,960, as compared with £329,382 for 1961.

The net group profit after taxation is £379,755. To this must be added the amount brought forward from last year of £175,523, and taxation credits relating to previous years of £50,966.

Transfers to General and Pension Reserves of £250,000 and £3,094 respectively have been made, and the directors recommend a final dividend of 9% and a bonus dividend of 5%, less tax, making, with the interim dividend of 6% paid on the 20th February 1962, a total of 20%, less tax, for the year. These transfers and the dividend recommended will require £421,991, which will leave to be carried forward £184,253.

Ten-year Review

We commenced production of Carbon Black at the Avonmouth Works on 1st May 1951, and the Accounts now before you mark the tenth complete year of trading. I feel that it is appropriate to review a few of the events of those years. Many extensions and improvements have been made at Avonmouth and our plant now has a rated capacity of two-and-a-half times its original designed capacity. In 1951 we were manufacturing two grades of Black and are now in full commercial production of five grades.

The volume of our sales in the Home Market is now more than double that

of our first full year's trading, and in the past financial year reached the highest figure attained to date. I think we may hope for a continuing slow increase. Our sales in the Export Market have risen from a mere trickle in 1951 to a value of nearly one and three quarter million pounds sterling in 1961/62, but new carbon black plants built overseas will inevitably reduce the amount of carbon black we can sell abroad over the next few years. Our Sa'es Agents, R. W. Greeff & Co. Ltd., are to be congratulated on the success resulting from their diligence and untiring efforts on our behalf.

In spite of increases in the price of our raw materials and running costs generally, we have been able, progressively, to reduce our sales prices by over twenty-five per cent during the past ten years. We shall endeavour to continue to do so whenever the opportunity arises, and in fact, in April last, further reductions were made in the sales prices of all grades of Black.

Most of our original staff and workmen have remained with us over the years, and under our indefatigable Managing Director, Mr. J. C. H. Barrow, we have been able to build up a happy, competent and energetic team, devoting themselves to providing a good service to our customers, as well as to development and research. I would like to thank them all on your behalf.

Capital Proposals

The satisfactory trading results over the last few years have enabled us not only to repay all our Loan Capital but to build up a General Reserve of £1,350,000. A large majority of the present Shareholders are those who originally invested in what was then a new industry to this country. It is now time that Shareholders should receive further reward for the patience and trust which they placed in the Company. The Board, therefore, recommend that the Company should capitalise part of its Reserve by making a bonus issue to Shareholders of one ordinary share for every two held. At the same time it is proposed to subdivide each of the shares of £1 each into two shares of 10s each, and to apply in the near future to the Council of the London Stock Exchange for an official quotation for the Company's shares.

For this purpose an Extraordinary General Meeting will be held immediately following the Annual General Meeting to consider, and if thought fit, pass the necessary resolutions to implement these proposals, and to authorise the necessary alterations to the Company's Articles.

The Future

In these uncertain times it is seldom wise to predict the future. We are already feeling the effect on our export sales of the competition of several new Carbon Black plants in Europe. It is early yet to estimate what effect our entry into the Common Market would have on our sales in England, but on the whole I am not unduly concerned over the increased competition to which we should be exposed here. Overall, however, we must expect a reduction in total sales in the current year. In addition prices of all the main grades of carbon black were reduced early in April by a farthing per lb. As a result of these two factors profits for the current year will be below those of the year just ended.

In my Statement last year I mentioned that we were endeavouring to give more stability to our business by expanding the scope of the Company's activities, and that the Board were exploring ways and means to that end. We have recently entered into an agreement with an American Company to enable us to obtain, in the United Kingdom and several other countries, exclusive rights to use a new process for the production of chlorine. This process is still in the development stage, but does appear to hold considerable promise for the production of chlorine and certain alkali metals at a substantially reduced cost.

We have built up a considerable goodwill for our products both at home and abroad, and I would like to thank our many customers for their continued support and to assure them that we shall continue to strive to give every satisfaction in quality and service.

