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VOL. 85 No. 2188

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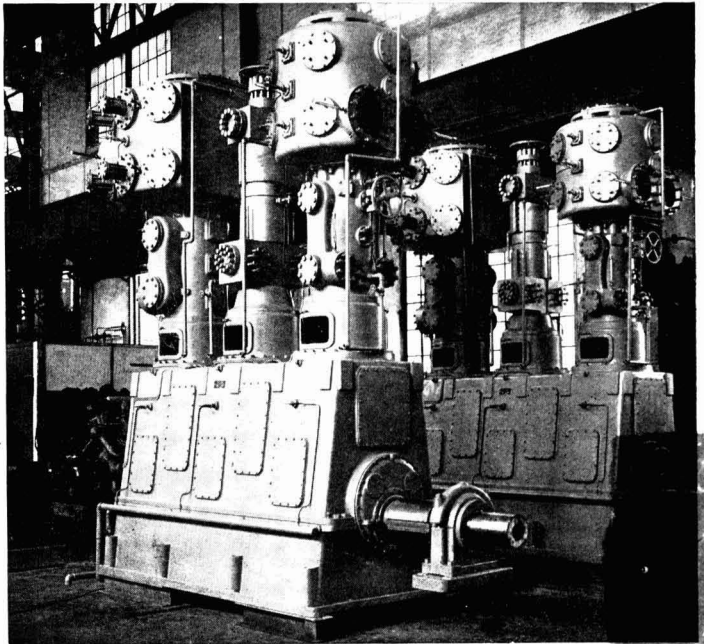
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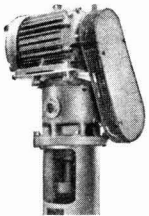
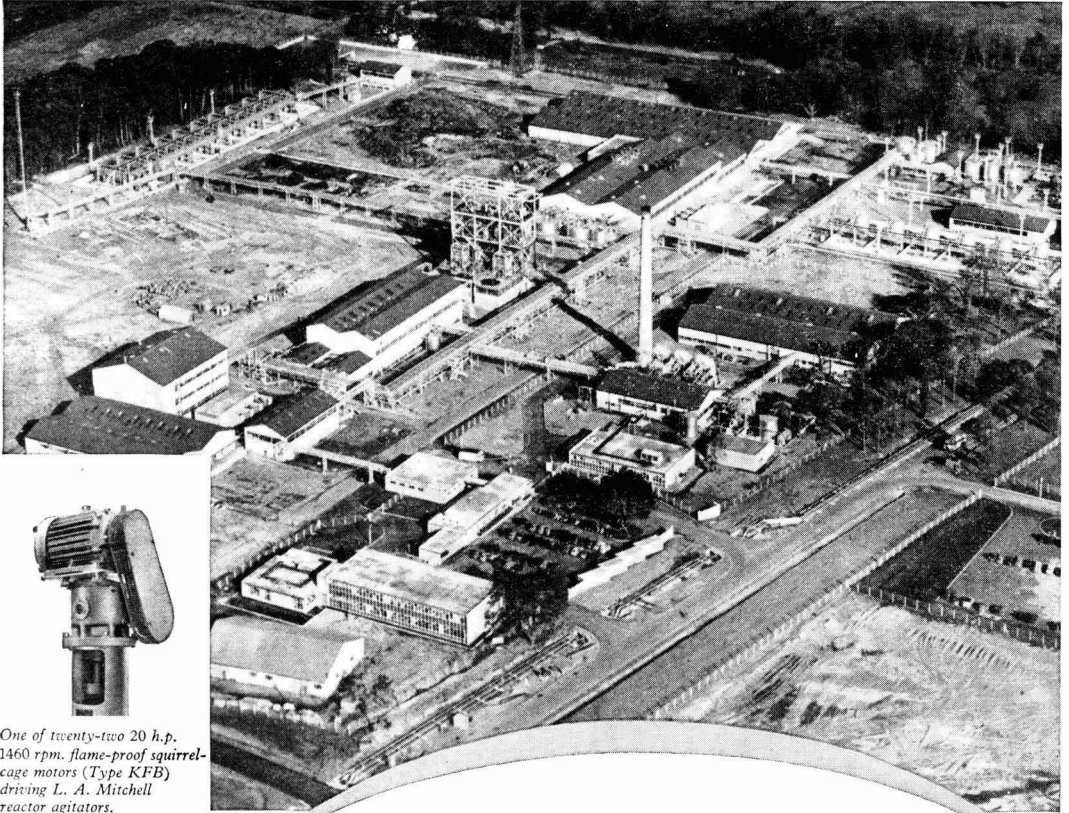
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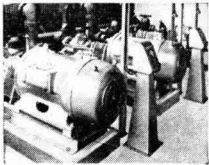
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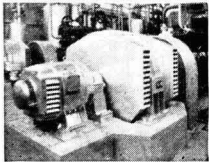
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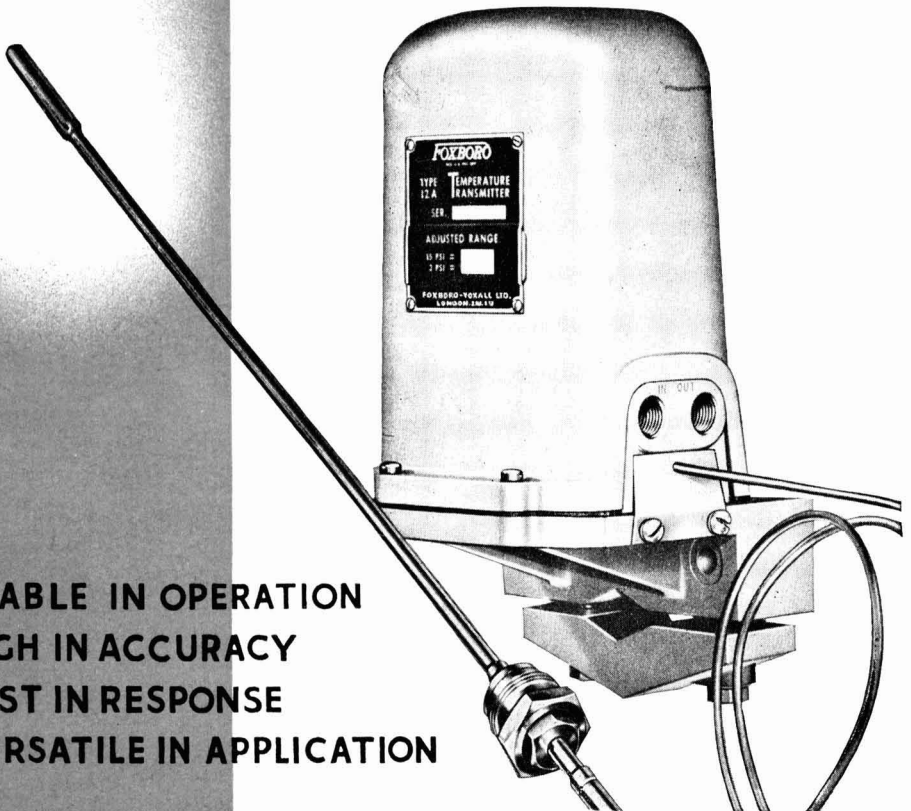
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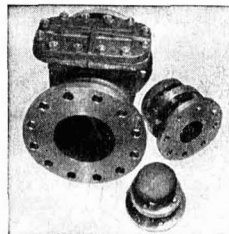
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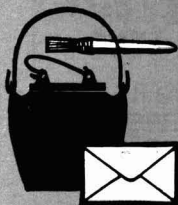
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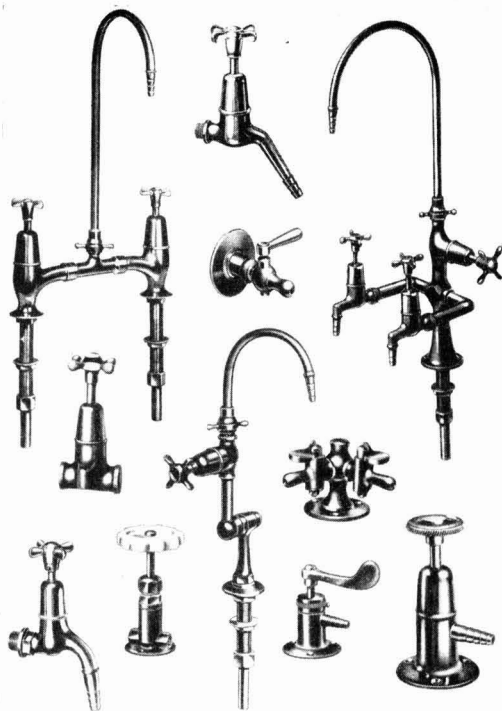
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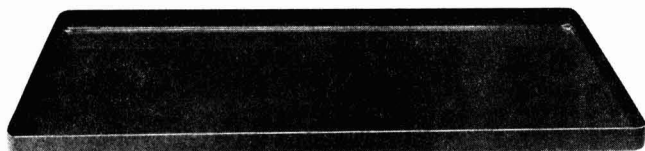
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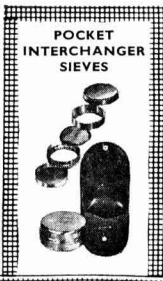
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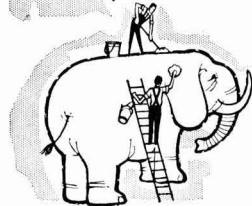
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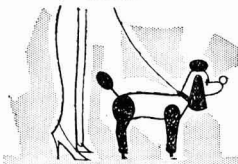
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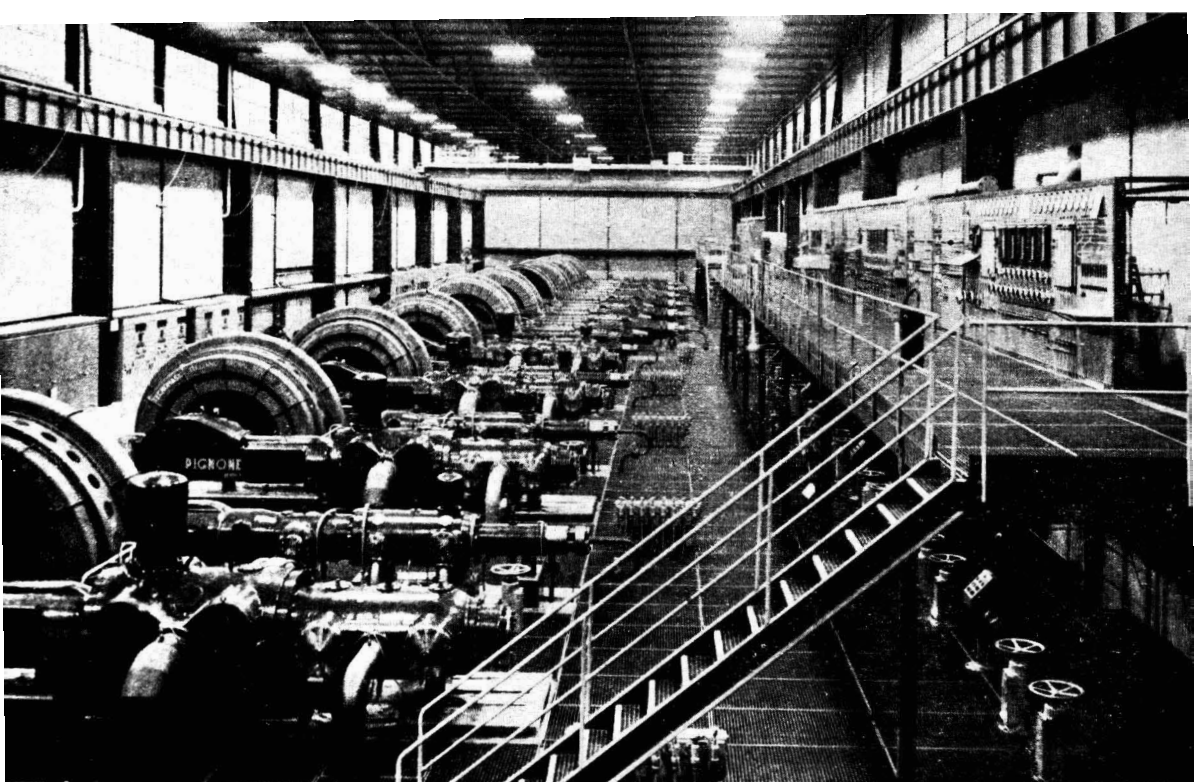
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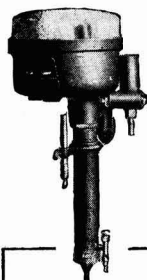
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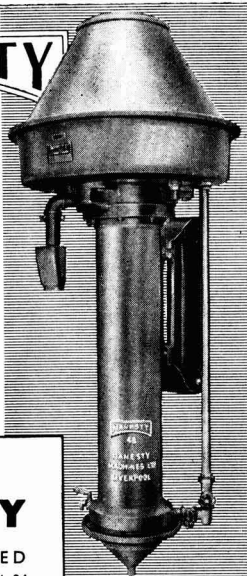
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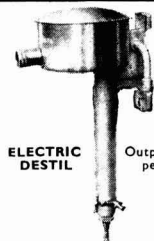
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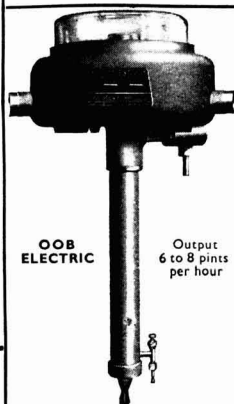
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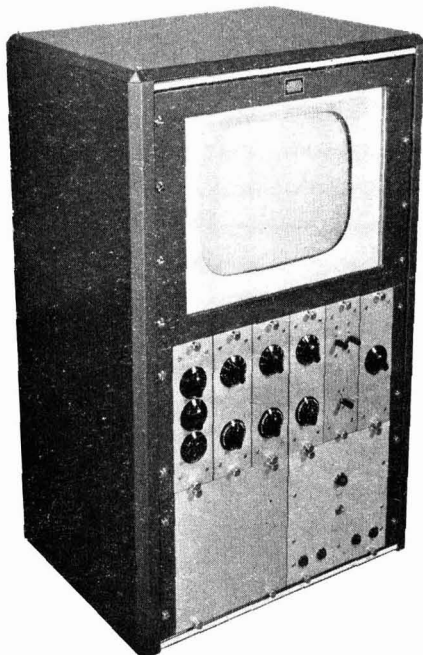
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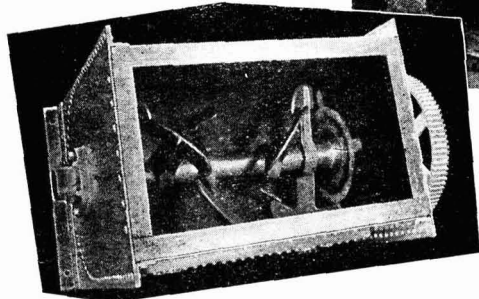
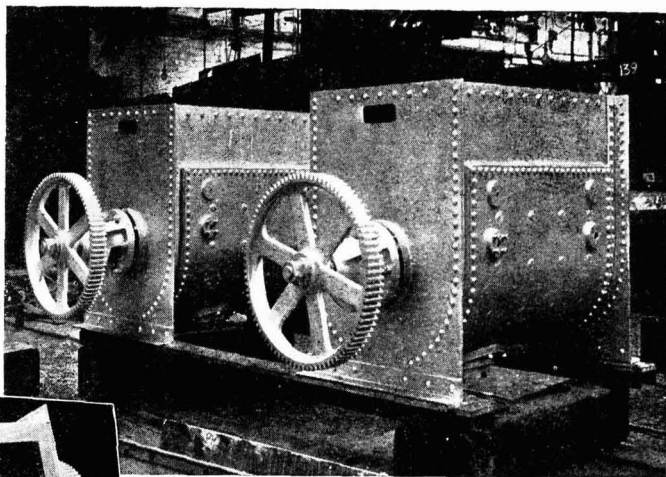
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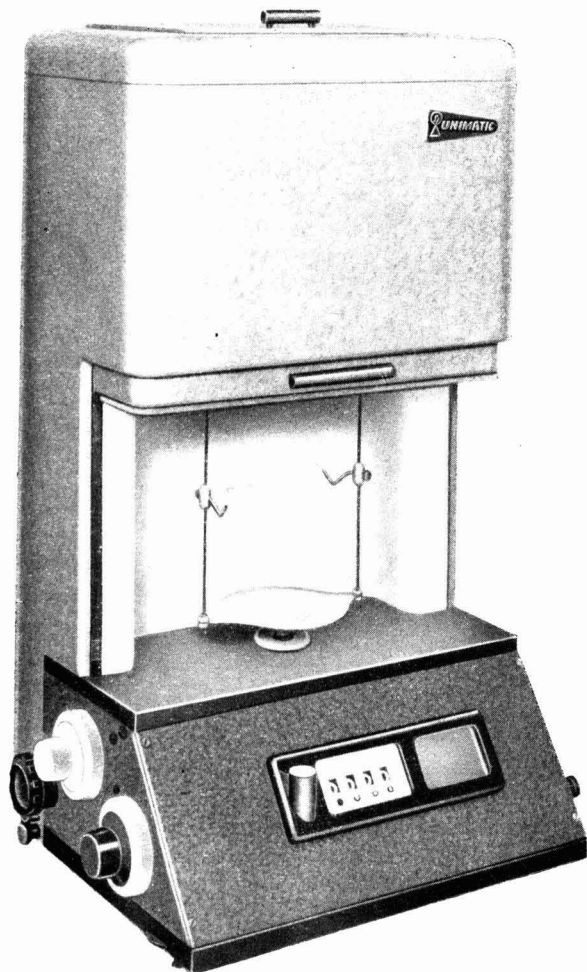
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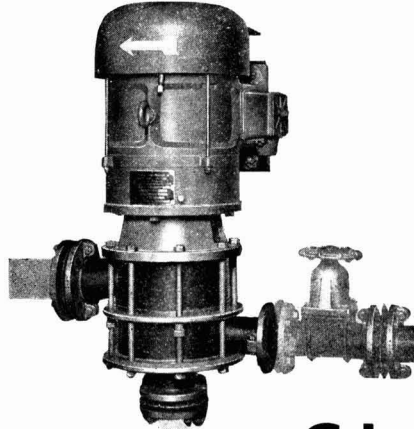
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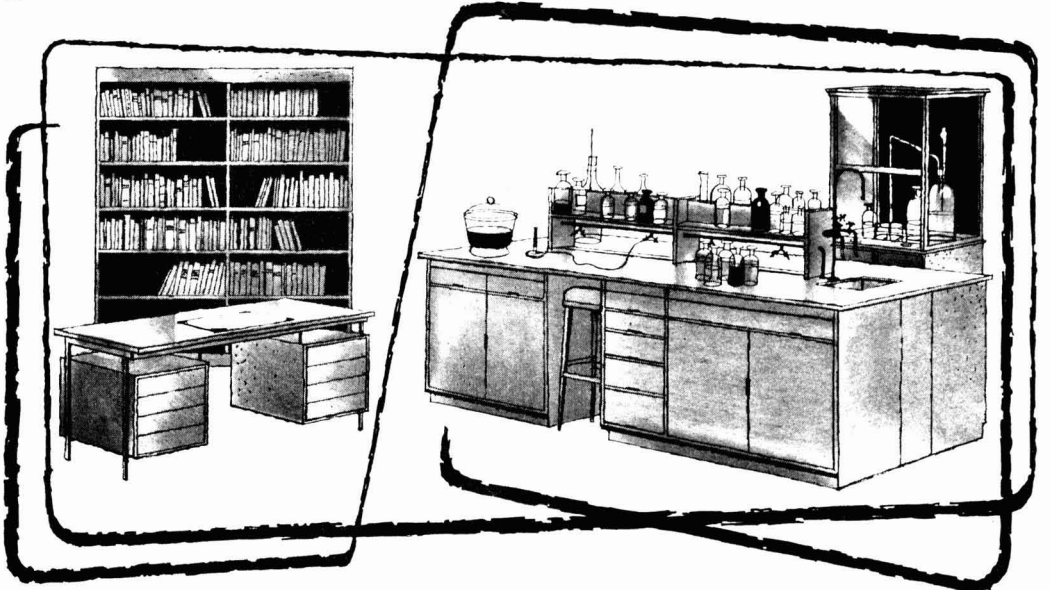
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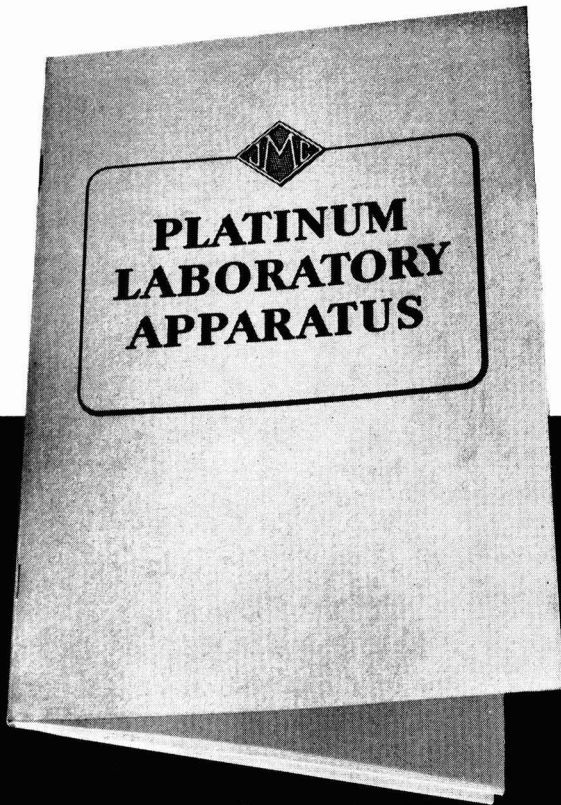
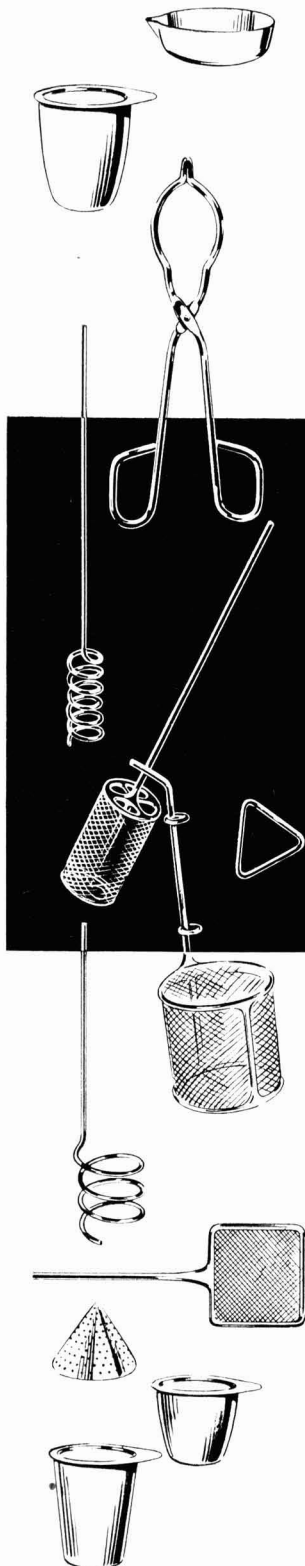
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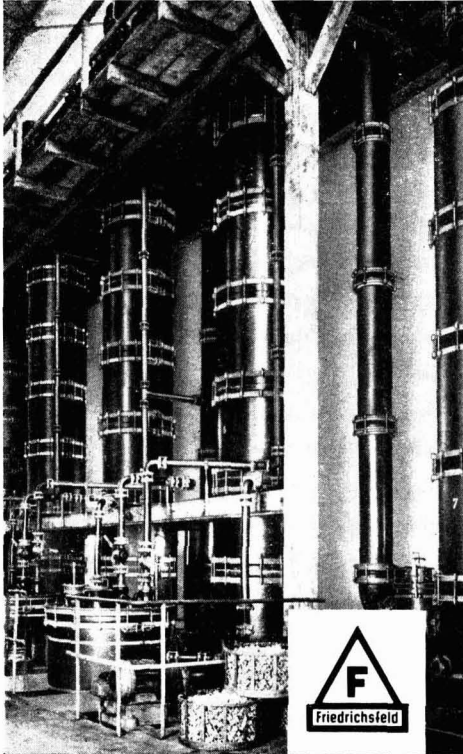
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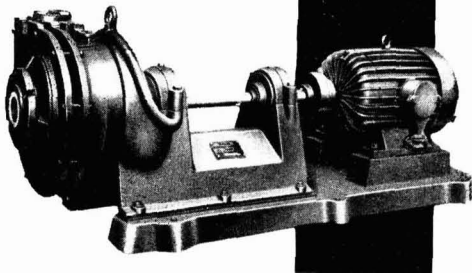




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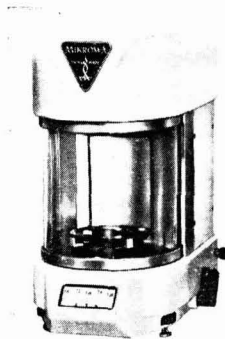
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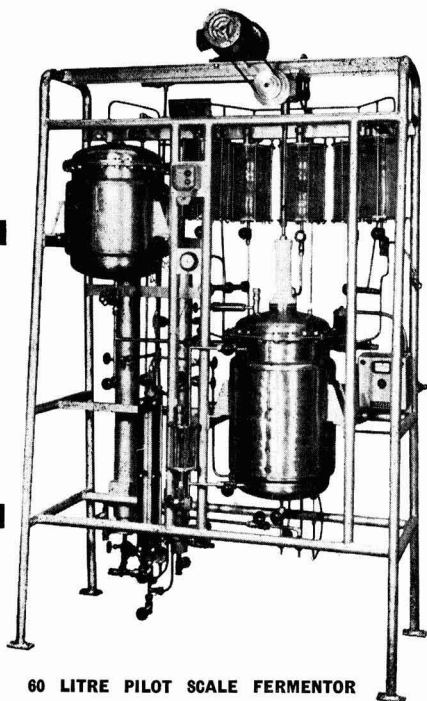
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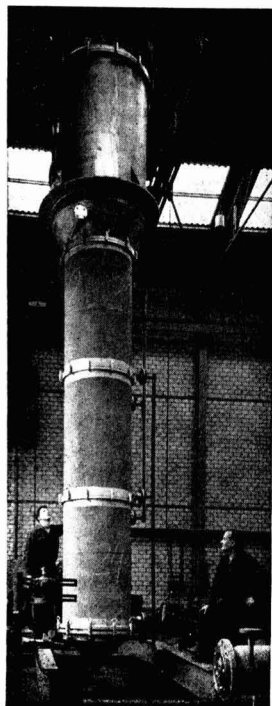


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COMMON MARKET

IT is widely and confidently expected at the Common Market headquarters in Brussels, that Britain will become a member of the European Economic Community on 1 January 1963. An application to join is expected to be made and announced towards the end of July, and formal negotiations would then begin early next year.

It seems unlikely that this view will be materially affected by what the Prime Minister had to say on Tuesday, although it might mean a delay in the expected time table. It is, perhaps, significant that the U.K. talks with the Commonwealth will start within the next few days.

After talks with the French, Germans, Dutch, Italians and Belgians, it is possible to report fairly unanimous agreement among the existing Common Market countries on the solutions to the three major problems which have been holding up agreement with Britain.

Firstly, Britain has made it clear that she is not prepared to desert her partners in the European Free Trade Association ('the Seven'). The answer in Brussels is that Britain, Denmark and Norway would join the Common Market as full members; Portugal would 'associate' in the same way as Greece; Sweden, Switzerland and Austria would form a Free Trade Area or Customs Union with the Common Market.

Secondly, the agricultural problem is regarded as only soluble by a gradual transference of the British system of farm support to levies on imports. It is recognised that this would mean an increase in consumer food prices, with a possible consequential rise in wages and production costs, but the Europeans contend that this would be offset by tax reductions and increased exports.

The third and most intractable of the problems is Commonwealth trade and, on this, there has been a considerable change of heart among the European Governments. They are now prepared to permit Britain to have bilateral agreements with each of the Commonwealth countries, under which we could import duty free a quota of primary products of an average quantity based on imports of recent years.

Such duty free quotas from the Commonwealth might also be applied in some cases to industrial goods, but this is subject to negotiation. For example, the Common Market countries would not be prepared to allow cheap Hong Kong textiles to flood through Britain into the other European countries, and would probably insist on a diminishing quota and a ban on re-exports.

Within the nine countries of the Common Market (the Six plus Britain, Denmark and Norway), there would be an immediate reduction in tariffs and other import-export restrictions. By the end of this year, the existing Common Market countries will have reduced their tariffs against each other by about 50% and there will probably be a further reduction of 10 or 20% next year. Britain is obviously preparing for this by offering a reduction of 20% in our tariffs on a reciprocal basis at the G.A.T.T. negotiations now in progress at Geneva. These negotiations will last several months and are expected to be overtaken by the start of negotiations on the entry of Britain to the Common Market.

Birthday Honours

Knighthood for Sydney Barratt, Chairman of A. and W. Group

CREATED a Knight Bachelor in the Queen's Birthday Honours is Mr. Sydney Barratt, chairman of Albright and Wilson Ltd. Among C.B.E.'s are Mr. W. L. Burns, chairman of Henry Balfour and Co. Ltd. and Mr. S. Chap-



S. Barratt
(Knight)



S. Chapman
(C.B.E.)

man, director of the Association of Chemical and Allied Employers.

Mr. Barratt, chairman of A. and W. since early in 1958, joined the company as assistant director of research in 1932 and was promoted to the board in 1938. He became finance director in 1953 and managing director two years later. He has been closely associated with the group's post-war expansions outside the phosphorus field.

The following is a selection of awards of interest to the chemical and allied industries:

Baron

General Sir Brian Robertson, formerly chairman of the British Transport Commission and now a director of the Dunlop Rubber Co. Ltd.

Knights Bachelor

Sydney Barratt, chairman, Albright and Wilson Ltd.

Thomas Maltby Bland, a vice-chairman of Barclays and a director of Fisons Ltd.

Harold Ernest Snow, a deputy chairman and managing director, British Petroleum Co. Ltd.

Order of the British Empire K.B.E.

Isaac Pitman, M.P., chairman of Sir Isaac Pitman and Sons Ltd., and a director of Boots Pure Drug Co. Ltd.

C.B.E.

William Lindsay Burns, chairman of Henry Balfour and Co. Ltd., Ernest Scott and Co. Ltd., George Scott and Son (London) Ltd., and Enamelled Metal Products Corporation (1933) Ltd., all of Leven, Fife. Mr. Burns, who became general manager of Balfour's in 1929, is also chairman of a number of overseas associated and subsidiary companies. His son, Mr. W. Lindsay Burns, Jr., is joint managing director of the Balfour Group.

S. Chapman, B.A., B.Sc., director, Association of Chemical and Allied Employers.

Mr. Chapman is a Bacon scholar of Gray's Inn and was in practice for some years at the Lancashire Chancery Bar. In 1934 he became secretary to the managers of Dr. Barnardo's Homes and during the war held local appointments under the Ministries of Food and Health. Mr. Chapman joined A.C.A.E. as assistant secretary in 1942, becoming secretary in 1944 and director this year.

W. L. Francis, M.A., Ph.D., director (Grants and Information), Department of Scientific and Industrial Research.

Leslie F. C. Northcott, D.Sc., Ph.D., F.R.I.C., principal superintendent, Materials and Explosives Division, Armament Research and Development Establishment, War Office.

J. D. Parsons, M.Sc., M.I.Chem.E., director, Royal Ordnance Factories (Explosives), War Office.

G. A. Whipple, M.A., chairman and managing director, Hilger and Watts Ltd.

O.B.E.

W. J. Brown, director, Atomic Weapons Production, Ministry of Aviation.

C. C. J. Bullough, chairman, Agricultural Lime Producers' Council.

C. E. Carey, B.Sc., manager, Chemical Products Department, South Eastern Gas Board, 52-57 Mark Lane, London E.C.3, has spent 46 years in the gas industry starting as works chemist with the South Metropolitan Gas Co. in the first world war. After service with the R.N.V.R. he



C. E. Carey
(O.B.E.)



F. F. Hirst
(O.B.E.)

became assistant research chemist with the company and entered the tar and ammonia products side in 1924; he has been in charge of the Chemical Products Department for the past 14 years. Mr. Carey is a past president of the Association of Tar Distillers (1942-45), the British Road Tar Association (1958-59) and the International Road Tar Conference (1959-61). An hon. vice-president of the Association of British Chemical

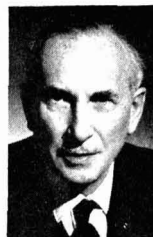
Manufacturers, he is deputy president of the British Wood Preserving Association for 1961-62.

Professor D. D. Eley, Sc.D., Ph.D., Professor of Physical Chemistry, Nottingham University, is Dean of the Faculty of Pure Science at the university. He was appointed to the Chair of Physical Chemistry at Nottingham in 1954, having been a reader in biophysical chemistry at Bristol University.

F. F. Hirst, B.Sc., F.R.I.C., since 1959 Senior Principal Scientific Officer in charge of one of the Revenue Divisions, Laboratory of the Government Chemist. Mr. Hirst joined the Department of the Government Chemist, as it was then known, in 1922. From 1922 to 1946 he served as scientific and technical advisor to the Raw Materials Department, Ministry of Supply, and from 1940 to 1959 he was scientific and technical advisor to the Board of Trade.