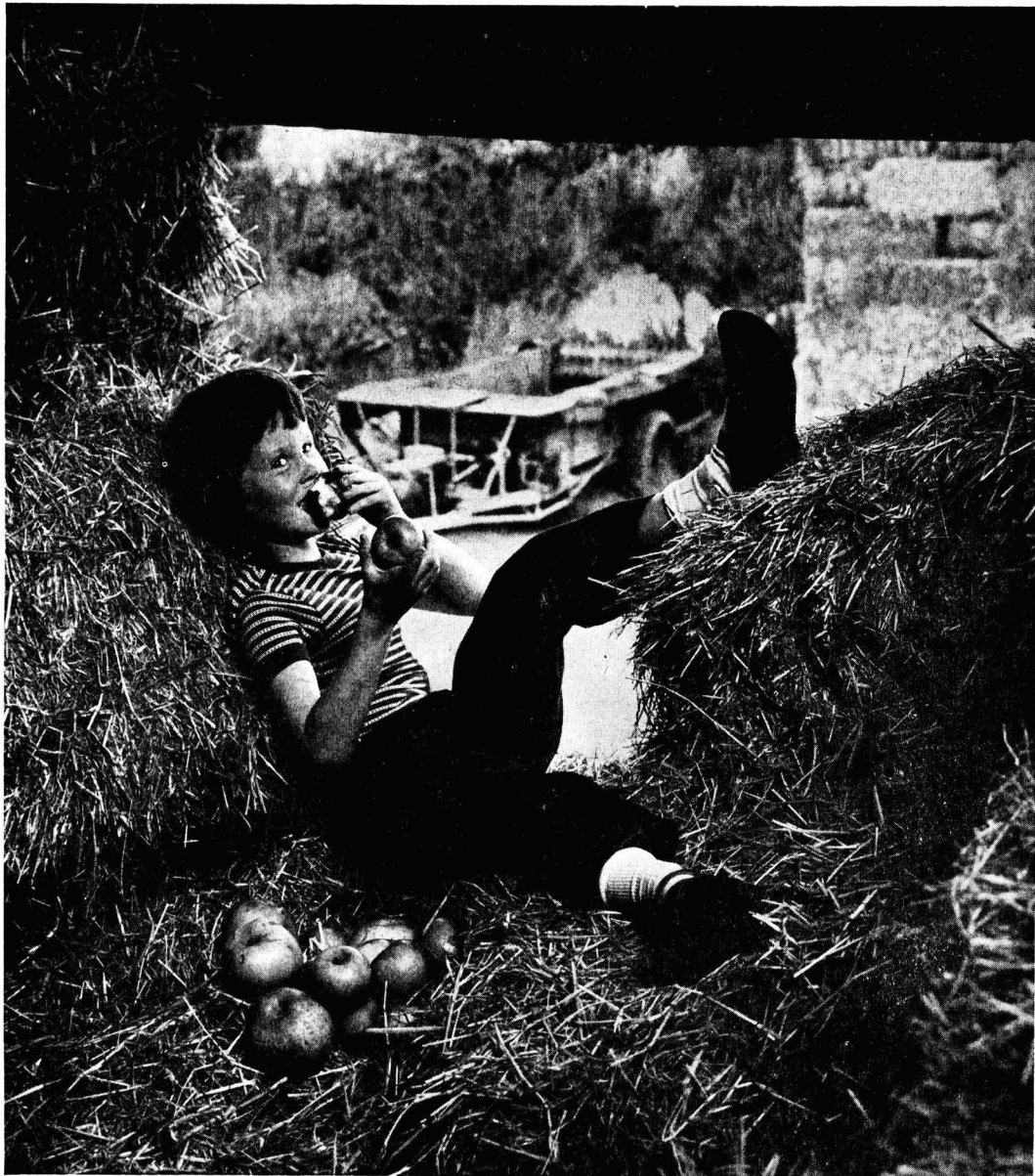
Benn Brothers acquire shipping journal

The Shipping World, the oldest established journal for the shipping and ship-building industries throughout the world, is joining the Benn group. Benn Brothers Ltd., publishers of 18 trade and technical journals, have acquired the controlling shareholding in the company from the executors of the late Sir Archibald Hurd, who was for many years editor-proprietor of the journal and shipping correspondent of *The Daily Telegraph*.

The Shipping World was founded in 1883 and its associated publications, *Ship Stores and Catering* (a quarterly), as well as *Ports of the World* (annual) and *The Shipping World Year Book and Who's Who*, are included in the change of ownership. No staff changes are envisaged. It will continue to be published at 127 Cheapside, London E.C.2 for the present.

New chemistry block opened at Birmingham University

Sir Harry Melville, secretary of the Department of Scientific and Industrial Research, opened a new £1-million chemistry block at Birmingham University on 22 June.



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Commercial News

A.C.C. (Fertilisers)

The Farmers' Co., the Eaglescliffe Chemical Co. and Robert Stephenson and Son, which constitute the agricultural services and supplies division of Associated Chemical Companies, will in future operate as one company under the name of A.C.C. (Fertilisers). The agricultural chemicals and contract spraying business of F.C.L. Crop Protection will be continued under the name of Farm Protection.

British Glues

Pre-tax profit of British Glues and Chemicals for the year ended 31 March was virtually unchanged at £462,563 against £458,219 in the preceding year. Tax takes £157,000 (£147,000). In an interim statement in January the directors said that "results for the current year to date are again better than for the same period of the previous year".

As forecast, the final dividend remains unchanged at 17½%, making a total distribution of 22½%, the same rate as that of the preceding three years.

The directors of British Glues and Chemicals are actively considering the most desirable means of raising further long term capital in order to repay bank borrowings (£509,330) and to provide additional working capital for increased gelatine production.

Trading conditions are still highly competitive, said the chairman, but the group has achieved a better balance between glue and gelatine capacities and the directors believe that outlook continues to be one of steady progress.

Columbian Carbon

The interest of the General Electric Co. Ltd. in Columbian-General Blacks Ltd., has been acquired by Columbian Carbon Co. U.S. Columbian International (Great Britain) Ltd. will continue as sole selling agents for Columbian-General Blacks Ltd., who become a wholly-owned subsidiary of the U.S. company. Columbian Carbon are now opening up the prospect of full-scale development of Columbian-General Blacks and "to this task will bring all the technical experience and manufacturing resources of the U.S. company."

Head, Wrightson

Turnover of the Head, Wrightson group in 1961 was a record, though total profits fell from £787,130 to £707,047. Dividend is maintained at 16%.

Permutit

Volume of business outstanding for the Permutit Co. Ltd. at 31 December last was up by some £1 million on the previous year. More than 60% is for export and it includes contracts where the main work will only be under way in 1963. A big export contract gained

- Re-organisation of A.C.C. fertiliser firms
- Philblack plan one-for-two scrip issue
- Permutit outstanding business up by £1m.
- Mathias Stinnes profits tumble

against worldwide competition is for water treatment at the new refinery and petrochemical installations (of A.N.I.C. at Gela, Sicily). This will be one of the world's largest demineralisation plants and will come into operation progressively from June to December this year.

Philblack

Philblack Ltd. propose a one-for-two scrip issue and plan to sub-divide their £1 shares into 10s units. Application will shortly be made to the London Stock Exchange for an official quotation. This is disclosed by chairman Lieut.-Colonel C. P. Dawney in his annual report.

Col. Dawney says that group trading profit including a first full year's trading by Philtankers Ltd., was £778,383 (£908,873). Net profit was £379,755 (£457,515) and dividend is maintained at 20%. The fall in profits reflects a decrease in exports of carbon black, which was only partly made good by a small growth of business in the U.K. A reduction in sales must be expected in 1962 and as all main grades of carbon black were cut by ¼d/lb. in April, profits will also be down on 1961-62. Competition from new carbon black plants on the Continent will inevitably affect export sales. Col. Dawney is not unduly concerned about increased competition if Britain joins the Common Market. (See also p. 1076 for chlorine plants).

Chemische Werke Albert

Chemische Werke Albert, West Germany, report 1961 net profit of DM1.8 million (DM1.6 million) after reserve of DM2.5 million (DM1.1 million), taxes of DM3.3 million (DM3.6 million) and depreciation of DM3.5 million (DM3.1 million). Dividend is 11% (10%). Capital has been increased from DM15.7 million to DM20.7 million.

Du Pont

A group of major Du Pont stockholders, including members of the Du Pont family as well as Christiana Securities, plan to sell a large block of General Motors stock. The group is expected to file a registration statement with the Securities and Exchange Commission.

Glanzstofffabriken

Vereinigte Glanzstofffabriken, the West German synthetic fibre producer, is to pay a dividend of 14% for 1961 (same).

Enthoven

Applications for 347,818 shares were received for the recent rights issue of 600,000 H. J. Enthoven Ordinary 5s

shares at 7s 6d each. The balance of 252,182 shares have been allotted to N.V. Billiton Maatschappij in accordance with the terms of the underwriting agreement.

Glanzstoff-Fabrik

Glanzstoff-Fabrik, Austrian subsidiary of A.K.U., report 1961 turnover of Sch.68.5 million (Sch.64.7 million). Gross profit was Sch.86 million (Sch.72.6 million) while depreciation took Sch.21 million (Sch.18 million) and taxes Sch.1.4 million (Sch. 1 million). Due to the Sch.33 million investment the year closed with a net deficit of Sch.3 million.

Matières Colorantes

Compagnie Française des Matières Colorantes announce an increase in total turnover by 3% to NF243.8 million in 1961 with turnover from dyes up by 7%. Profits, however, were only NF196,000. It is expected that the company will be completely integrated into its parent concern, Ets. Kuhlmann, who at present hold 74% of the equity.

St.-Gobain

Net profit in 1961 of Compagnie de St.-Gobain was NF44,648,773 (NF39,960,226). Dividend is NF5.25.

Mathias Stinnes

Steinkohlenbergwerke Mathias Stinnes, the coal and chemical member of the Stinnes organisation announce a dividend of 6% for 1961 against 10% in 1960. Turnover was DM469 million (DM471 million) but profits were only DM2.2 million (DM10.2 million). The drop is attributed to lower prices in both the coal and chemical sectors coupled with higher costs, especially for labour.

INCREASE OF CAPITAL

LIQUEFIED PRESSURE GASES ANCILLARY SERVICES LTD., 36 Higham Road, Rushden, Northants. Increased by £112,296 beyond the registered capital of £100. (Calor Gas Holding Co. Ltd. hold 112,494 of the issued shares.)