W. L. Burns
(C.B.E.)



G. A. Whipple
(C.B.E.)

J. L. Phillips, head, Reactor Division, Dounreay Experimental Reactor Establishment.

M.B.E.

L. G. Bunce, chief experimental officer, Atomic Weapons Research Establishment, Aldermaston.

A. Duchart, administrative manager, Unilever Development Unit, Aberdeen.

E. C. W. Maycock, senior experimental officer, Laboratory of the Government Chemist.

T. R. Middleton, project officer, Imperial Chemical Industries Ltd., Kidderminster.

H. Shepherd, chief chemist, Armoxide Ltd., Earby, near Sipton.

H. J. G. Wolf, chairman, Paint Industry Export Group.

B.E.M.

F. J. Seabrook, senior assistant, Rothamsted Experimental Station.

G. Smith, safety engineer, I.C.I. Buxton Lime Works.

Will

Sir Arthur John Griffiths Smout, chairman of Murex Ltd. and Murex Welding Processes Ltd., director of Pyrotenax Ltd., and member of West Midlands Gas Board, former director of I.C.I., and during the 1944-45 period Director-General of Ammunition Production, Ministry of Supply, who died on 21 February last, aged 72, left £62,280 gross, £40,602 net (duty paid £2,497).

Project News

P.G. TO INSTALL TOYO KOATSU UREA PROCESS IN POLAND

THE Toyo Koatsu urea process, licensed to the **Power-Gas Corporation Ltd.** (one of the Davy-Ashmore Group), will be used by Power-Gas for a 500 tons/day urea plant to be supplied to Poland. The new Polish plant will see Europe's first application of the process and will represent Power-Gas's first contract gained in Poland. The contract, worth about £1.5 million, was secured by a team of P.G. commercial and technical representatives against stiff competition from Italian, Dutch, French and U.S. manufacturers.

The contract covers the supply of a plant that will produce prilled urea for fertiliser use, including the production of a small proportion to be used directly as cattle feed. The contract has been taken on a deferred payment basis. Delivery will be made in the early part of 1963 and the plant will be commissioned by Power-Gas and Toyo Koatsu operating personnel. Most of the equipment will be supplied from the U.K., with manufacture of the specialised units being carried out within the Davy-Ashmore Group.

The plant is a complete recycle unit in two streams. The Toyo Koatsu process has the particular advantage of low biuret crystal product and complete flexibility in production of both crystals and prills. Although the contract represents the first application of the process in Europe, similar plants in Japan have already been installed with a daily output of about 1,500 tons. The new plant will be installed at an existing ammonia works in Poland and will be the first large complete process installation at this site to be supplied by any country outside East Europe.

The plant is to be the first of five to be built under Poland's current five-year plan, with the possibility of further units being needed at a later stage. The only contract so far negotiated is that for the first unit.

P.G. process plant has recently been installed in other East European countries and in *CHEMICAL AGE*, 3 June, p. 885, details were given of a contract awarded for the supply of three installations for the crystallisation of high-purity urea by the Krystal process. P.G. engineers are also now working on various additional proposals for process plant for Poland and other areas of East Europe. These activities indicate the increasing attention being paid by the Davy-Ashmore Group to the export market.

Albright Know-how for Argentine Phosphoric Unit

● SPECIAL equipment, engineering services and technical information are to be supplied by the **Albright and Wilson Group** to

Villa Aufricht and Cia. The agreement covers a plant for the production of phosphoric acid from phosphorus on the Argentine firm's Buenos Aires site. The unit is due on stream early in 1962.

Founded in 1919, Villa Aufricht are one of Argentina's oldest chemical producing companies. Among their product range are sodium and other inorganic phosphates, plus chemicals for pharmaceutical and chemical industries. Albright and Wilson are the only U.K. and one of Europe's largest phosphorus producers; they have chemical plants in Australia, Canada, Eire, India, Italy, New Zealand, South Africa and the U.K.

P.G. to Build New Alcock Sodium Metasilicate Plant

● A NEW sodium metasilicate plant with increased capacity is to be constructed by **P.G. Engineering Ltd.** to replace the existing unit of **Alcock (Peroxide) Ltd.**, Leicester Road, Luton. When built, the new plant will be capable of considerable expansion.

The present plant, now some 30 years old, has been expanded piecemeal over the years. The new plant will incorporate a number of modifications, but will be based on the same process. New techniques to be introduced include pneumatic handling and automatic batch control.

The only other U.K. producers are Joseph Crosfield and Sons, Warrington.

McAlpine Get Contract for Forth Chemicals

● CONTRACT worth £200,000 for civil engineering and building work in connection with the new 50,000 tons/year styrene monomer plant of **Forth Chemicals Ltd.** at Baglan Bay, West Glamorgan, has been awarded to **Sir Robert McAlpine and Sons.** The contract will be carried out for Monsanto Chemicals Ltd.

Badger to Build Grange Phthalic Plant at Hull

● A SITE at Hull has been chosen for the 15,000 tons/year phthalic anhydride plant of **Grange Chemicals Ltd.** **Badger Ltd.**, who with their continental associates are building a number of phthalic plants, have been named as main contractors. Feedstock for the plant will be *o*-xylene to come from the B.P. California aromatics plant under construction at the B.P. Isle of Grain refinery. The Hull plant will be the first in the U.K. to use an *o*-xylene source.

The Hull site is adjacent to the Salt End Chemical Works of the Distillers Chemical Division, who will operate the plant on behalf of Grange. The unit is

due to be commissioned in the second half of 1962. Grange are a subsidiary of British Hydrocarbon Chemicals Ltd. (jointly owned by Distillers and British Petroleum) and a third interest in Grange is held by California Chemical Co. California Chemical jointly own B.P. California with British Petroleum.

A breakdown of U.K. production and consumption of phthalic anhydride was given in *CHEMICAL AGE*, 8 April, p. 577, while aromatics in Europe were surveyed in *C.A.*, 15 April, p. 617.

Aberdare Deliver Large Tank to South Yorkshire Chemicals



Aberdare Engineering Ltd. had a loading problem when they came to deliver a 22 ft. 6 in. high tank to **South Yorkshire Chemicals Ltd.** The clients had specified delivery in two sections only and as these were too large to negotiate the gates of the works at Aberdare, they were loaded outside the entrance on separate lorries for the journey to Rotterdam

P.G. to Build Indian Plant for May and Baker

● CONTRACT for the construction of their projected new plant at Bhandup, India, has been awarded by **May and Baker Ltd.**, Dagenham, to **P.G. Engineering Ltd.**, one of the Davy-Ashmore Group.

Tower Purifiers Contract for Newton Chambers

● THE West Midlands Gas Board has placed a contract for the installation of tower purifiers to deal initially with 10 million cu. ft. of gas a day at the Etruria gasworks, Stoke-on-Trent, with **Newton Chambers and Co. Ltd.**, Thorncliffe, Sheffield. On completion this project is expected to cost about £250,000.

Two Italian Drug Plants to Use U.K. Fluid Mixers

● Two new Italian antibiotics plants will use fluid mixing equipment made by **Lightnin Mixers, Ltd.**, Poynton, Ches. The first order was worth about £28,000, and the mixers are now being installed at the antibiotics plant of **Fervet S.p.A.**, Milan. The equipment, making up two 10-ton truck loads, was sent from Poynton to Italy by British Road Services.

The second order came from the **Compagnia Tecnica Industrie Petroli** who are

acting in association with Cyanamid Italia-Catania in the erection of Sicily's first antibiotic plant. Lightnin Mixers will supply the complete fluid mixing needs of the works, comprising about 25 units of capacities ranging from 3 to 20 h.p. The Poynton company is also providing engineering services to aid in commissioning. The mixers are to be delivered this autumn and the plant will go on stream next year.

Mr. W. Stockdale, chairman of Lightnin Mixers, who secured this order during a visit to Rome in May, says that the British equipment was chosen in the face of considerable Continental competition.

Lodge-Cottrell Receive Biggest Ever Precipitator Order

● PRECIPITATORS for the new 2,000 MW West Burton Power Station, near Nottingham, will be supplied by **Lodge-Cottrell Ltd.**, George Street, Parade, Birmingham, to **International Combustion Ltd.** on behalf of the Central Electricity Generating Board. The contract, the largest single order for boiler flue dust precipitators ever received by Lodge-Cottrell (one of the Simon Engineering Group), is worth nearly £1.5 million.

Flue dust will be partially removed by

mechanical collectors and final gas-cleaning will be carried out by 16 electro-precipitators, four to each 500 MW boiler unit. The precipitators will be of three-stage, horizontal gas-flow high-efficiency design. Each group of four will handle 1,375,000 cu. ft. of gas/minute (continuous maximum rating) at 250° F; guaranteed collecting efficiency is 99.35%. All four boiler units will be on line by June, 1965, when total dust collected will amount to nearly 2½ tons/minute.

McKee H. W. Get Design Work for Strasbourg Refinery

● APPOINTED contractors for the new atmospheric distillation unit and gasoline treating unit to be built at the Strasbourg Refinery of **Soc. de la Raffinerie de Strasbourg** are **PIC Engineering, McKee Head Wrightson** of London, a company jointly owned by Head Wrightson and Arthur G. McKee, U.S., will provide process design, basic mechanical design and general supervision services to PIC in connection with this project, under a working arrangement between the two companies.

The unit is designed to process 3,300,000 tons/year of Hassi-Messaoud and Irak crude and is scheduled for completion by early 1963.

Courtaulds Report 11% Profit Fall With No Change in General Trade Pattern in 1961

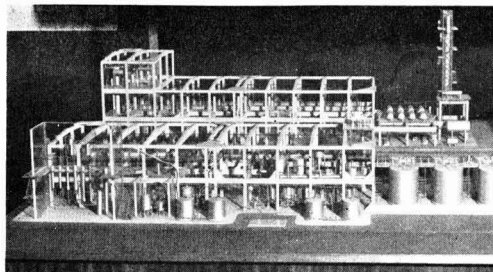
DESPITE higher group sales in the year ended 31 March, Courtaulds Ltd. report a drop of 11.2% in group profit (see also 'Commercial News'). Business in fibres was steady at the start of the year and advances were made, notably in Courtelles, Tricel and nylon. Towards the late autumn, however, sales of viscose staple fell off in the U.K. with a consequent effect on profits. Rising costs and lower average prices obtainable overseas also affected the profitability of some products.

The results of Canadian and American subsidiaries suffered severely as a direct result of intense price cutting; this unsatisfactory state of affairs continues.

Trading in some non-textile activities showed an improvement, but the profits of Pinchin, Johnson and Associates were substantially lower than the previous year due mainly to the effect of credit restrictions on sales of cars and domestic appliances. So far, the general pattern of trade in the current year shows no marked change.

The directors' report will contain a review of operations for the year and the accounts will include the amount of group sales for this year and last. At the annual meeting on 19 July, the chairman will develop statements included in the report "according to the situation at that time".

Muscovites See Model of Marchon Detergents Plant for Soviet Union



This scale model of a plant to manufacture detergent raw materials—one of the two plants being supplied to the U.S.S.R. by **Marchon Products Ltd.** in collaboration with **Constructors John Brown Ltd.**—was exhibited by **Marchon** at the **British Trade Fair, Moscow**

I.C.I. Cut Fertiliser Prices for Second Year . . .

FOR the second year in succession I.C.I. have cut their fertiliser prices. Reductions in all their fertiliser prices, representing a saving to British agriculture of £1.25 million in 1961/62 were announced on Tuesday. They follow the cuts made last year which were estimated to save the British farmer nearly £1 million on his 1960/61 fertiliser bill.

The new prices, effective from 1 July, show reductions of £1 per ton in C.C.F. and High N.C.F., 21s. 6d per ton in Nitro-Chalk 21 and 12s 6d per ton in ammonium sulphate manufactured by members of the British Sulphate of Ammonia Federation.

As a result of their recently announced extensive building and modernisation programme at Billingham, I.C.I. expect to be able to continue their policy of reducing home market prices for nitrogen products, including fertilisers, provided there are no major increases in labour, fuel, transport and other costs.

. . . Fisons Slash Their Fertiliser Prices Too . . .

A 7s 6d cut in the price of four their 41 compound fertiliser, the leading brand of Fisons Fertilizers Ltd., is announced for 1 July. Other compounds in the 40 range will be reduced by varying amounts. The early delivery rebate for July will be increased by 2s 6d to 35s/ton. Since 1957-58, Fisons 41 has been reduced in price by £3 9s 6d/ton.

For the second year running, Fisons have cut the price of their superphosphates; single superphosphate is cut by 5s/ton and triple superphosphate by 10s/ton.

. . . And So Do Shell Chemical Co.

SUBSTANTIAL price cuts are also announced by Shell Chemical Co., effective 1 July. The new price of Nitra-Shell 23, in 6-ton lots, delivered station, will be £24 13s/ton, a reduction of 23s 6d/ton. Shell No. 1 will be cut by 30s/ton to a delivered station price of £36 3s/ton. The new Shell No. 2 will be priced at £39 18s on the same basis.

Early delivery rebates for compound fertilisers, will begin in July at 37s 6d/ton, an increase of 2s 6d on 1959-60.

Shell Introduce New High Analysis Fertiliser

Introduction of Shell No. 1 Compound, has now been followed by Shell Chemical's second compound fertiliser, Shell No. 2. This latest compound has the high analysis of 21% 'N', 14% P₂O₅, 14% K₂O with a plant food ratio 1.5:1:1. Total of plant nutrients is 49%.

Nicholas Laboratories Discuss Plans for New Products

Nicholas Laboratories Ltd. held a sales conference for their medical representatives in London recently. Among the projects discussed were the launching of Vascardin, a new coronary vasodilator and the campaign for Parmacetil, an oral treatment for haemorrhoids.

O.E.E.C. REPORT ON FERTILISERS

Big European Output Increase Forecast for Fertiliser Nitrogen

OUTPUT of nitrogenous fertilisers in the area of the Organisation for European Economic Co-operation (O.E.E.C.) should over the year 1960-1961 show an increase of 11%, compared with a rise of only 6% for the previous year. Potash fertilisers are likely to maintain about their present rate of increase (7%), while over the same period, output of phosphate fertilisers may rise by only 1%.

These forecasts are made in the 10th O.E.E.C. study on 'Fertilisers in Europe', copies of which are available (price 9s) from H.M. Stationery Office, P.O. Box 6 569, London S.E.1.

In 1959-60, O.E.E.C. production of fertilisers showed a steady increase over 1958-59. For both phosphate and potash, the rate of expansion increased, production totalling 3.9 million tonnes of P_2O_5 and 3.6 million tonnes of K_2O , representing rises in the order of 6 and 7%. Nitrogenous fertilisers, up 6% to 3.9 million tonnes (in terms of N) showed a rate of growth (plus 6%) slightly below the 1958-59 figure.

Capacity for all three types of fertilisers at 1 July 1960 was greater than a year earlier. Potash capacity amounted to 3.9 million tonnes of K_2O , up 11%; nitrogen fertiliser capacity was up 5% (excluding Spain) to total 4.6 million tonnes of N and phosphate capacity rose 2% to total 4.8 million tonnes of P_2O_5 .

Imports and Exports

Imports in 1959-60 from non-member states accounted for about 2% of total nitrogenous fertiliser supply—about the same as in the previous year. In the case of phosphate fertilisers, there was a sizeable decline in imports from non-O.E.E.C. sources—by more than 70%; while potash fertiliser imports rose 3%.

The increase in consumption in 1959-60 is expected to continue. Consumption of N fertilisers totalled nearly 3.0 million tonnes and that of phosphate and potash fertilisers 3.5 and 3.2 million tonnes respectively. Consumption of N fertilisers was up 7%, that of phosphate and potash was up 4% in each case. Forecasts for 1960-61 show a rate of increase of 6% for N fertilisers, 4% for phosphate and 5% for potash.

Nitrogenous fertiliser exports to non-O.E.E.C. countries, after a decline in 1958-59, rose 24% in 1959-60 to reach 894,000 tonnes of N. Exports of phosphate and potash fertilisers rose by 27% and 21% to total 256,000 tonnes of P_2O_5 and 760,000 tons of K_2O . The market represented by non-member countries is important for fertilisers and

accounted for 56, 43 and 32% of total O.E.E.C. exports of nitrogen, potash and phosphate fertilisers respectively.

Nitrogenous Fertilisers. A more rapid production rise is forecast in 1960-61, but consumption is expected to rise to a smaller degree. Exports should rise,

O.E.E.C. Fertiliser Production, Consumption and Capacity

	1959-60	1960-61
	'000 Tonnes	'000 Tonnes
Nitrogenous		
Production	3.92	4.37
Consumption	2.86	3.15
Capacity*	4.37	4.60
Phosphate		
Production	3.92	3.95
Consumption	3.55	3.70
Capacity*	4.70	4.80
Potash		
Production	3.64	3.83
Consumption	3.17	3.34
Capacity*	3.47	3.90

* Capacity figures are as on 1 July at the start of each period.

but imports are likely to fall. The rate of increase of 11% in production forecast for 1960-61 is likely to slow down during 1961-62.