NEW COMPANIES

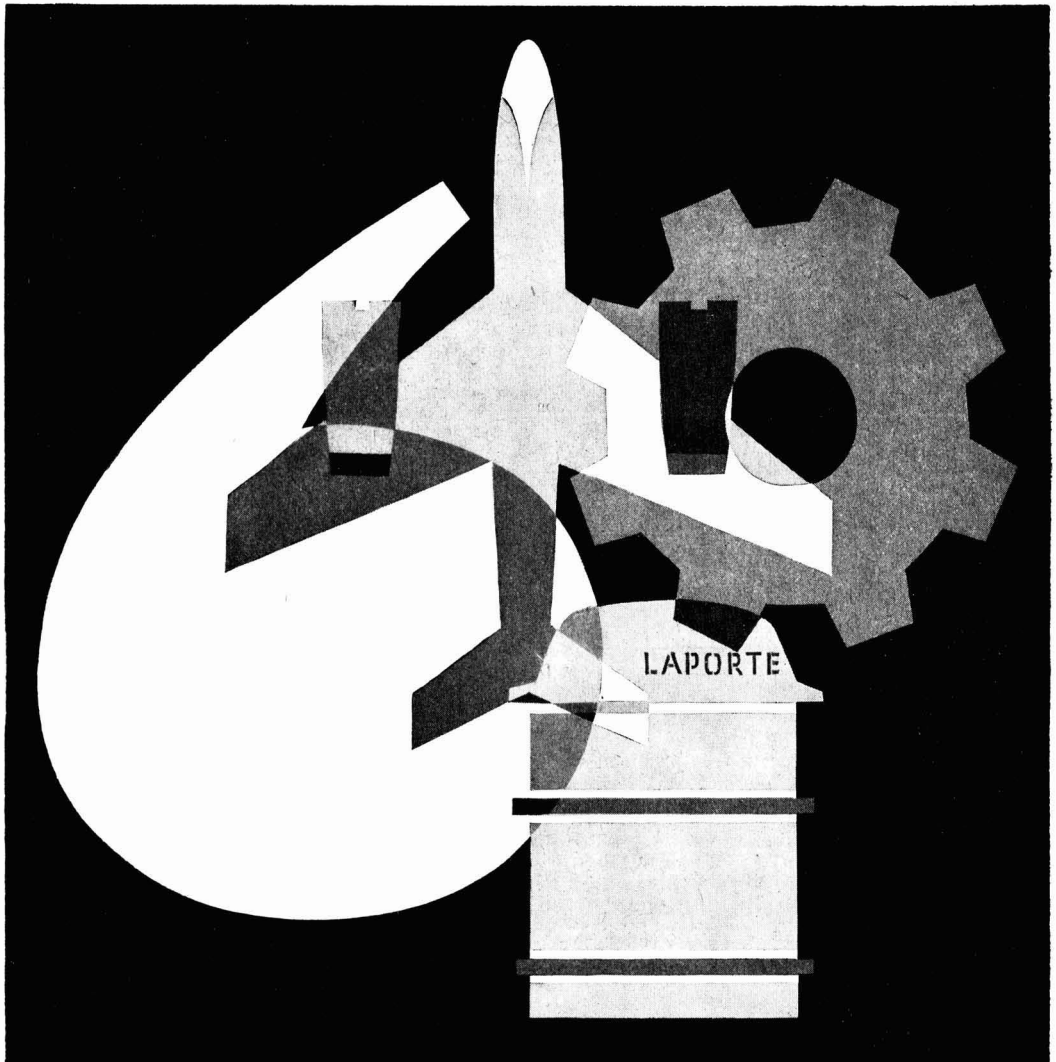
DASIC CHEMICALS LTD. Cap. £1,000. Manufacturers of and dealers in industrial chemicals, dyestuffs, etc. Directors: E. D. R. Eagar and J. P. Burnett. Reg. office: 31 Westwood Road, Southampton.

RIDGEPAK CHEMICALS LTD. Cap.: £10,000. Manufacturers of and dealers in fertilisers, fruit and crop sprays, etc. Directors: R. D. J. Ridgeon, J. D. Ridgeon, P. W. Ridgeon and H. G. Masters. Reg. office: 21 London Road, Great Shelford, Cambs.



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TRADE NOTES

Largest blow moulding machines

Agreement has been reached between J. Brockhouse and Co. Ltd., Denton, Manchester, and Williams White, of Moline, Ill., U.S., whereby the British company has been appointed sole licensee outside North and South America and Canada for what are believed to be the world's largest blow moulding machines. The biggest of these, it is said, can produce a container of up to 35 lb. in weight and with a capacity of about 250 gall., these limits being imposed by the hot strength of the plastics materials available.

A.E.A. offer depleted uranium

The Production Group of the U.K. Atomic Energy Authority is now offering uranium metal depleted in uranium-235 for sale in this country either in the form of metal billets or as components machined to customers' specifications. The use of uranium instead of lead to shield X-ray machines and other industrial and medical radiation sources enables savings of up to 75% in weight and 87% in volume, according to the type of container involved.

New Tuffine leaflet

A new leaflet describing the features of the latest designs of Tuffine valves has been published by A. J. G. Waters Ltd., 9a Clarendon Street, London S.W.7. The whole range of 150 and 300 class valves, including 3-way, 4-way and 5-way types, is included.

Obsolete valves listed

In the course of production and development of the range of alloy valves of Langley Alloys Ltd., Slough, Bucks, many designs have been improved to the extent where the original designs are now virtually obsolete. It has therefore been decided to discontinue the supply, as complete valves, of obsolete types after 30 September 1962. Spares for these types will be available up to 30 September 1964. A list of the valves concerned is available from the company.

Publication on p.t.f.e.

A new publication dealing with p.t.f.e. has been issued by Turner Brothers Asbestos Co. Ltd., Rochdale. Fully comprehensive and detailing the range of p.t.f.e. products available, which includes impregnated asbestos and glass-fibre textiles, this booklet carries dimensional information of tubes, sheets, and tapes, as well as supplying complete specifications for machined components, gaskets, rings and packings.

Cray Valley licence

Cray Valley Products Ltd., St. Mary Cray, Orpington, Kent, announce that they have arranged to produce Synocryl 830S, a thermosetting acrylic resin, under licence from Pittsburgh Plate Glass International S.A.

Advantages claimed for the material are lower stoving schedules, an optimum curing schedule of 30 minutes at 130°C, and exceptional latitude in formulation. A series of demonstration boards has

been produced which illustrate the film properties obtainable. The boards are so arranged that customers may easily view them in their own works.

Reagent for potassium

A new leaflet on Kalignost brand sodium tetraphenyl boron, manufactured by E. Merck AG, of Darmstadt, W. Germany, which describes its use in the detection and determination of potassium and alkali-like nitrogen or oxygen bases, is now available from Anderman and Co. Ltd., Battlebridge House, 87-95 Tooley Street, London S.E.1.

Change of address

After 30 June the Fire Protection Association will be moved to Aldermay House, Queen Street, London E.C.4 (City 5222).

Bufllovak equipment

Bufllovak processing equipment for chemicals, pharmaceuticals, by-product recovery, and petrochemicals are summarised in catalogue 399 by Bufllovak Equipment Division, Blaw-Knox Co., Buffalo, N.Y. The new eight-page pamphlet defines nine types of evaporators, five dryers, three flakers, and several types of processing vessels and package units, including radiant-heated kettles.

New chromium oxide

A new grade of chromium oxide, called W Grade, has been developed by Associated Chemical Companies Ltd., P.O. Box No. 6, Brotherton House, Westgate, Leeds 1, to meet the growing demand for high quality green pigment. The new oxide is yellower in shade and, it is claimed, brighter and cleaner than normal grades of chromium oxide. It is specially recommended for all classes of

enamel paints in full permanent green shades and for light-fast tints, where previously chromium oxide has not been favoured. It is also suitable for all types of interior and exterior emulsion paints and has good properties in air dried alkyd media.

Polystyrene equipment

Pierson, Meunier and Co. Ltd., 115 Princess Street, Manchester 1, have been appointed official U.K. agents for all machinery from Industrie Holland NV, Utrecht, makers of machinery for expanded polystyrene and latex dipping apparatus.

MCPA shows promise against bracken

TRIALS carried out by Fisons Pest Control Ltd. indicate that MCPA, when applied at much higher rates than originally tried, is very effective against bracken. Spraying is carried out when the fronds are getting towards the fully expanded stage. It is thought that too early spraying may have been responsible for the lack of success with MCPA in the past.

Two commercial products were used throughout the tests—Fisons MCPA and phenoxylene plus MCPA.

New name for Courtaulds fibre

The polyynsic fibre of Courtaulds, previously known under the code name of SC.28 fibre, will in future be marketed under the registered trade name of Vincel. The fibre can be processed on conventional and modified spinning equipment. Courtaulds say that the fibre's high initial wet modulus gives it a natural resistance to shrinkage.

Market Reports

GOOD DEMAND FOR SODIUM PRODUCTS

LONDON A continuation of steady trading conditions has been reported from most sections of the industrial chemicals market with a fair volume of new inquiry on home and export account. Among the soda products there has been a good call against contracts for chlorate, bichromate, yellow prussiate and the photographic grades of hyposulphite of soda, and there has been an active buying interest in borax, boric acid and hydrogen peroxide. The agricultural chemicals market has been steady with compound fertilisers attracting attention for immediate and nearby delivery. The position of the coal-tar products has changed little and prices remain steady.

MANCHESTER Trading activities on the Manchester chemical market this week have been adversely affected by the fact that a number of towns in Lancashire and the north-west are now

observing their annual holidays. This factor is expected to make itself felt on an increasing scale during the coming weeks. Contract deliveries of the alkali products and most other heavy chemicals have been affected to some extent in consequence, and seasonally quieter conditions have also been reported in respect of new business. On balance, there have been few changes in the price position.

SCOTLAND The past week has been one of exceptional activity in practically all sections of the industry and the demand for forward delivery implies that this improvement is likely to be maintained. The agricultural trade has also been extremely active with a good volume of orders booked for prompt delivery. The amount of business placed for export has been slightly up on the figures of previous weeks although the situation on the Canadian market has called for some price modifications.

NEW PATENTS

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Specifications filed in connection with the acceptances in the following list will be open to public inspection on the dates shown. Opposition to the grant of a patent on any of the applications listed may be lodged by filing petitions form 12 at any time within the prescribed period.