Italy, second largest producer, expanded output at a rate of 11% and the U.K. by 12%, to reach 590,000 and 400,000 tonnes respectively. German output remained stable at 1,050,000 tonnes.

Output of urea rose sharply in 1959-60 by 35%, against 21% for the previous year. Calcium cyanamide, after a spurt in production of 11% between 1957-59, registered an 8% decrease. Ammonium nitrates production, almost stable in the previous period, swung 10% up in 1959-60.

Consumption of ammonium nitrates rose 13%, but consumption of ammonium sulphate dropped 9%. The largest relative increases were in urea, up 130%, in complex fertilisers (in terms N content) and in 'other nitrogenous fertilisers', consumption rising 21% and 26% respectively. Consumption of calcium nitrate was up 9%, while that of sodium nitrate and calcium cyanamide was down 11% and 5% respectively. Ammonium nitrates accounted for 40% of total nitrogen consumption in 1959-60.

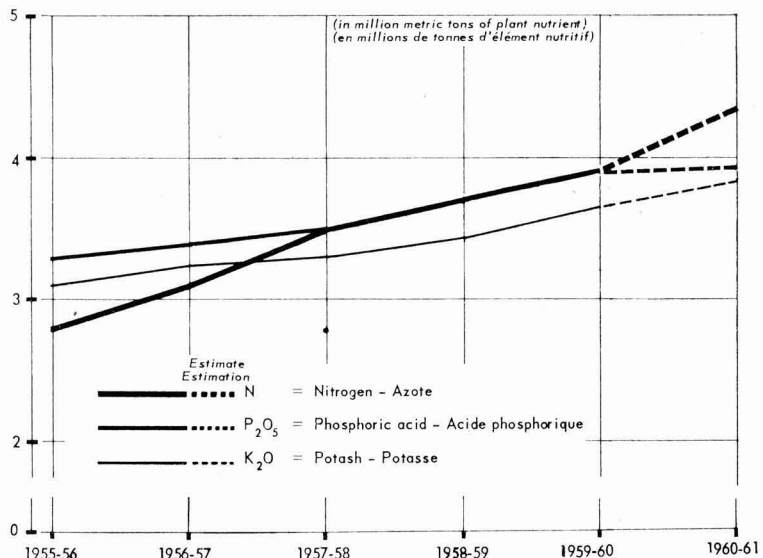
Phosphate Fertilisers. As stated, a slight slowing down in production is expected in 1960-61, with consumption expected to rise 4%. In the 1959-60 production of 3.92 million tonnes, basic slag accounted for 1,285,000 tonnes P_2O_5 , an increase of 12%. Production of superphosphates in terms of P_2O_5 rose 5% to 1,678,000 tonnes in 1958-59 and remained at this level in 1959-60. Concentrated superphosphates output, which accounts for about one-eighth of the superphosphate total, rose 12% in 1959-60.

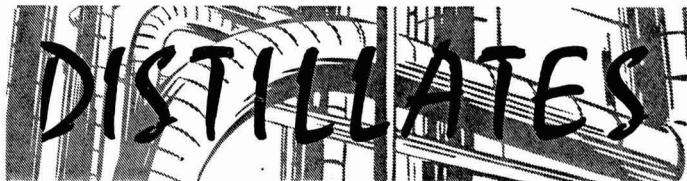
Capacity increases of 8% and 10% in terms of P_2O_5 were registered for basic slag and complex fertilisers.

Consumption trends were as follows:

(Continued on p. 992)

Growth of Fertiliser Production in O.E.E.C. Countries





★ ONE of the most fascinating papers on the European chemical industry that I have seen in a long time reaches me from my U.S. correspondent. In it, Mr. Ernest John Solvay, head of the great Belgian company which bears his name, spoke of the relationships between Europe and U.S. on one hand and the Soviet-bloc on the other. Mr. Solvay shows his usual remarkable breadth of vision and I readily commend his words to my readers.

It is perhaps timely to recall that Solvay and Co. was founded for the production of ammonium soda by the process originated by Ernest Solvay. Very soon the company extended its activities into the electrolysis of sodium chloride solutions by the mercury cell process and from there entered organic chemistry via chlorinated solvents derived from C_2 hydrocarbons. To expand the product range after the last war, Solvay began the production of plastics materials (p.v.c. and copolymers) and more recently entered into polyolefins. Solvay also produce hydrogen peroxide, sodium perborate and synthetic glycerine, all by self-developed processes.

This group with gross p.v.c. production of 100,000 tonnes/year—the biggest Continental European producer—has seven p.v.c. plants; 14 soda works; 12 electrolytic installations; four works producing hydrogen peroxide and sodium perborate; and one for synthetic glycerine. Most of these plants, owned by Solvay and their subsidiaries and associates, are in Europe, but one electrolytic unit and one p.v.c. unit are in Brazil.

★ WITH the news that the Wellcome Foundation are raising their share capital to £10 million, I learn that the Wellcome Trust, a public charity which holds all the shares, and to whom all declared dividends are paid, have since the trust was instituted in 1936, allocated grants of around £4 million to research projects at home and overseas. The trustees are today working to an annual budget of £800,000 a year.

The Wellcome Foundation, with Mr. Michael Perrin as chairman, are chemical and pharmaceutical manufacturers with more than 30 subsidiaries in various parts of the world. A capital spending programme has recently been completed at the Wellcome Research Laboratories, Beckenham, at a cost of more than £2 million, providing up-to-date facilities for research and the production of biological products.

The Foundation's spending on research and development at home and overseas is now around £1.6 million a year. Currently large-scale developments in the organisation are taking place in

Brazil, Italy and India, and the Foundation have just acquired Etablissements H.V. Mees S.A., of Belgium. This acquisition will increase their manufacturing and selling facilities within the Common Market.

★ I WAS interested to learn, from one of the CHEMICAL AGE correspondents attending the Achema Exhibition and Congress in Frankfurt-am-Main, that plans are afoot for the building of a chemical "documentation centre" in Frankfurt-am-Main. It is understood, from a speech made by the mayor of Frankfurt at the official opening of Achema, that a special building would be allocated for this purpose.

With important chemical works all about, and with the headquarters of Dechema and other important chemical and chemical engineering bodies there, Frankfurt is of course the ideal choice for such a centre in Germany. I should not be surprised to learn in the near future that a similar centre was being planned in France, perhaps in Paris, and—who knows?—we may even see the idea spreading to London.

★ How big can the Achema get? This year, 100,000 visitors from 60 countries are expected. This includes a team of 26 chemists and chemical engineers from Japan, whose visit to the Achema is a result of a project by T. Sakuri, president of the Japanese *Chemical Daily*, to obtain first-hand information about European chemical engineering techniques, badly needed in Japan. Heading the team is Dr. K. Morikawa, Professor of the Technical Institute of Tokyo, aided by S. Watarai, divisional chief of Mitsubishi Chemical's research laboratory, and T. Maeda, chief of production department of Bridgestone Tire Co.

At the Achema, the Japanese team seemed to be taking a great interest in equipment of all kinds. It would not surprise me if the Achema visit were followed by the placing of some orders and contracts in Germany for the Japanese chemical industry.

★ A HEALTHY market potential is seen for chlorinated isocyanuric acids if price can be brought down. Big markets are in swimming pool additives, in bleaches and as detergent-sanitisers. The dry bleach market also holds good prospects. Doubtless it is this growth potential that has tempted Whiffen and Sons to enter the field with plant to make 350 tons/year each of cyanuric and trichlorocyanuric acids at Loughborough, as

stated in this journal, 20 May, p. 805.

With a total capacity of 1.5 million/lb. a year, this plant should be large enough to satisfy U.K. demand, which is currently rated at 1 million lb./year. U.K. demand is at present being met by Cocker Chemical Co. Ltd., the only U.K. producers, and by imports by Monsanto Chemicals Ltd., whose U.S. parent produce isocyanuric acid compounds.

U.S. consumption is estimated at around 8.25 million lb./year, compared with capacity of about 14.5 million lb. in the hands of Monsanto and Food Machinery and Chemical Corporation; Olin Mathieson plan to enter the field in the near future.

★ COINCIDING with the capital increase of the Wellcome Foundation, the trustees have given the Royal Society £100,000 to establish and endow a society professorship in medical research to be known as the Henry Dale Professorship.

This gift has been made to commemorate the unique services of Sir Henry Dale, O.M., F.R.S., as chairman of the Wellcome Trust for 22 years as well as the outstanding contributions that he has made to science and medicine in a wider context. By happy coincidence this grant was announced on Sir Henry's 86th birthday. In addition to his chairmanship of the Wellcome Trust, Sir Henry has given conspicuous service to the Royal Society both as secretary (from 1925 to 1935) and as president (from 1940 to 1945).

This generous donation will significantly increase the society's capacity to promote medical research. Appointments to the new professorship will be especially, but not necessarily exclusively, in relation to the particular interests of Sir Henry Dale—physiology and pharmacology.

★ WESTERN Australia must be about the only place in the world where when negotiations get stuck on a difficult point—on a Sunday—one of the negotiators can "phone a Cabinet Minister and say "Charles, can you come down and help us?" Not only did Charles—the Minister of Industrial Development—come along, he went away at one point to read the lesson at church and then went back again.

One of the negotiators was Mr. Patrick O'Brien, chairman of Laporte Industries and the discussions were on the £4 million titanium oxide plant which L.I.L. plan at Bunbury, Western Australia. They will also have facilities for sulphuric acid and possibly other chemicals.

Mr. O'Brien told this story at a meeting of City businessmen last week. The meeting was held to introduce the report made by a team of British industrialists who visited Western Australia last October. This report is summarised in p. 992.

Alembic

E. J. Solvay on East-West Relations

Western Chemical World Must Unify to Meet Threat of Soviet Competition

IF the Soviet Union maintains the present growth-rate of its chemical industry, its chemical production will by 1965 be worth some \$25,000 million, or somewhere in the region of 38% of the combined value of chemicals produced in the U.S. and West Europe. At present the chemical output of U.S. and West Europe is five times greater than that of the U.S.S.R. To meet this situation in which the U.S.S.R. could dominate western chemical markets, Mr. Ernest John Solvay (Solvay et Cie, Brussels) wants to see a greater degree of understanding and collaboration between the chemical industries of the West.

This view was put in a paper given recently to the American Section of the Société de Chimie Industrielle, after Mr. Solvay had been presented with the first impression of the International Palladium Medal in recognition of his "contributions to international friendship, understanding and goodwill, through his career and his accomplishments in the field of industrial chemistry." His paper was entitled 'The European chemical industry and the present trend towards the formation of large economic units in the modern world'.

He said that growth in the exchange of products and processes between West Europe and the U.S.S.R., "at which the U.S. chemical industry justifiably shows some alarm", was not in fact due to the regrouping of Europe into large economic zones. The U.S.S.R. continued to profit from the present circumstances which provided that lack of unity in approach which was still evident in West Europe in that respect.

The Soviet seven-year plan now in hand would reinforce that country's chemical potential to a considerable extent and was causing fairly considerable modifications in the relationships of the chemical industry of the various zones of influence in the world.

Mr. Solvay estimated that chemical production of the world's great areas in 1959 as shown at (a) in the table below, the Common Market accounting for 16% of a world chemical production that he estimated at around \$70,000 million. In 1959 the combined chemical production of the U.S. and West Europe, at \$42,700 million, was nearly five times as important as that of the U.S.S.R., although the total population of the two western groups was only 2.5 times as high as that of the Soviet Union.

The annual rate of increase in western chemical production during the period 1953* to 1959 was Common Market, 11.5% per annum; E.F.T.A., 6% p.a.; West Europe, 9.5% p.a.; U.S., 5% p.a.; U.S.S.R., 17.5% (for the period 1950-56).

Assuming that this rate of progress was no more than maintained for the Western zones and assuming that the U.S.S.R. maintained its rate of expansion at between 17 to 18% a year, the relative production figures by 1965 would be as shown in (c) of the table below. This shows that the combined chemical production of the U.S. and West Europe would be no more than two-and-a-half times that of the U.S.S.R., compared with five times in 1959.

If the position was examined a little more closely, it seemed that the West must not exaggerate the extent of the Soviet transformation. An examination of the projects for expansion in the U.S.S.R. showed one aspect that was comforting. The greatest endeavour was in those projects aimed at the production of consumer goods for the civil population—man-made fibres, synthetic rubber, plastics materials, chemical fertilisers, synthetic detergents, etc.

The sudden interest shown by the Soviet authorities in synthetic chemicals might be considered in relation to the planned increase in the production of consumer goods to the expansion in the programme for the local production of petroleum and natural gas, and the concern of the U.S.S.R. to free itself from dependence in raw material supplies on her Asiatic satellites and from other countries.

Mr. Solvay felt that a danger existed in the fact that competition from Soviet chemicals on the Western market was not always governed by economic factors and that the U.S.S.R. conducted all its trade in the sole interest of the State. In the face of the monolithic organisations that bought and sold for the Soviet Union, the West was represented by a motley collection of governments and private firms with no common interest at any given moment, without cohesion, and with no prepared programme of action. A minimum of understanding and collaboration would seem to be indispensable to the Western world if the

Soviet chemical industry was not to reap ridiculous benefits from the operations of its 'import-export' services with its natural tendency to depart from the normal strictly economic form of competition wherever it suited its purpose.

Dealing with America's trade with Europe, Mr. Solvay did not think that the U.S. chemical industry had much to fear from the more effective realisation of the plans of the Common Market.

From 1950 to 1959, export of U.S. chemicals to West Europe more than quadrupled so that far from damaging American export trade in chemicals, the progressive economic unification of Europe and the growing strength of its chemical industry had provided a remarkable stimulus to trade, declared Mr. Solvay. U.S. chemical exports to the Common Market alone rose from about \$80 million in 1953 to nearly \$290 million in 1959.

Mr. Solvay said "It may well be doubted whether the U.S. chemical industry really needs to fear the change in balance of exports to West Europe and, in particular, to the countries of the Common Market as the economic cohesion of the European countries continues and as the Common Market approaches its ultimate phase."

In many cases the European chemical market was some five to 10 years behind the U.S., particularly in the newer sectors of synthetic organics. For a long time to come, Europe would continue to import from the U.S. large quantities of newly introduced commercial products and this would itself provide a natural outlet for the U.S. until their consumption in Europe justified the setting up of local production units able to operate at an economic level.

West Europe would certainly seek to reach some sort of balance in its trade with America by increasing its exports to the U.S. It was quite natural that the exchange of chemicals between the U.S. and Europe should not be restricted to one-way traffic and some reciprocity was

CHEMICAL PRODUCTION IN MAIN AREAS OF WORLD

	(a) Value of Production in 1959	(b) Annual Growth Rate in Period 1953-59	(c) Est. Value of 1965 Production if Growth Rate (b) is maintained
	\$ millions	% per annum	\$ millions
Common Market	11,000	11.5	21,000
E.F.T.A. & rest of West Europe ...	6,000	6.0	8,000
West Europe	17,000	9.5	29,000
U.S.	25,700	5.0	34,000
U.S.S.R.	9,600	17.5*	25,000

* U.S.S.R. annual rate of increase in chemical production based on period 1950-1956.

highly desirable. In this connection, while the U.S. exported chemicals to the value of \$290 million to the C.M. in 1959, that country imported only \$140 million worth from the Common Market in the same year. It was probable that the deficit in exchange of chemicals between the two areas would continue to fall as the economic and industrial unity of the Common Market progressed.

The measure of the hope for development which sustained the chemical industry in the C.M. could be gauged by the investment figures for 1959, which totalled \$900 million, while in that same year the U.S. chemical industry invested about \$1,200 million. Mr. Solvay thought this comparison revealed more than a mass of figures the importance of chemical projects in the C.M. area.

Mr. Solvay spoke of the European chemical industry before the last world war when 20 years of protectionism had produced a continent divided into a series of zones in which some lived in an almost completely closed economy. Synthetic chemicals perfected in that time were made under purely political needs and later under the needs of war. Today autarchy no longer determined the production of synthetic materials;

they were the result of the most promising and economic methods of production. So the reasons which governed the production of chemicals had been reversed in the course of a few half-decades.

The formation of huge unified economic blocs, by their very nature had accelerated the remarkable transformation and had reinforced the chemical potential of West Europe. It was this unification of Europe which enabled chemical producers to envisage outlets which were sufficiently large and sufficiently economic to guarantee the success of new chemical undertakings.