AMENDED SPECIFICATION

On sale 25 July

Anilides of ω -dialkylaminoalkyl carboxylic acids. Abildgaard-Elling, K. 760 023

ACCEPTANCES

Open to public inspection 1 August

Production of compounds of heavy metals with organic residues. Maxicrop Ltd. 902 563
 Preparation of steroid derivatives. Glaxo Laboratories Ltd. 902 254
 Steroid derivatives. Glaxo Laboratories Ltd. 902 255
 Treatment of gases. Humphreys & Glasgow Ltd. 902 256
 Production of iron oxide. International Nickel Co. (Mond) Ltd. 902 568
 Oxidation of residual petroleum waxes. British Petroleum Co. Ltd. and Vossler, J. L. 902 621, 902 622
 Preparation of suspensions of water-soluble solids in oleaginous media. British Petroleum Co. Ltd. and Blake, E. J. 902 623
 Process for the manufacture of hard waxes. Farbwerke Hoechst AG. 902 569
 Extraction of gas from solid fuel. Steinmüller GmbH, L. & C., and Steinkohlen-Elektrizität-AG. 902 624
 Catalytic hydrogenation of gas oils. Labofina SA. 902 437
 Preparation of C-alkylated piperazines. Jefferson Chemical Co. Inc. 902 570
 Process for the polymerisation of ϵ -caprolactam. Sebenda, J., and Kralicek, J. 902 577
 Polymerisation of vinyl monomers in rubber latex. Natural Rubber Producers' Research Association. 902 451
 Flameproofing polymeric materials. Expanded Rubber Co. Ltd. 902 354
 Storage of materials. Monsanto Chemical Co. 902 333
 Reserpine analogues. Laboratoires Francaise de Chimiotherapie. 902 356
 Fungicidal compositions containing quaternary ammonium salts of dithiocarbamic acids. Aagrnuol Chemische Fabrieken NV. 902 627
 Continuous esterification process. Distillers Co. Ltd. 902 355
 Process for the preparation of amylose solutions. Vaessen-Schoemaker Holding NV. 902 336
 Solvent extraction processes. United Kingdom Atomic Energy Authority. 902 337
 Process for the polymerisation of basic compounds. Ciba Ltd. 902 628
 Acid anhydrides and the preparation of polyamides therefrom. Celanese Corporation of America. 902 358
 Light sources for the spectrochemical analysis of substances. Centre National de la Recherche Scientifique. 902 410
 Electrolytic production of aluminium. Kaiser Aluminium & Chemical Corporation. 902 485
 Hydrogen production. Esso Research & Engineering Co. 902 338
 Qualitative analysis of loose solids by irradiation and apparatus therefor. Stamicarbon NV. 902 478
 Antibiotic production. Glaxo Laboratories Ltd. 902 629
 Ion-exchange treatment of water. Permutit Co. Ltd. 902 347
 Therapeutically-active alkylamines. Pfizer Ltd. 902 617

Process for the fixation of pigments on fibrous materials and foils. Farbwerke Hoechst AG. 902 483
 Lecithin compounds. Central Soya Co. Inc. 902 348
 Production of nitrophenetoles. Monsanto Chemical Co. 902 306
 Azo dyestuffs containing trihalopyrimidyl amino groups and their use. Geigy AG, J. R. 902 618
 Production of nickel carbonyl. International Nickel Co. (Mond) Ltd. 902 307
 Process for the production of glycolic acid nitrile. Deutsche Gold- und Silberscheidanstalt. 902 309
 Preparation of benzothiadiazine compounds. Morson & Son Ltd., Thomas. 902 380
 Gas-liquid contact apparatus. Chiyoda Kako Kensetsu Kabushiki Kaisha. 902 223
 Polyazo dyestuffs derived from barbituric acid and process for their manufacture. Ciba Ltd. 902 228
 Production of polycarbonates. Columbia-Southern Chemical Corporation. 902 538
 Polymer blends of high heat distortion point. Borg-Warner Corporation. 902 619
 Steroids and the manufacture thereof. Upjohn Co. 902 292
 Arrangement for direct-indicating spectrochemical analysis. Deutsche Akademie der Wissenschaften zu Berlin. 902 466
 Aromatic condensation polymer and method for its production. Dow Chemical Co. 902 620
 Pigments and coating compositions. Du Pont de Nemours & Co., E. I. 902 630
 Keratin protecting compositions. Geigy AG, J. R. 902 631
 Process for preparing an α -halogeno- ω lactum. Stamicarbon NV. 902 389
 Oxidation of alcohols. Esso Research & Engineering Co. 902 368
 Preparation of dichloro- or trichloro-cyanuric acid or mixtures thereof. FMC Corporation. 902 539
 Process for producing fibrous polycarbonate material. Kunoshima Kagaku Kogyo Kabushiki Kaisha. 902 580, 902 581
 Tablets or granules. Pfizer Ltd. 902 369
 Method for accelerating the bleaching of fibrous materials. Bernard, M. L. J. 902 636
 Method and apparatus for forming and collecting linear material. Owens-Corning Fiberglas Corporation. 902 584
 Plate-type heat exchanger. Olin Mathieson Chemical Corporation. 902 249
 Herbicidal compositions and compounds for use therein. Shell Research Ltd. 902 586
 Fungicidal 2-aminomethylbicyclo-(2,2,1)-heptane and heptane derivatives. Nichols, J., and Boehme, W. R. 902 637
 Bright nickel deposits from a pyrophosphate bath. Albright & Wilson (Mfg.) Ltd. and Wilmot-Breeden Ltd. 902 499
 Apparatus for separating mixed non-miscible liquids of different specific gravities. Lawson Products Corporation. 902 419
 Preparation of aluminium alkyl sesquihalides. Shell Research Ltd. 902 370
 Polyalpha-olefins. British Nylon Spinners Ltd. 902 587
 Additives. Esso Research & Engineering Co. 902 371
 Preparation of trans-1,4-cyclohexanedimethanol. Imperial Chemical Industries Ltd. 902 372
 Steroids and preparation thereof. Pfizer & Co. Inc., Chas. 902 373
 Polyurethane plastics. Farbenfabriken Bayer AG. 902 638
 Method of incorporating salts of colour couplers in photographic emulsions. General Aniline & Film Corporation. 902 266
 Copolymers. Courtaulds Ltd. 902 602
 Gas producers. Ferdinand Lentjes Stiftung (trading as Ferdinand Lentjes Kesselschmiede und Maschinenbau). [Addition to 884 743.] 902 299
 Method of purification of streptokinase. Egan, R., and Singer, H. A. 902 639
 Manufacture of foamed polyurethanes. Imperial Chemical Industries Ltd. 902 548
 Stable solutions containing vitamin B₁₂. U.S. Vitamin & Pharmaceutical Corporation. 902 377
 Mixed esters of citric acid and polymers thereof. Miles Laboratories Inc. 902 359
 Heat exchangers. Sulzer Freres SA. 902 508
 Oil separation process. Esso Research & Engineering Co. 902 600