In the world of tomorrow, the creation of those great economic units would bring new problems much more difficult of solution. Problems of organisation and of preparation for the future, problems of increased competition—problems on a truly continental scale. From that inter-competition so greatly increased, chemistry could only profit since it had proved indisputably that as an industry it could flourish under conditions of penury and of war. "How much better, then, will it succeed in conditions of abundance and peace."

U.K. Mission Looks for Increase in Anglo-Polish Chemical Trade

FOLLOWING trade negotiations in London and Warsaw, new quota lists for the 12 months from 1 July have been agreed in Warsaw. U.K. exports to Poland in the 12 months are estimated to reach £24 million, an increase of £8 million on the level expected to be achieved in 1960/61. Polish exports to the U.K. are estimated at £39 million, an increase of £1 million on the current level.

The quota list for U.K. exports to Poland includes machinery and equipment, chemicals and basic materials, etc. The quota list for U.K. imports from Poland includes chemicals and manufactured goods, bacon, etc.

U.K. exports of chemicals and allied products to Poland last year totalled £1,476,000 (£1,271,000 in 1959) and this year should exceed £2 million. Polish exports to Britain, excluding starch products but including casein, totalled about £1.2 million last year (£1 million in 1959). With Poland's chemical industry growing at a rate of 17 to 20% a year, increasing quantities will become available for export. It is hoped in Warsaw that output of chemicals by volume will in 1965 double the 1960 total.

In their recent report, the trade mission to Poland of the London Chamber of Commerce (price 5s post free from 69 Cannon Street, London E.C.4) see good prospects for increasing trade in chemicals between the two countries, "notwithstanding the apparent tendency on both sides to quote prices which the respective markets will not bear".

West Germany is seen as still having

many advantages over the U.K. because it is cheaper to send goods in tank wagons overland rather than in non-returnable drums, except where shiploads are required. It is felt that Britain should be able to continue to act as a traditional entrepôt centre for products of Sterling Area origin, but not of British manufacture, such as shellac and pyrethrum. There should also be scope for increasing supplies and providing technical information about certain insecticides and aerosols, which have yet to become established in Poland.

All buying and selling is conducted by CIECH. There should also be scope of increasing sales of know-how and plant, in which case discussions with the Ministry of Chemical Industry, Wspolna 4, Warsaw, are necessary.

East German Chemical Patents Available in U.K.

Since the end of last year, patents have been arriving regularly in the U.K. from East Germany. There are some 100-200 patents each month and a small proportion are of a chemical nature. In form and content they resemble the Soviet patents and there is the same division between applications by individuals and State concerns.

These patents are examined each month by Translation and Technical Services, 32 Manaton Road, London S.E.15, who prepare a list of chemical patents. For a limited experimental period, this firm is willing to send this list free of charge to any interested companies.

B.o.T. Analysis of U.K. Plastics Sales

FOLLOWING publication in CHEMICAL AGE last week (p. 924) of details of U.K. plastics sales in the first quarter of 1961, the following is a detailed analysis, issued by the Board of Trade.

	January-March 1960	January-March 1961
	'000 Tons	'000 Tons
Thermosetting Materials:		
Alkyds	12.8	10.7
Aminoplastics	15.5	14.2
Phenolics & cresylics	20.8	19.2
Unsaturated polyesters (a)	2.1	2.4
Others, inc. epoxies & casein plastics	3.7	3.4
Total thermosetting...	54.8	49.8
Thermoplastic Materials:		
Cellulose plastics	3.5	3.4
P.v.c., excl. resins	26.3	27.4
Polystyrene	11.0	12.3
Polyvinyl acetate	3.9	3.9
Polyolefins	29.0	28.0
Other, inc. acrylics, polyamides, P.t.f.e., & P.v.c. resins	18.8	18.5
Total thermoplastic	92.6	93.6
TOTAL, ALL PLASTICS MATERIALS	147.4	143.4
Stocks at end of period:		
Thermosetting materials	19.0	20.7
Thermoplastic materials	47.6	83.6

(a) Excluding epoxide resins and resins for the manufacture of polyurethanes.

Changes in Export Control Now Effective

FROM 13 June U.K. export control has been removed from molybdenum disulphide, certain chemical plant and equipment and high octane blending agents. From that date control has been imposed on exports to all countries of specified cryogenic equipment and to countries other than the Commonwealth, Eire and the U.S. on the export of specified ferritic materials and certain synthetic lubricants.

The descriptions of goods to which export control applies have been amended for molybdenum, niobium and centrifugal counter-current extractors.

These changes are made by the Export of Goods (Control) Order, 1960 (Amendment 2) Order S.I. 1961/1034. Copies are obtainable from H.M. Stationery Office, London W.C.2, and branches price 4d (by post 6d).

Butterfields as Lloyds Class I Fabricators

ALTHOUGH recently approved by Lloyds Register of Shipping, Land Division, as Class I fabricators, W. P. Butterfield (Engineers) Ltd., Shipley, Yorks, have for several years been fabricating vessels to Lloyds Class I standards, in such materials as carbon steel, stainless steels, nickel alloys, etc.

In support of their fabricating capacity, the firm has a fully equipped x-ray department, which is associated with facilities for carrying out physical and chemical testing. There is also a well-equipped high vacuum department which is regularly engaged in the production and testign of vacua to the order of 10⁻⁴ mm. Hg. and beyond. For some years, the company has also been associated with the fabrication of tanks and vessels to other high standards, such as the Atomic Energy Class 'A' standards.

ABRAC Introduce Alkyl Myristate

LATEST addition to the ABRAC range of fatty acid esters made by A. Boake Roberts and Co. Ltd., London E.15, is alkyl myristate. The product is a virtually colourless and odourless liquid, the viscosity of which is between that of isopropyl myristate and cosmetic grade mineral oil. Suggested uses are in cosmetic preparations. In comparison with isopropyl myristate, ABRAC alkyl myristate has far less adverse effect on certain plastics materials, notably polystyrene, and products containing it are less likely to mar the package or cause it to crease or crack. The product is at present only in the development stage.

New technical information bulletins are available on isopropyl fatty acid esters (No. 144d); alkyl maleates (comonomers and internal plasticisers for vinyl acetate polymers; reactive intermediates for chemical syntheses; and wetting agent intermediates) (No. 238); and Pliabrac 987 (the latest addition to the ABRAC range of low-viscosity plasticisers) (No. 239).

In Parliament

M.o.H. and Patent Drug Purchases

Under fire in the House of Commons was the Minister of Health's recent instructions to hospital authorities not to buy patented drugs from unlicensed sources. Mr. K. Robinson asked why these instructions had been given in view of the fact that the Minister proposed to invite tenders centrally for only three groups of such drugs. The Minister, Mr. Enoch Powell, replied that it was better that the procedure should be applied centrally. In reply to a further question, he said he had not limited his action in advance to the three drugs for which he had asked for tenders.

Asked by Dr. Stross why the drug called hydrochlorothiazide, which had not yet been patented, had been included in the first three groups of drugs to which the instructions applied, the Minister replied that it belonged to the same group as another drug which it was desired to cover, and it was thought proper to invite tenders for both at the same time.

Foxboro-Yoxall's First Stage Expansion Programme

First-stage of the planned expansion of the 125,000 sq. ft. factory at Redhill of Foxboro-Yoxall Ltd., is nearing completion. A separate packing material store has been built and a new two-storey wing has been added to the administrative block. The production area is being doubled by the addition of an 85,000 sq. ft. extension. A separate new building is to be erected to provide enlarged workshops and stores for the maintenance unit. Other work is being concluded on a single-storey building designed to provide ideal working conditions for the research and development section.

CONSOLIDATED ZINC'S ACID DELIVERIES ROSE 9%

IMPROVEMENT in U.K. demand for sulphuric acid continued throughout 1960 and deliveries rose by 9%, mainly as a result of increased demand from the South Wales sheet steel industry, stated Mr. L. B. Robinson, chairman of Consolidated Zinc Corporation Ltd. in his annual report. He added that the group was now further modernising the older units of the U.K. acid plants which will improve efficiencies, raise productive capacity and add to flexibility in handling sulphur bearing materials—zinc and lead concentrates, brimstone, pyrites, ferrous sulphate and spent oxide.

Sales of sulphuric acid to Australian industries by Sulphide Corporation fell 8%, but Cockle Creek production was up 18% to a record level. This was largely due to the group's increased needs for superphosphate production. A new 250 tons/day contact plant had been operating on brimstone pending the availability of sulphur gases from the sintering plant of the new Cockle Creek smelter. Superphosphate sales by Sulphide Corporation exceeded the 1959 record figure by 42%.

Production of sulphuric acid at Port Pirie rose from 58,000 tons to 66,048 tons in 1960. The Australian Government has ended the payment of bounty in respect of acid produced from lead sinter gas, but continues to pay a bounty on acid made from indigenous pyritic materials.

The establishment of a full-scale plant of the Imperial Smelting zinc process at Swansea had stimulated many commercial enquiries and in July last an option agreement was signed by Masinimport of Rumania. Three other overseas concerns had reached the stage of calling for a detailed assessment from consulting engineers on the economics of the process. Zinc production from furnaces using this process now exceeded production from the vertical retort plant. Demand for all grades of zinc dust produced by the group was strong; new plant was commissioned in 1960; further plant extensions are now being planned.

Until the latter part of the year demand for zinc oxide produced at Burry Port and for the Vidox grade produced at Widnes was strong. The recent setback

in the car industry had adversely affected the main use of zinc oxide—in car tyres. Sales to the chemical and ceramics industries, however, advanced satisfactorily.

There was a further decline in the sales of zinc sulphide pigments, which were susceptible to substitution by titanium oxide, now more freely available following increases in capacity by U.K. producers. To offset this decline, efforts are being made to develop other products at Widnes, notably barium chemicals. A further addition to this range in 1960 was barium hydroxide—a motor oil additive.

U.K. sales of Isecon, the fluorocarbon for aerosol propellants and refrigerants, rose considerably and a new plant built during the year has trebled existing capacity. Production and sales of both aqueous and anhydrous hydrofluoric acid rose substantially. The new plant of Australian Fluorine Chemicals Pty. Ltd., formed jointly with Monsanto Chemicals (Australia) Ltd., will start production of Isecon fluorocarbons at Rozelle, N.S.W., in the latter half of 1961.

Pure Chemicals Ltd., Kirkby, saw a satisfactory increase in sales of fine chemicals and of p.v.c. stabilisers. The larger sales of fine chemicals include a number of new varieties for pharmaceutical purposes and tributyl tin compounds used as anti-fungal and anti-bacterial agents.

British Titan Products Co. Ltd., in whom Consolidated Zinc hold about 30% of equity capital, again achieved a record output of titanium oxide pigments. Sales were considerably higher and profits were again satisfactory.

Nobel Office Block Contract for Mitchell Construction

A contract worth more than £500,000 for the construction of a four-storey office block at Ardeer, Ayrshire, for the I.C.I. Nobel Division has been awarded to the Mitchell Construction Co. Ltd., Peterborough. The block will be a reinforced concrete structure with brick cladding, consisting of a main building 374 ft. long, with two wings of 94 ft. and 156 ft. respectively. The work is due for completion by August 1962.

On the Fisons Stand at Moscow

On the Fisons Group stand at the British Trade Fair, Moscow, are, l. to r., the Hon. Mrs. Peter Strutt and her father, Sir Clavering Fison, with Jack Lassman (Fisons Overseas Ltd.) and Stuart Woodhams, a director of Whiffen and Sons Ltd. and head of the Fisons team in Moscow



O.E.E.C. Fertiliser Report

(Continued from p. 987)

concentrated superphosphate, up 13%, basic slag, up 9%; complex fertilisers, up 20%; single superphosphate, down 4%; 'other phosphate fertilisers', down 8%.

Potash Fertilisers. Both production and consumption are likely to rise by some 5% in 1960-61. In 1959-60, France and Germany attained output figures of 1,530,000 and 1,846,000 tonnes of K_2O respectively, increases of 6% and 8%. Spanish potash production rose 2% to reach 249,000 tonnes, while Italy has only recently begun to mine potash on

a big scale and is expected to reach about 40,000 tonnes in 1960-61.

The upward trend in production of potassium sulphate and high-grade potassium chloride continued on into 1959-60. Consumption of potassium chloride (over 45% K_2O) rose 5% and potash sales with less than 20% K_2O rose by 15,000 tonnes (19%). Consumption of 'other potassium fertilisers' and 'complex fertilisers' rose 21% and 22% respectively. Consumption of potassium sulphate and potassium chloride (20-45% K_2O) declined by 4 and 5% respectively. More than half of the total potash consumption was in the form of potassium chloride (over 45% K_2O).

Production and Consumption in O.E.E.C.

	Nitrogen Fert.		Phosphate		Potash	
	Prod.	Cons.	Prod.	Cons.	Prod.	Cons.
Austria ...	170	48	33	88	—	90
B.L.E.U. ...	312	108	465	92	—	161
Denmark ...	—	135	(89)	120	—	180
France ...	714	550	820	900	1,600	725
Germany ...	1,150	650	819	750	1,930	1,100
Greece ...	70	7	(51)	52	—	7
Iceland ...	8	7	—	4	—	2
Ireland ...	—	23	(65)	90	—	65
Italy ...	665	395	430	400	37	130
Netherlands ...	425	215	(174)	115	—	155
Norway ...	264	47	(50)	42	—	52
Portugal ...	35	72	(77)	78	—	11
Spain ...	129	259	325	288	265	75
Sweden ...	40	97	(104)	102	—	86
Switzerland ...	21	16	(9)	44	—	40
Turkey ...	1	30	(13)	73	—	10
U.K. ...	440	430	(430)	460	—	450
Totals ...	4,374	3,152	3,954	3,698	3,832	3,339

Letter to the Editor

Chemical Activities of Dutch State Mines

SIR.—Re your article on a possible decision of the Netherlands Government to hive off the chemical interests of the Dutch State Mines—as you put it in your issue of 20 May, page 806—we would like to make the following statement: Neither the management of Staatsmijnen nor the Secretary of Economic Affairs of the Dutch Government, under whose authority Staatsmijnen operates, have ever considered to hive off the chemical interests of the Dutch State Mines. On the contrary, the chemical industries are and will remain a vital part of the whole of Staatsmijnen as they have been for more than 30 years.

This has clearly been stated by the President of Staatsmijnen in a recent Press conference in The Hague on 15 May 1961. At the same conference the President stated that Staatsmijnen are in favour of changing their status to a limited company. Although the company has always operated as a private and unsubsidised company, which paid normal taxes and declared annual dividends, it is felt that it is still regarded by others as a State enterprise, and that this conception can be detrimental to its contacts with other companies.

The change to a limited company does not imply, however, that a public share issue would be floated, in fact, this possibility has never been discussed so far, either within the company or in Government circles. In changing to Staatsmijnen Ltd., the Dutch Government would hold all the shares. A change of this nature has been alluded to in Parliament and is being studied by the Secretary of Economic Affairs.

We trust that this information may be of value to you and to your readers.

Yours, etc.,

P. J. A. FRISCHE,

Information Service.

Staatsmijnen in Limburg,
Heerlen.

Gliksten and Hercules in Honduras Venture

Two joint companies have been formed in British Honduras by J. Gliksten and Son Ltd., the U.K. timber firm, and Hercules Powder Co. Ltd. of Canada. One of the companies, Hercules British Honduras Ltd., will produce naval stores extract for refining into rosin, turpentine and other naval stores. A plant located at Mango Creek will be completed by 1962.

The second company, Pine Harvester Ltd. will provide raw materials for Hercules British Honduras.

A.C.S. Move London Publications Office

The American Chemical Society has moved its London applied publications office from Bush House to 77 South Audley Street, London W.1. (Hyde Park 4760).

Chemical Prospects in Western Australia

PROSPECTS of setting up industries in West Australia for the manufacture of petrochemicals, nitrogenous fertilisers, superphosphate, essences, essential oils and pharmaceuticals are discussed in a report published last week under the title 'Opportunities for Industrial Development in Western Australia'. This is the result of a visit by a nine-man team to that territory. Included in the team were Mr. M. H. M. Arnold, managing director, Bowmans Chemicals Ltd., Widnes, and Mr. M. J. Noone, a director of Whessoe Ltd., Darlington.

It is stated that the existence of the Kwinana refinery, Australia's largest, makes possible the production of petrochemicals. Such production, however, calls for the use of large quantities of basic inorganic chemicals not at present made in Western Australia. This is a deficiency that it is felt further study might show could be overcome either by imports or by local developments.

A large demand is expected to open up for fertiliser nitrogen when agriculture starts to become intensive. It is pointed out that world production of nitrogenous fertilisers now totals 10 million tons/year, but that world demand is expected to reach 50 million tons in 40 years time. However, imports in 1959-60 totalled only 826 tons and this is the lowest figure of the 10-year period from 1950-51.

Despite this, it is considered that a prospect for making nitrogenous fertilisers is

marked off from other chemical projects not only by the certainty of future demand but by the existence locally of a very favourable raw materials situation, including cheap opencast coal. Synthetic ammonia production leads naturally to some important derivatives and makes it possible to envisage explosives manufacture in the State. This project seems to offer the best beginning for the development of a systematic chemical industry.

To avoid complications urea would be the primary product, to be followed by anhydrous ammonia and nitric acid and later still by ammonia liquor, ammonium sulphate, carbon dioxide, ammonium phosphate, methanol and formaldehyde.

The production of triple superphosphate for export is envisaged, and if nitrogenous fertilisers are made, there is also the prospect of offering mixed and complete fertilisers.

In other fields, the team sees the possibility of manufacturing flavouring essences and extracts, plus essential oils, glues and adhesives, and medicinal products, including insulin.

Since the visit of the authors to Western Australia, agreements have been finalised or are under negotiation for projects worth a total of £104 million, including the following spending: B.P. Refinery Ltd., £8 million, and Laporte Industries Ltd., £4 million. Industrialists are also studying the production of alumina from bauxite (£5 million) and a vanadium plant (£5 million).

LABORATORY EQUIPMENT REVIEW



Advances in Analytical, Measuring, Recording and Research Techniques



A variety of new equipment, apparatus, instruments and materials for the laboratory will be featured at the Laboratory Apparatus and Materials Exhibition to be held at the Royal Horticultural Society's New Hall, London, from 19-22 June. This annual 'Chemical Age' survey of laboratory equipment indicates which firms are also showing at this exhibition



Further particulars of the exhibits mentioned can be obtained by returning the Reader Enquiry Service form on page 1015

Chromatography Apparatus

Aimer Products Ltd., 56-58 Rochester Place, London N.W.1, have a wide range of chromatography apparatus, especially designed by leading doctors and teachers of this technique, together with the original Universal tank as designed by Dr. Ivor Smith. At the exhibition they will also show electrophoresis apparatus, modified for general purpose techniques, with relative accessories; fraction collectors with single and double track collections; semi-micro ware for schools and research purposes; a portable laboratory designed to help the young scientist.

pH Meters

Analytical Measurements Ltd., The Quadrant, Richmond, Surrey, will exhibit their exclusive designs in pH meters—from their 'Pocket' to their new recording pH meter.

Baird and Tatlock (London) Ltd., in conjunction with their associate companies, **Hopkin and Williams Ltd.** and **W. B. Nicolson (Scientific Instruments) Ltd.**, will show a representative range of new products, as well as some already well established equipment, which will include such items as a 'Bara' autoclave, an anhydric incubator, two automatic pipettes, a Van Slyke apparatus with magnetic stirrer and a new range of chromatography apparatus.

Laboratory Chemicals

The British Drug Houses Ltd., B.D.H. Laboratory Chemicals Division, Poole, Dorset, will exhibit part of their range of nearly 7,000 products for laboratory use including reagents; new preparations for analytical and other laboratory procedures; materials for liquid and gas chromatography; solvents for spectroscopy; concentrated volumetric solutions; ion exchange materials; molecular sieves; chemicals for special fields of industry.

Among new entries in the B.D.H. catalogue are lead tetra-acetate, specially pure magnesium nitrate, trifluoro-acetaldehyde, trifluoro-acetamide, trifluoro-aceticamide and trifluoro-acetic anhydride.

Warerite Bench Tops

Bench tops made of Warerite laminated plastics are impervious to staining, greases, organic alkalis and weak acids; they are also heat resistant and unaffected by extreme cold. Warerite, produced by **Bakelite Ltd.**, was put to a variety of uses in the new Sandoz Products' headquarters opened at Horsforth recently (see CHEMICAL AGE, 10 June).

Baker Microscopes

C. Baker Instruments Ltd., Purley Way, Croydon, Surrey, will exhibit their microscopes and accessories, including the new Patholette range of new conception and design with lever and scroll mechanism for focusing. They are also showing their new Microplan X40 objec-

tive with completely flat and anastigmatic field giving equal sharpness over the whole object; Metallette metallurgical microscopes and Series 4 research microscopes with Trilux condenser.

The Series 4 microscope stand will also be shown equipped as an interference microscope, useful for establishing concentrations of proteins in cells and measuring density of material in sections of man-made fibres.

Lab Bench Fittings

Donald Brown (Brownall) Ltd., Lower Moss Lane, Manchester 15, will show a comprehensive range of laboratory bench service fittings for water, gas, vacuum, compressed air and steam. They are shown with black and coloured chemically resistant finish and have individually shaped handwheels to give sight and touch identification. Several new designs and additions to the range are shown, including gas fittings and diaphragm vacuum valves.

Models of Structures

Catalin Ltd., Waltham Abbey, Essex, will exhibit models of organic and inorganic structures prepared from the covalent and ionic molecular model sets which they manufacture. The covalent set, originally designed by the Chemical Research Laboratory, Teddington, is being considerably extended and certain models of organic structures will incorporate prototype model atoms.

The Catalin system of ionic modelling of crystal structures is a new development and incorporates a novel adjustable base. The standard type of base, incorporating vertical rods, and a prototype base featuring variability of angles between the x, y and z axes will also be shown.

Lavay Viscometer

The Lavay viscometer, made by Lhomargy and available in the U.K. from **Columbian International (Great Britain) Ltd.**, 116 Cannon Street, London, E.C.4, is designed for determining the viscosity of all kinds of liquid and viscous materials. In principle, it is an extrusion instrument that operates by measuring the relative velocity of two essentially parallel surfaces, separated by a thin film of the material being examined, when a constant force is applied to a movable member.

Crystal Chronometer

Communication Systems Ltd., Strowger Works, Liverpool 7, are exhibiting the C.S. crystal chronometer, and all-electronic precision pulse source contained within a small physical unit. The chronometer employs a crystal-controlled oscillator to generate a basic frequency which is fed to a series of binary dividers. The outputs of the binary

LABORATORY EQUIPMENT REVIEW

dividers are fed to separate pulsing relay circuits to produce pulses at the required intervals. The special circuits are completely transistorised and make extensive use of printed circuit panels of the plug-in type.

New Coulter Counters

Greatly increased demand for the Coulter counter for particle size distribution is being met by the removal of **Coulter Electronics Ltd.**, to a new location at 2-4 Ashwell Street, St. Albans, Herts (St. Albans 50828/9), where larger factory, laboratory and office space is now available.

In addition to increasing the rate of production of their standard Model 'A', Coulter Electronics expect to have their new Model 'D' available by July or August. This is a more compact version of Model 'A' and has been designed for medical use where the emphasis is on the counting of red and white blood cells.

Future plans include, later this year, the introduction of Model 'B' (which will automatically plot a complete number/size distribution curve in selected size ranges from 0.5 micron upwards in a matter of minutes), and the introduction of a particle sizing service for those companies which only have an occasional demand for size distribution data.

Necropsy Equipment

Items of interest to the pathologist and the laboratory technician will be shown at the exhibition by **Alfred Cox (Surgical) Ltd.**, Edward Road, Coulsdon, Surrey. A comprehensive range of necropsy equipment is included. The properties of Haemel-Sol in the treatment of laboratory glassware will be demonstrated. In addition, a new method of fixing and storing brains will be shown.

Monitoring Instruments

F. Darton and Co. Ltd., Watford Fields, Watford, Herts, are showing instruments which serve a dual purpose as they need no installation and can be sited in permanent or temporary position for monitoring purposes. They form a vital link between the laboratory and the factory, for resolving production problems. Exhibits include: thermographs; hygrographs; thermo hygrographs; several models of precision hygrometers and pocket hygrometers; manographs; precision manometers; mercurial and aneroid barometers; rain gauges; meteorological thermometers and barographs.

Laboratory Fittings

Esavian Unilabs, a new technique of laboratory construction, which combines speed and economy in erection with complete flexibility are to be featured at the exhibition by **Esavian Ltd.**, Stevenage, Herts. The Esavian principle consists of first erecting the carcass to a module of 3 ft. 3 in. minimum, fixing the tops,

sinks, taps and all services and then simply pushing in and securing the units, which can be interchanged. As there is space above and below, and at the back and sides of all units, there is no cutting required for services. A double unit may be interchanged with two single units. The units, 10 in number, are dustproof and styled with facings in beech or sapele. There are matching wall units.

Glassware Cleaner

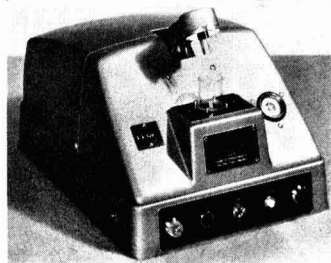
A machine which cleans many kinds of laboratory glassware to a high degree of commercial sterility is produced by **Dawson Bros. Ltd.**, Venter Works, Gomersal, Leeds. It is built on the cabinet principle and is so arranged that, when placed on the racks, the glassware is accurately located over jets.

There are three stages of treatment: a cold or hot pre-rinse; an internal and external high pressure hot detergent solution wash; and a final rinse. The detergent wash water is supplied by a 1 h.p. pump from a tank built into the body of the machine, which can be heated to the required temperature (145-160°F) by gas, steam or electricity. The cold rinse is supplied from the mains; a booster pump can be supplied if the pressure is insufficient.

The machine is constructed in stainless steel and measures 3 ft. 5 in. by 2 ft. 11 in. by 5 ft. 2½ in. The feed height is 3 ft. and the glassware racks 18 in. square. Dawsons also have available animal cage washing equipment of several types and a feeding bottle cleaning machine.

Automatic Titrimeter

Among the instruments available from **Doran Instruments Co. Ltd.**, Stroud, Glos, is an automatic titrimeter, a continuously indicating instrument used in combination with an electrometer valve circuit. The electrometer circuit is of the single-stage balanced input type. Careful



EEL chloride meter

balancing and large values of negative feedback enable high stability to be achieved with negligible zero drift when operated under moderate conditions of supply variation. The meter may be used with safety to measure any potential without previous knowledge of the magnitude or polarity, and without damage or polarisation of the electrode system. The control system uses transistor photo cells and the 'end point' index pointer carrying one cell is adjusted by means of a knurled control knob. A second index pointer fitted with a similar cell can be set to operate a second relay at any reading between zero and the end point. These pointers are automatically adjustable and automatic titrations may be carried out for either 'rising' or 'falling' values of pH or millivolts.

Also available is an instrument designed to enable measurements of conductivity to be made with simplicity of operation and to give direct readings with sufficient accuracy for general measurements in the laboratory and the field. The range provided covers conductometric titrations in alcoholic or another non-aqueous solutions and is sufficient for highly distilled and demineralised waters.

The instrument is entirely self-contained with internal battery and only requires switching on to be immediately available for use.

Elcontrol Instruments

A conductivity controller for the continuous monitoring of the conductivity of water passing through an industrial type flow cell is among the range of instruments produced by **Elcontrol Ltd.**, Wilbury Way, Hitchin, Herts. The Conductivity/Indicator Controller CC4 is for use in the laboratory and in the field.

Elcontrol have now redesigned their existing range of Proximity switches, making full use of the latest developments in electronic techniques and in the use of new materials for electrodes and insulation. These units can be used as high or low level detectors for a large range of solids and liquids including fertilisers, general chemicals, all common mineral acids and hydroxides and 100% oleum.

The programme timer type MA2 is the first of a new series of precision cam timers to be produced by Elcontrol, using snap action micro-switches to provide control contacts for an automatic sequence. Further models with additional facilities are being developed.

The unit is constructed around a cen-



Dawson's laboratory glassware cleaning machine

tral cam shaft consisting of eight independent cams, each of which is operating an individual change-over micro-switch, via a specially designed rapid action cam follower. A synchronous motor drives the cam shaft at the speed required to provide the necessary cycle time for any given control sequence. The timer has been designed to meet the growing demand for a more versatile cam switch particularly suited to modern product design and production techniques.

New Equipment for U.K. Market

A range of new equipment produced by Photovolt Corp. of the U.S. is shortly to appear on the British market through **Elliott Brothers (London) Ltd.**, Century Works, Lewisham, London, S.E.13. Included in this range is a new photoelectric instrument, Lumetron Photoelectric Colorimeter Mod. 450, designed especially for water analysis and any other tests requiring the accurate analysis of faint coloration and turbidity, including determination of sugar whiteness. It will also grade refined petroleum products and other light coloured liquids.

Used for direct spectral absorbance recording, the Varicord 43 is a multi-range potential and current recorder of high sensitivity and fast response with a wide chart on an open panel. With a double beam spectrophotometer, Varicord 43 shows true concentration values directly on a uniform graduated absorbance scale. Varicord 43 with a fraction collector and U.V. photometer continuously records concentration.

Stainless Steel Test Sieves

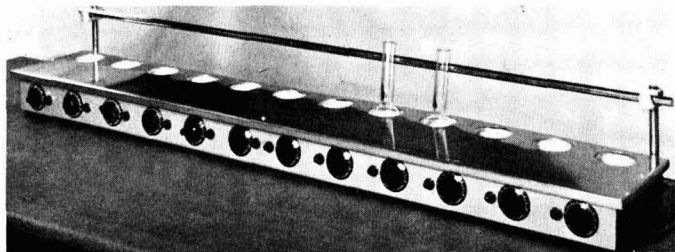
At the Laboratory Apparatus and Materials Exhibition **Endecotts (Filters) Ltd.**, Lombard Road, London, S.W.19, will show test sieves to B.S.I. and U.S. standards manufactured completely from stainless steel. This is for the benefit of manufacturers and users of chemicals and re-agents which attack and corrode standard sieves.

Also on display will be test sieves to B.S.410 1943, which are manufactured under licence from the British Standards Institution, U.S. sieve series (ASTM E.11) and of other international standards, also pocket 'Interchanger' sieves and various sieving ancillaries.

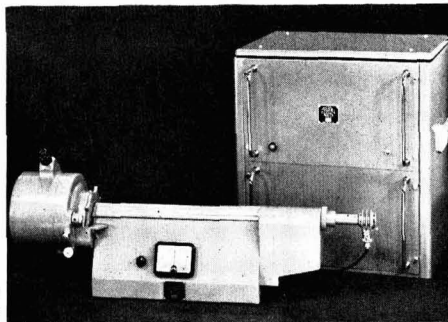
The rapid separation of particles will be demonstrated with transparent rimmed test sieves on an Endrock test sieve shaker. Visitors will see a mixture of coloured material inserted in the top of a nest of sieves; in approximately 30 seconds it is graded into six different sizes, each size of which is a distinctive colour.

EEL Chloride Meter

Evans Electroelenium Ltd., Halstead, Essex, who as stated last week, are showing at the Achema exhibition, state that the EEL chloride meter, one of the latest developments and about to go into standard production, is designed for the automatic determination of chloride in aqueous solutions. It will indicate directly the millequivalents of chloride in serum and for applications other than medical can be supplied with other scales



Above: Isopad's Kjeldahl extraction unit



Hilger and Watts Microptic photoelectric polarimeter

such as milligrams chloride/litre (i.e., p.p.m.).

This instrument incorporates generating and indicating silver electrodes mounted in a hinged arm which lowers into a test tube containing the solution under examination. A magnetic stirrer ensures constant agitation of the sample while a current passes through it via the two generating electrodes. The flow of ions produces a small potential at the indicating electrodes. When all the chloride has been precipitated the free silver ions cause a sudden increase in this potential which operates a meter relay that switches off the current and the results are shown directly on the digital counter in milliequivalents of chloride, or other chosen units.

The EEL titrator meets the demand for a simple instrument to conduct any titration involving colour change and is particularly suited to the determination of complexometric titrations, a valuable asset being its ability to provide accurate readings where the colour range representing the end point is slight. Its photoelectric technique completely eliminates the errors inherent in visual assessment.

New Griffin Equipment Will Be Displayed

The **Griffin and George Group**, Alpert, Middlesex, will show at the exhibition a comprehensive cross section of laboratory instruments and furniture for every type of scientific research, development and industrial laboratory. Among the many instruments to be shown for the first time will be: The Griffin D-6 chromatograph; The Griffin flame-ionisation chromatograph; Shore scleroscopes; portable Shore durometers; Griffin Courtauld atomic models; and the Griffin oscillating hotplate. The stand will be furnished with laboratory furni-

ture of a new design incorporating cantilever bench frames.

Low Temperature Bath and Temperature Recorder

Grant Instruments (Cambridge) Ltd., Barrington, Cambridge, will show a new electric thermometer and temperature recorder giving rapid response using thermistor probes as the sensing element. Full scale spans range from 10°C to 100°C, with accuracy 1% of scale. Price of the 0-100°C thermometer is £22 10s, while recorders of the same range cost £74.

The Grant range of thermostatic baths and control units include a new low temperature bath, larger than previous models and with a more rapid cooling rate. Price of the bath is £134 in basic form; £149 with pump for external circulation.