Fluid-flow control valves. Bendix Corporation. 902 237
 Organometallic salts. Shell Internationale Research Maatschappij NV. 902 610
 Process for the manufacture of pure 4,4'-dihydroxy diphenyl dimethyl-methane. Leuna-Werke, W., Ulbricht, Veb. 902 350
 Reserpine analogues. Laboratoires Francaise de Chimiotherapie. [Divided out of 902 356.] 902 357
 Copolymerisation process. Hercules Powder Co. 902 385
 Process for stabilising chlorine-containing polymers. Farbenfabriken Bayer AG. 902 386
 Purification of bis-hydroxyethyl phthalates. Olin Mathieson Chemical Corporation. 902 387
 Derivatives of 1,3,4-oxadiazole and process for preparing same. Soc. d'Exploitation des Laboratoires J. Logeais. 902 388
 Preparation of 2-alkyl-4-amino-5-cholomethyl pyrimidines. Merck & Co. Inc. 902 392
 Dyestuffs of the 2:3-phthalolpyrrocoline series and process for the manufacture. Ciba Ltd. 902 395
 Process for the preparation of dibenzyltin dichlorides. Deutsche Advance Produktion GmbH. 902 360
 Dyestuffs of the 2:3-phthalolpyrrocoline series and process for their manufacture. Ciba Ltd. 902 396, 902 398, 902 393
 Recovery of nickel with or without cobalt from hydrometallurgical solutions. Falconbridge Nickel Mines Ltd. 902 362
 Process for the preparation of gluconic acid monohydrate. Koninklijke Industriële Maatschappij Voorheen Noury & Van Der Lande NV. [Addition to 867 183.] 902 609
 Fertilisers. Imperial Chemical Industries Ltd. 902 363
 Process for dyeing wool. Ciba Ltd. 902 374
 Process for dyeing or printing textile materials. Ciba Ltd. 902 364
 Process of preventing electrostatic charges on synthetic polymeric textile materials. Farbenfabriken Bayer AG. 902 365
 Preparation of 2-chloro-azacyclo-2,3-alkene-N-carbochlorides. Stamicarbon NV. [Addition to 901 170.] 902 390
 Production of hexafluoropropene and heptafluoropropene. Allied Chemical Corporation. 902 589, 902 590
 Production of acetylene. Union Carbide Corporation. 902 415
 Hydrazone derivatives. Farbenfabriken Bayer AG. 902 591
 Halogenated benzotriazines and methods of preparing same. American Cyanamid Co. 902 592
 Separating method and apparatus. Shell Internationale Research Maatschappij NV. 902 593
 Steroids and the manufacture thereof. Upjohn Co. [Divided out of 902 292.] 902 393, 902 294
 Production of nickel carbonyl. International Nickel Co. (Mond) Ltd. [Divided out of 902 307.] 902 398
 Extraction of gas from solid fuel. Steinmüller GmbH, L. & C., and Steinkohlen-Elektrizität-AG. [Divided out of 902 624.] 902 625

France cuts C.M. tariffs by half from 1 July

CUTS of 50% all-round in tariffs on industrial goods imported into France from Common Market countries were announced this week. The cuts are due to come into force on 1 July.

It was originally intended to make cuts of 30% but the French Government increased this to speed up implementation of the Rome Treaty. Whether or not the U.K. joins the Common Market, these reductions will be applied to countries outside the Six from July next year instead of the end of 1965 as originally intended, it is declared.

Obituary

Mr. George Butterfield, who died in the Duke of York Home, Bradford, at the age of 66, was until recently secretary at the Cleckheaton works of Yorkshire Tar Distillers Ltd.