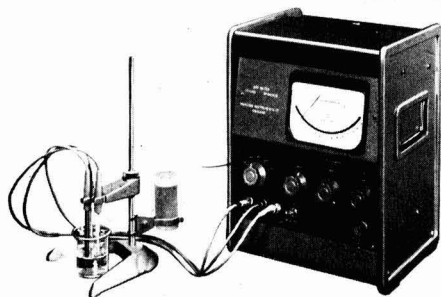
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Gunn Flameproof Pumps

Latest additions to the range of Gunn submersible pumps were conceived by **D. A. Gunn (Engineering) Ltd.**, Park Road North, London W.3, for users whose ever-present problem is the danger of fire. However, the pumps are not restricted to use under flameproof conditions and should be of interest to technicians wishing to pump, mix or circulate moderately large quantities of liquid with a minimum of trouble.

The pumps are air powered and there-

Marconi laboratory pH meter, type TF 1093



fore have a cost advantage. Of compact and robust design, they are light and portable and do not require expensive special wiring or switches. Only minimum maintenance is required. Outputs of up to 1,000 g.p.h. and heads well in excess of 25 ft. are readily obtainable.

Two models are available, the standard and the drum and barrel emptying pump. All immersed parts of both types are of top quality stainless steel, rendering the pumps suitable for use in a wide range of corrosive chemicals and at the same time complying with food regulations.

Environmental Test Cabinet

Hedin Ltd., Commerce Estate, London E.18, will exhibit their new low temperature environmental test cabinet, compactly designed, almost silent in operation and with a range of -65° to 150°C .

They are also showing laboratory ovens with forced air circulation which provide close and reliable temperature control up to 300°C and uniform temperature distribution; a furnace with a temperature range of $1,000^{\circ}\text{C}$; a humidity cabinet for climatic testing of electrical and electronic equipment and durability testing of plastics, chemicals, confectionery and protective coatings and a selection of their industrial heating elements.

Photoelectric Polarimeter

Exhibited at the Achema Exhibition (see CHEMICAL AGE, last week) was the Microptic photoelectric polarimeter of **Hilger and Watts Ltd.**, 98 St. Pancras Way, London, N.W.1. The range of the instrument is 0 to 360 annular degrees (-150 to $+150$ sugar degrees). Its precision is 0.002° when the needle is balanced on the central zero line, and 0.01° when the needle is within the engraved range. The overall accuracy of rotation is 0.005° . The optical viewing system of the visual instrument is replaced by photomultiplier, more sensitive to small changes in light intensity. The finer measurements that result from the microptic are made on a graduated circuit read by a microscope which gives a magnification of 10 times.

Also available from Hilger and Watts is a single beam grating spectrophotometer, the H840 grating spectrophotometer for the visible region, which is used in the routine analysis of solutions in the wavelength range 350 to 750 $\text{m}\mu$. It con-

sists of one compact unit, except that a constant-voltage transformer is mounted separately.

Extraction Units

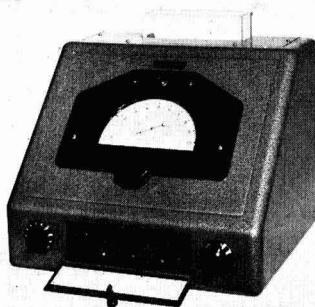
The range of extraction units manufactured by **Isopad Ltd.**, Boreham Wood, Herts, has been considerably increased and shown on p. 995 is a unit comprising 12 heating mantles for Kjeldahl flasks of 15-50 ml capacity. Each is controlled by an energy regulator with pilot light. This firm's high-temperature ovens mentioned in these pages recently have aroused great interest and a further type of Isopad laboratory oven is now available for operation up to 800°C . The range of Isomantle heating mantles is described in catalogue LM.

Kappa Moisture Meter

The rapid and accurate determination of moisture content in a wide range of materials has been made possible by the introduction of the Kappa Model AB/55 Moisture Meter, produced by **Kappa Electronics**, Division of Fidelity Cars Ltd., 159 Hammersmith Road, London W.6.

The instrument is a frequency-sensitive device that measures, in arbitrary units, the permittivity of the contents of a removable test cell, the permittivity being dependent upon the physical properties and moisture content of the material. A change in frequency produced by a variation in the moisture content of the sample is accurately detected by a superheterodyne circuit and is indicated on a continuous scale that is calibrated in 1,000 well-spaced divisions.

The frequency of the test circuit is



The Kappa moisture meter, model AB/55

selected so that readings are not affected by conductivity and a choice of cell size ensures that the sample is truly representative of the bulk.

Winchester Bottle Carrier

Two types of Winchester bottle carriers are available from the **Laboratory Apparatus and Glass Blowing Co.**, 77 Grosvenor Street, Manchester 1. Type 1 of black plastics, or rubber that is inert to corrosives and most solvents has a stainless steel handle and holds a 1 qt. size bottle. Price is 50s. Type 2, priced at 45s., is of wicker construction with a wood slat base, and is designed to carry one, two or three quart-size bottles.

Also available are wide ranges of stainless steel laboratory and pilot plant apparatus as well as laboratory ware in polythene and polypropylene.

Marconi Laboratory pH Meter

The TF 1093 is a mains-operated high stability laboratory pH meter produced by **Marconi Instruments Ltd.**, St. Albans, Herts. Intended for use in conjunction with a glass electrode system, the instrument gives a direct indication of pH from 0 to 14. Any section of the pH scale can be expanded over a central zero incremental range of 1.4 pH. The main and incremental ranges are provided with independent buffer controls to enable accurate cross-correlation to be carried out.

The instrument also measures voltages in the ranges 0 to 1,400 mV and 140 mV with the same high input impedance and stability as for pH measurement. This extends its use to such applications as rH or corrosion potential measurements.

The TF 1093/1 is an alternative model with identical electrical features and performance but having a simpler mechanical construction with no accessory stowage facilities.

Marklab Taps and Valves

W. Markes and Co. Ltd., Wedges Mills, Cannock, Staffs, are showing a comprehensive range of Marklab taps, cocks and valves for use in modern teaching, industrial and research laboratories and hospitals. The range includes taps for hot and cold water, distilled and demineralised water; cocks for vacuum, town gas, butane and bottled gases; valves for compressed air; steam and hazardous gases and fittings of special interest to the pathological and medical research laboratory. Fittings with the new Markthene finish will be shown as well as black bronze, chromium plated and epoxy resin finishes.

M. and B. Reagents

May and Baker Ltd., Dagenham, Essex, are exhibiting their range of laboratory chemicals and reagents. Their new Volucon range of concentrated volumetric solutions in specially designed ampoules will be featured. Each ampoule provides 1-litre of accurately standardised solution when diluted with distilled water. Also to be shown are Volusol volumetric solutions diluted

ready for use. A new stabilised Karl Fischer reagent, another recent introduction, will be exhibited. This reagent does not significantly deteriorate during storage and restandardisations are only needed at intervals of two or three weeks.

Henri Picard Equipment

Henri Picard and Frere Ltd., 34/35 Farnival Street, London, E.C.4, are able to supply the extensive range of laboratory equipment manufactured in Western Germany by **Carl Friedrich Usbeck** of Radevormwald. Fully illustrated catalogues are available.

In addition the firm has recently produced a revised edition of their own catalogue. The items mentioned include blow pipes, acid bottles, specimen boxes, burners, laboratory scales, crucibles and furnaces, micrometer gauges, and lenses and magnifiers.

Two-speed Drive Spectrophotometer

The Infracord spectrophotometer, produced by **Perkin-Elmer Ltd.**, Beaconsfield, Bucks, is now available with a number of new features without any increase in price.

The instrument gives an automatic record of an infra-red spectrum from 2.5 to 15 μ . Incorporation of a two-speed drive now allows the record to be obtained in either three or 12 minutes. The latter will be preferred for quantitative work, while the former allows survey spectra to be run in a very short time.

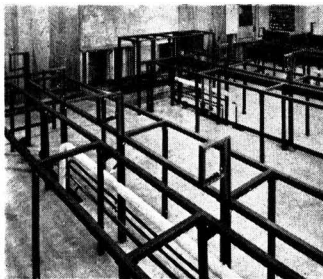
Redesign of the slit system has given improved resolution, especially at short wavelengths. In addition the slit programme may now be set at a number of different levels. The narrower programme is used where the highest resolution is required while the wide programmes allow a considerable improvement in quantitative accuracy.

Steel Channel Framing System

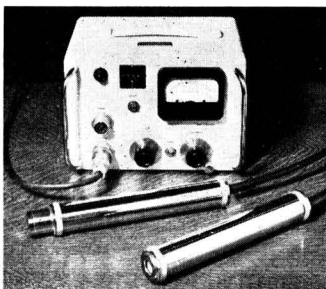
Made by **Sankey-Sheldon Ltd.**, 43-45 Broadwater Road, Welwyn Garden City, Herts, the Unistrut-steel channel framing system has many applications, as pipe supports, for carrying cable conduit and electrical trunking, in concrete inserts, for storage racking, and for the construction of partitions. There is a Unistrut channel for every part of every framing structure and the self-locating nuts cut assembly time to a minimum. A comprehensive range of fittings has been designed to clip or bolt into the Unistrut channel.

New Plessey Equipment

The Selective gamma monitor type PNI 1118 of **Plessey Nucleonics Ltd.**, Weedon Road, Northampton, has been designed as a compact equipment capable of detecting small quantities of those radioactive materials which emit gamma rays in the energy range 10 KeV to 1.5 MeV. The instrument detects the gamma rays by means of a scintillation counter followed by a single channel pulse ampli-



Unistrut steel channel framing system



Plessey Nucleonics selective gamma monitor

tude analyser; all circuits employ transistors. The unit is mains or battery operated.

Also new in the Plessey range is ionisation chamber PNI 1091. With a sensitive volume of five litres, ceramic insulators and ceramic-metal seals, the instrument can be provided with a variety of filling gases at pressures up to 20 atmospheres. The chamber may be made sensitive to neutrons if required, and can be filled with gas to provide approximate tissue equivalents to fast neutrons over a wide energy range.

Spencers Provide Laboratory Furniture for B.R.

Spencers Joinery Ltd., Enfield, Middx., (a member of the Chamberlain Group) have recently completed a contract for the supply and installation of special

laboratory furniture for the British Railways' laboratory now occupying the site of the original Alexandra Palace Station in British Railways' Eastern Region.

The laboratories, primarily designed for chemical research, serve all regions of the British Railways, and will be used to test various materials, including building materials. The laboratory furniture, produced in Sapele mahogany, comprises laboratory benches, wall cupboards, fume cupboards and hood, reagent shelves, and a quantity of library shelving.

Spencers Joinery also supply laboratory furniture to schools, colleges and industry generally.

Interchangeable Key Stopcocks

The Interkey range of interchangeable key stopcocks, manufactured by **G. Springham and Co. Ltd.**, Harlow New Town, Essex, now extended, is available in bore sizes 1 mm to 8 mm, including a 'Y' and 'T' bore in 3 mm, to 4 mm, sizes, also a single, oblique 5 mm, to 8 mm, bore. Also introduced is a double oblique stopcock with interchangeable keys. A p.t.f.e. key is available which is interchangeable with the glass key and can be reliably used with existing Interkey stopcocks or apparatus for the use of caustic or solvent solution.

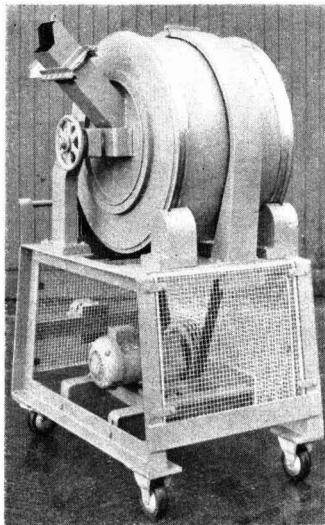
High vacuum stopcocks are also produced by Springham, although interchangeability has not yet been achieved. A recently developed diaphragm operated, greaseless stopcock has been used for high vacuum work and can be provided with a neoprene rubber diaphragm or a fluorocarbon rubber diaphragm. The latter can be used under high vacuum conditions down to 10⁻⁶ mm, and is also suitable for positive pressures.

Laboratory Batch Blender

Developed to meet the needs of laboratories and pilot plant investigations in blending test batches of materials, the Sturtevant laboratory batch blender has a 'four plane' blending action—lateral sliding on the flights, cascading from the flights, a circumferential dispersion from the chute, and lateral transfer on the chute. Available from **Sturtevant Engineering Co. Ltd.**, Southern House, Cannon Street, London E.C.4, it embodies a combined charging and discharging arrangement consisting of a rotatable flared chute with a smooth interior, free



The Perkin-Elmer Infracord spectrophotometer



Sturtevant laboratory batch blender with chute set in the charging and blending position

from ledges and lodgement pockets to allow of easy cleaning, and fitted with a slide to render the drum dust-tight during blending and prevent loss of material while the chute is rotating.

While charging and blending takes place the chute is set in the position shown in the illustration. After blending is complete, and while the drum is revolving, the chute is rotated through 180° by means of the hand wheel at the front, the materials cascade from the flights, re-enter the chute, and are discharged from the machine.

Tests have proved that this blender achieves a very high degree of dispersion, even where some ingredients are of minor proportions, or where widely varying densities are involved. It can be supplied either as a stationary or mobile unit. A large inspection door is fitted at the back should cleaning be required after blending.

The Sturtevant rotating cone type sample divider was originally developed to comply with specifications laid down by the British coke industry for the testing of coke, but it is equally suitable for other materials. It gives representative samples of whole batches quickly and accurately. This apparatus has found wide applications with combinations of Sturtevant laboratory reducing and separating machines working in complete units to produce a representative sample for testing and analysing a large number of different materials.

Micro Vapour Pressure

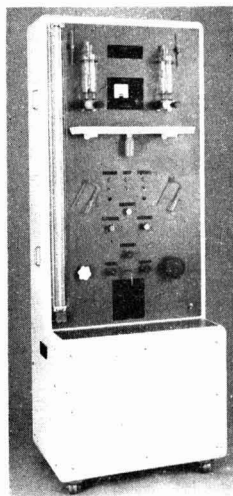
The Stanhope-Seta micro vapour pressure apparatus for the determination of the vapour pressure of volatile petroleum products and similar materials is manufactured by **Stanhope-Seta Ltd.**, Park Close, Englefield Green, Surrey, under licence from **Esso Research and Engineering Co.** It meets the requirements of the Institute of Petroleum stan-

dard method 171 and has considerable advantages over the more cumbersome Reid method. In use it requires only 1 ml. of sample and the complete test occupies only about one-quarter of that taken by the Reid procedure, with which the results obtained correlate.

The complete unit is contained in a metal cabinet, castor-mounted for ease of handling. All controls are located in the main panel and all components are accessible through the side panels.

Industrial Vacuum Cleaners

Tellus Super Vacuum Cleaner Ltd., 39 Sheen Lane, London S.W.14, will display and demonstrate a full range of Danish-made Tellus industrial cleaners of particular interest to scientists and



Micro vapour pressure apparatus available from Stanhope-Seta

research workers. Virtually silent in operation and fitted with the Tellus micro-filter system, which retains the finest dust and bacteria, they can also salvage valuable waste and spillage. Due to the cyclone effect of the air stream broken glass can be picked up without damage to the filter. Large industrial models as well as Tellus floor polishers will also be shown.

Tufnol in the Laboratory

Tufnol, produced by **Tufnol Ltd.**, Perry Barr, Birmingham 22B, is a laminated plastics material available in numerous brands and in the basic forms of sheet, tube, rod, angle and channel. A material which is resistant to corrosion, only half the weight of aluminium yet strong, robust and hard-wearing, with good thermal and electrical insulation and low water absorption properties, it is finding a wide variety of uses in chemical and physical laboratories.

It is useful for table tops, fume chambers, fan blades and channels and rollers for sliding doors since, among its other properties, it has a smooth sur-

face which can be easily wiped down.

In low temperature cabinets, Tufnol provides thermal insulation, and electrical insulation in sundry other equipment. In many instances such as terminal boards and control panels, Tufnol gives mechanical service in addition to the provision of electrical insulation. Because of its resistance to radiation, Tufnol is used for sections in glove boxes for handling radioactive materials. A recent application for Tufnol is the use of 82 frames for chromatography tanks.

Distillation Equipment

Among the advanced distillation equipment made by **Ultrasonoscope Co. (London) Ltd.**, Sudbourne Road, Brixton Hill, London, S.W.2, is a free standing laboratory column designed by **British Petroleum Ltd.**, for the separation and analysis of complex petroleum hydrocarbon mixtures. For the distillation of low boiling mixtures a refrigerated methanol system is included in the console which also houses the necessary apparatus for operation under vacuum at pressures of 100 mm. or higher.