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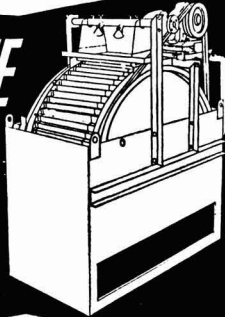
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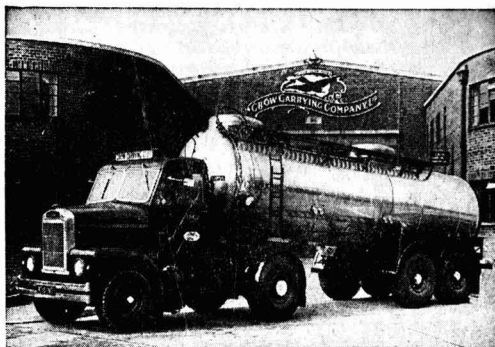
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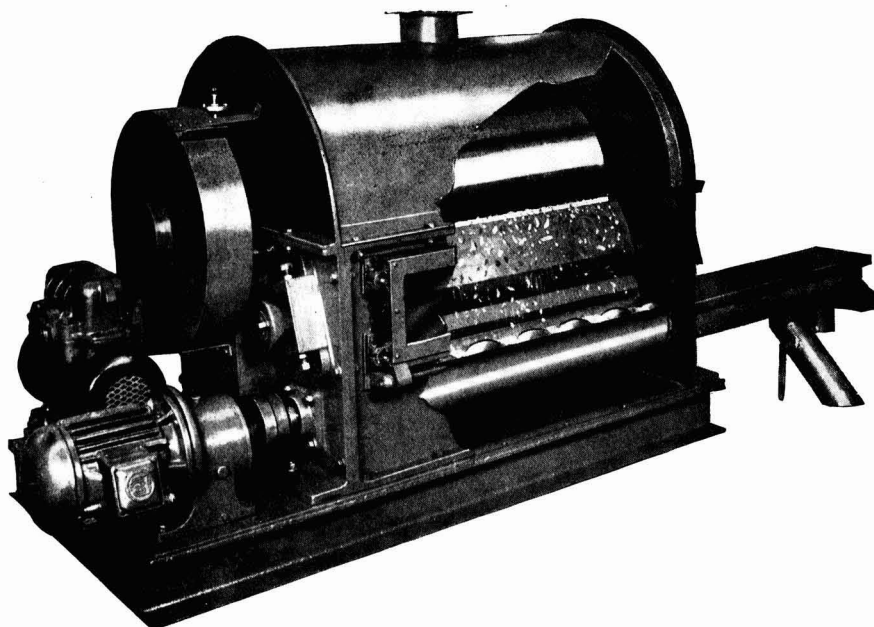
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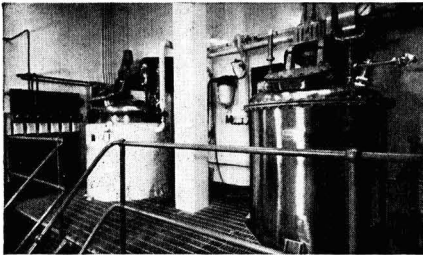
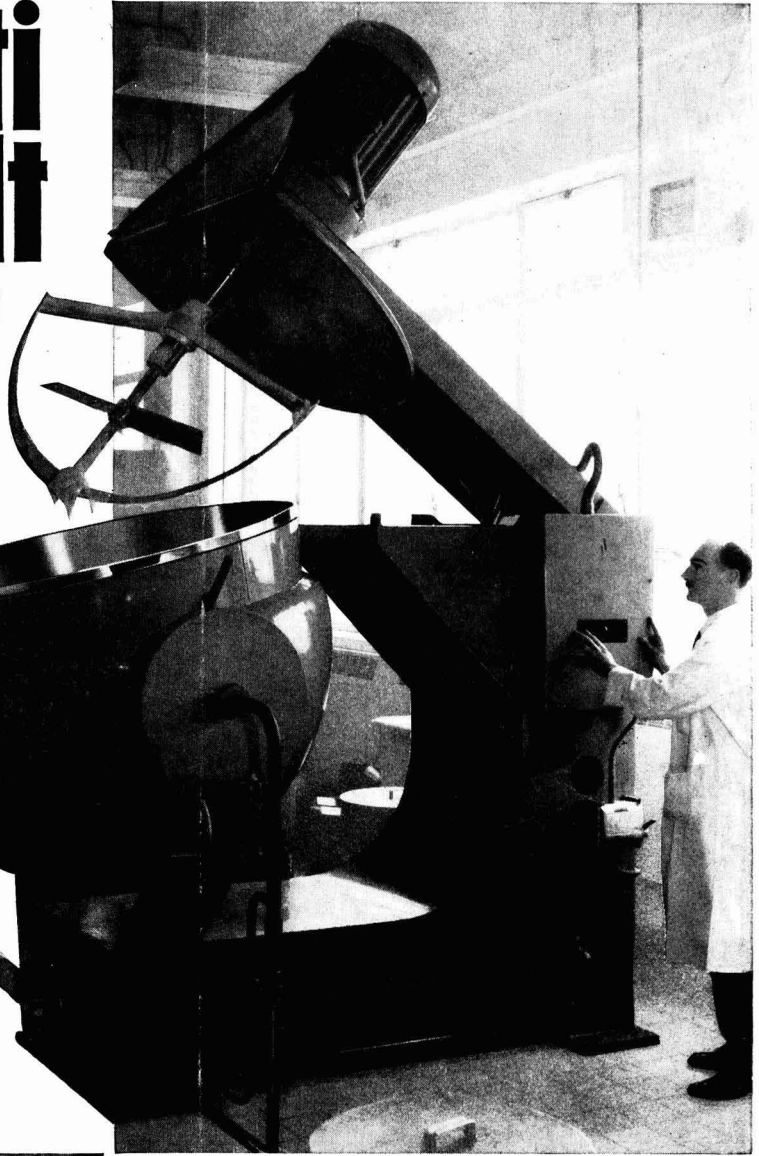
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