The No. 2201 Oldershaw column is a perforated plate column particularly valuable for the analysis of hydrocarbon mixtures. It contains a low operating hold-up per theoretical plate with a negligible static hold-up. The capacity and reflux rate is high. Being made entirely of glass, the apparatus is suitable for corrosive liquids. The column is used in conjunction with a vapour dividing reflux head, but a liquid dividing head is also available.

Microscope Objective

A wide range of instruments including the new Watson interference objective, a low priced accessory for use with all microscopes, will be shown by **W. Watson and Sons Ltd.**, Barnet, Herts. This objective, for examining specimens by reflected light at x100, produces an interference fringe pattern on the specimens corresponding to variations in the height of the surface. The Barnet ventilator will also be shown. Weighing 56-lb the Barnet is a battery operated, completely portable electronic lung. Other exhibits include the latest Watson stereoscopic microscopes and Service and Bactil-60 microscopes.

Prof. William Thomas Astbury, F.R.S., Professor of Biomolecular Structure in the University of Leeds, and a pioneer in the scientific understanding of natural and artificial fibres, has died at the age of 63. His outstanding research on the properties and structure of wool led to considerable advances in fibre technology and also prepared the way for others in research on the structure of proteins and of nucleic acids.

In the 1920's he was engaged in X-ray crystallography investigations, under Sir William Bragg, and in 1928 went to Leeds as Lecturer in Textile Physics. In 1945 he was appointed to the newly instituted Chair of Biomolecular Structure there.

Shirley Institute Plans £425,370 Extension

THE Cotton Silk and Man-made Fibres Research Association (the Shirley Institute), the new organisation combining the cotton and rayon research associations, has placed a contract worth £425,370 with J. Gerrard and Sons Ltd., Swinton, for the construction of a new building at Didsbury. This will provide urgently needed accommodation mainly for the Chemical and Mechanical Finishing Departments; construction will be undertaken in two phases.

First phase relates to a single-storey workroom (20,900 sq. ft.) for finishing plant, while the second phase relates to a two-storey building (39,300 sq. ft) which will provide laboratory accommodation for the Chemical and Mechanical Finishing Departments and offices for other departments. It is expected that the Workroom will be completed by 31 December 1961, and the Laboratories, etc., by 31 December 1962.

E.I.L. Expect Double Sales to U.S.S.R.

AS a result of their participation in the British Trade Fair, Moscow, Electronic Instruments Ltd., Richmond, expect to double their sales to the Soviet Union this year. This was stated on Tuesday by Mr. David Pitman, E.I.L. sales director, who returned to the U.K. so that his company could deal quickly with more than 50 firm enquiries for industrial pH measurement equipment from Soviet chemical, petroleum, fertiliser and automobile industries.

The commercial model 28A series pH equipment has been officially approved by the State Committee of Chemistry and all this equipment exhibited on the stand at Moscow was purchased. Automatic analytical instruments, including the new E.I.L.-Boby Hardicon for water treatment, were bought for evaluation and approval.

S.A.I. Help to Beat School-leaving 'Bulge'

Scottish Agricultural Industries Ltd. will co-operate with the educational authorities over the next three years to beat the 'bulge' of school leavers by taking more than the 20% of youngsters requested. The recruitment above necessary level will mean that S.A.I. will have surplus junior capacity but will give all these recruits the same training and seek ultimately to place them in full employment with the company.

Borough Symposium on Freeze-drying of Foodstuffs

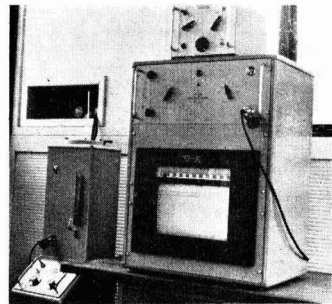
A symposium on freeze-drying of foodstuffs will be held at the Borough Polytechnic, Department of Chemistry and Food Technology, on 19 and 20 October. It will deal with the development of freeze-drying techniques, a survey of the commercial equipment at present available and a discussion of the potentialities of the technique in various branches of the food industry.

FATTY ACID PRODUCERS INSTALL PYE GLC APPARATUS

RAPID high accuracy analysis of oils is now being carried out by Younghusband Stephens and Co. Ltd. of Barking and Rotherhithe on a recently installed Pye gas liquid chromatograph. The high sensitivity argon ionisation detection system allows rapid and accurate analysis of raw materials, control of process methods, and also provides a new basis for further research work.

Percentages of fatty acid constituents are determined during the analysis of raw materials, allowing the oils to be used for the manufacture of products most suited to the constituents present. For example, in the case of linseed and soya oils, the percentages of linoleic and linolenic fatty acid are determined to a high degree of accuracy, enabling oils with the maximum drying or non-yellowing properties to be selected.

Other oils such as rape seed, tobacco seed, boiled and blown oils and polymerised oils are chromatographed and analysis figures are usually available within one hour of a sample being taken. During processing more detailed information of process efficiency and treatment techniques can now be obtained owing to the rapid analysis performed by the Pye equipment.



Pye argon chromatograph in the Barking laboratories of Younghusband Stephens and Co.

One of the current projects included in the extensive research programme at Younghusband Stephens laboratories is the investigation of unpolymerised fatty acids during the heat treatment of oils. In this and other projects, a considerable amount of analytical information is being made available, assisting in new and improved products for the paint industry.

S.C.I. Annual Meeting, Oxford

FIRST details of the 80th annual meeting of the Society of Chemical Industry, to be held in Oxford from Monday, 10 July, to Friday, 14 July, have now been issued. Headquarters will be in Keble College and the S.C.I. annual meeting and president's address by Lord Fleck will take place at 10.15 a.m. on 11 July. The first paper—by Dr. E. T. Hall on 'Physical methods applied to archaeology'—will be given the following day at 10 a.m., to be followed by the S.C.I. Medal address by Professor Sir Cyril Hinshelwood, F.R.S.

Two papers to be presented on 13 July, starting at 10.30 a.m., are by Dr. F. R. Rose, F.R.S., on 'Problems of drug research' and by Dr. H. M. N. H. Irving on 'Analytical chemistry—science or art'. Papers on 14 July will be 'Chemical research in the development of gas

cooled power reactors', by Dr. R. Spence, F.R.S., and 'Hole and corner chemistry' by Mr. H. M. Powell, F.R.S.

Visits will include the following: A.E.I. Research Laboratories, Aldermaston; Oxford City Sewage Works; City of Oxford Water Works; Northern Aluminium Co., Banbury; Oxford College of Technology's new science block; Atomic Energy Research Establishment, Harwell; and Esso Research at Abingdon.

Social events include an informal reception at 8 p.m. on 10 July; a civic reception at the Town Hall on 11 July; the S.C.I. annual dinner at Keble College on 12 July; and a garden party at St. John's College on 13 July.

No hotel accommodation has been reserved, but accommodation is available for more than 350 members and guests in halls of residence.

Diversey Form New R. and D. Department

THE Diversey-Deosan chemical and bacteriological laboratories, which previously operated as separate units, have now been amalgamated to form one joint research and development department, state Diversey (U.K.) Ltd. and their associate company, Deosan Ltd. This department will be responsible for all research, development and laboratory work for the four divisions of the company, which produces and markets specialised sterilisers and detergents for

the agricultural, food-processing, catering and metals industries.

The following appointments have been made in the new departments: technical manager, R. E. Chandler; chief chemist, R. H. Vickers; bacteriological laboratory supervisor, T. Mitchell; agricultural and hygiene section supervisor, A. Saville; industrial section supervisor, E. Roitt. Mr. A. H. Walters will in future act as scientific adviser to the company.

Overseas News

TEXAS COMPANY PLANS REFRIGERATED BUTADIENE STORAGE TANKS AT ROTTERDAM

BECAUSE most SBR or polybutadiene plants now operating or under construction in Europe are thought to have inadequate storage capacity to enable them to continue operations in the event of accident or interruption in production of local butadiene plants, Texas Butadiene and Chemical International Ltd. are to build a refrigerated terminal to receive ocean tanker deliveries of butadiene in north Europe. Butadiene will come from Houston, Tex., where Texas Butadiene have an 8,000-ton refrigerated storage facility at Hess Terminal.

The European terminal site has been provisionally fixed in the Rotterdam area to take advantage of the excellent water, rail and road facilities available. Ground should be broken in July and it is hoped to have the facility in operation in January next. There will be two insulated tanks of 2,000 tons capacity each with butadiene quality protected by refrigeration.

The new terminal will be serviced by two tankers. The *Methane Pioneer* with a capacity of 3,000 tons has been in butadiene service since completing her experimental voyages with liquefied methane for the Gas Council. The *Iridina*, a converted oil tanker, made her maiden voyage from Houston to France in May with 6,200 tons of butadiene for the new SBR plant at Etange de Berre, near Marseilles.

Refinery and Petrochemical Plant for Spain

Empresa Nacional Calvo Sotelo are expected to build a refinery and petrochemical plant at Puertollano, Spain, where they are already established in the field of liquid fuels and lube-oils. Preliminary work on a pipeline from Malaga to Puertollano has already started.

Gains in U.S. Sales of Anti-freeze

According to the U.S. Chemical Specialties Manufacturers' Association, U.S. sales of anti-freeze in 1960 totalled 121 million gall., compared with 120 million gall. in 1959. Sales of ethylene glycol-base products gained 2%, while those of a methanol type declined by nearly 20%. Ethylene glycol based anti-freeze now accounts for 91% of all sales.

Mitsui Polychemical Seek TEL Process from du Pont

Mitsui Polychemical Co. are seeking official approval for a link with E. I. du Pont de Nemours to produce initially 6,800 tons/year of tetraethyl lead at their Ohtake site. This will be Japan's third TEL facility—Mitsui Chemical plan to

set up a joint plant with the Ethyl Corporation, while Ethyl Chemical have plans for a plant based on the process developed in Japan by Toyo Soda.

Extended Molex Range Offered by U.O.P.

The range of the Molex process for separating normal paraffins from hydrocarbon mixtures, using molecular sieves, has been extended by Universal Oil Products. U.O.P. are now producing concentrates containing up to 95% C₁₀ to C₂₂ normal paraffins from kerosine and light gas oil fractions of petroleum. When chlorinated, these higher boiling paraffins could find uses in flameproofing agents, plasticisers and lube-oil additives. The biggest potential output for normal paraffins might be as a raw material for making 'biologically soft' detergents.

Protection of Italian Citric Acid Industry

The Commission of the European Economic Community has authorised the Italian Government to protect the production of citric acid and calcium citrate in Calabria.

Dutch Chemical Turnover Rose 13.5% Last Year

Estimates now issued from Amsterdam by the Dutch chemical association, Vereniging van de Nederlandse Chemische Industrie put the total turnover of the Dutch chemical industry over last year at Fl.3,400 million (£325 million). This compares with total turnover over the year of Fl.37,200 million and is thus some 9% of the total. Dutch chemical exports over 1960 were worth an estimated Fl.1,700 million, or 11% of total industrial and agricultural exports. Compared with 1959 figures the Dutch chemical industry recorded a rise of 13.5% in turnover and of 11% in exports.

American Viscose Plan Plant for Avicel

Because of great interest shown by food, drug and cosmetic makers in Avicel edible cellulose, American Viscose Corporation are to build a commercial-scale plant which should be on stream by the end of this year.

Brazilian Plans for Synthetic Rubber

The Duque de Caxias synthetic rubber plant near Rio de Janeiro will this year produce some 4,000 tons. Natural rubber production will in 1961 account for some 25,000 tons; with consumption estimated at 69,000 tons, some 40,000 tons will have to be imported. In the next five

years, imports will decline as the Duque de Caxias plant reaches full production capacity. The projected Coperbo plant in Pernambuco is expected to contribute 27,000 tons/year.

A.K.U. Acquire Holding in Spanish Nylon-6 Plant

Algemene Kunstzijde Unie N.V. (A.K.U.) of Arnhem and Perlofil S.A. have signed agreements in Madrid giving A.K.U. a considerable holding in the Spanish company. A.K.U. will make all their present and future know-how in the field of polyamide production available to Perlofil and will give technical aid for a planned expansion of Perlofil facilities.

Perlofil S.A., formed in 1951, are one of three Spanish nylon producers. The products made in their Madrid plant are nylon-6 yarns and fibres.

Petrobras Places Natural Gas Contract with U.S. Firm

Petrobras of Brazil have signed a contract with the Hudson Engineering Corporation for the planning and construction of a natural gas plant in the state of Bahia. Daily output will comprise 1,510 barrels of propane, 984 barrels of butane and 516 barrels of motor spirit. The plans of Petrobras for expanding Brazil's refinery capacity have been approved by the Government. These plans call for the collection of data for the construction of refineries at Porto Algrebe, Belo Horizonte and Corumba and of a pipeline from Belo Horizonte to Rio de Janeiro.

More U.S. Firms Link for Polypropylene Marketing

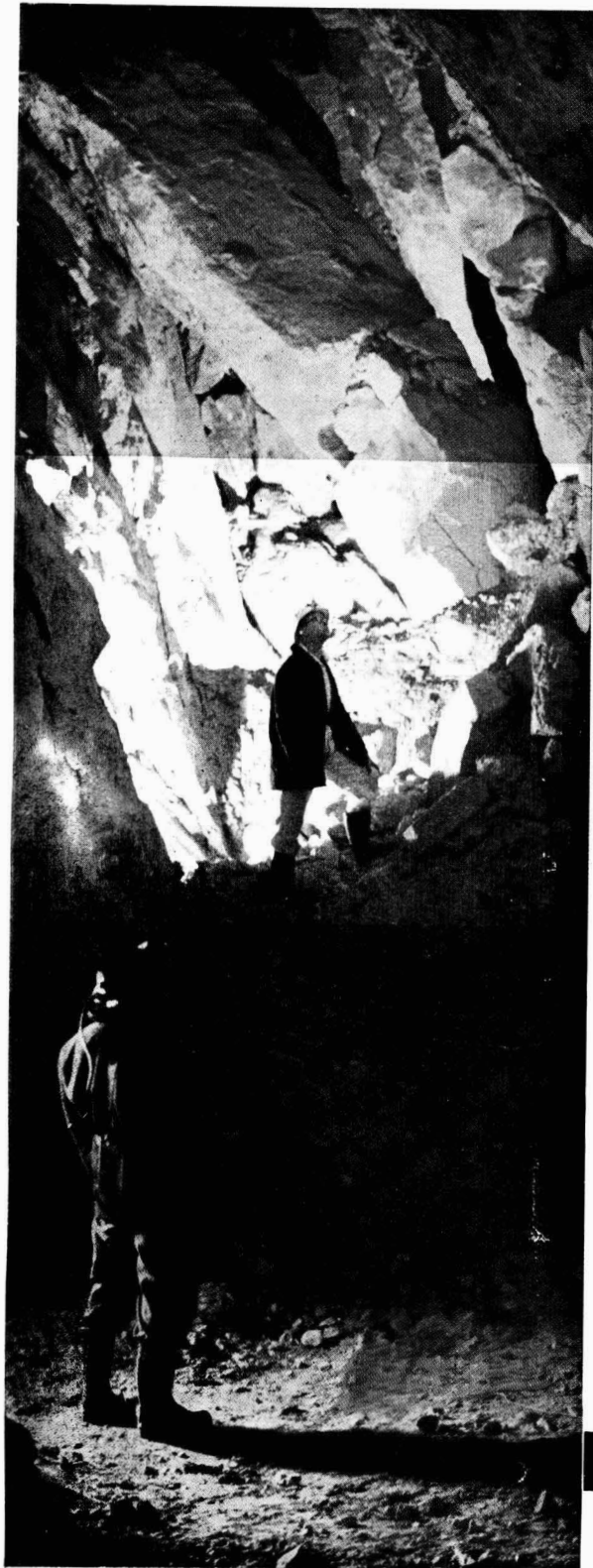
Following the recent news that W. R. Grace would sell Montecatini polypropylene in the U.S. (C.A., 27 May, p. 858), E.I. du Pont de Nemours announce that they will market polypropylene produced to their specification by Hercules Powder. In addition Monsanto Chemical Co. are to handle sales of polypropylene made by Dow Chemical at Torrance, Calif., while Rexall Chemical have entered into a similar agreement with unspecified producer. Du Pont have their own pilot plant and Rexall plan their own polypropylene plant at Odessa, Tex.

Similar joint marketing agreements in polypropylene have already been made between Spencer Chemical and Humble Oil and between Carbide and Shell Chemical.

U.S. Aerosol Sales Top 6 Million Units

Production of all non-food aerosols in the U.S. in 1960 totalled nearly 607 million units, compared with 498 million in 1959 and 341 million in 1958, according to a survey undertaken by the Chemical Specialties Manufacturers' Association. Sales had a retail value of \$870 million last year (\$750 million in 1959).

Biggest gains were recorded in aerosols for hair sprays and dressings with production at 117 million units up 40% on 1959; these now account for 17% of all aerosol units. Output of waxes, polishes and other household lines increased by nearly 35%, while production of shoe



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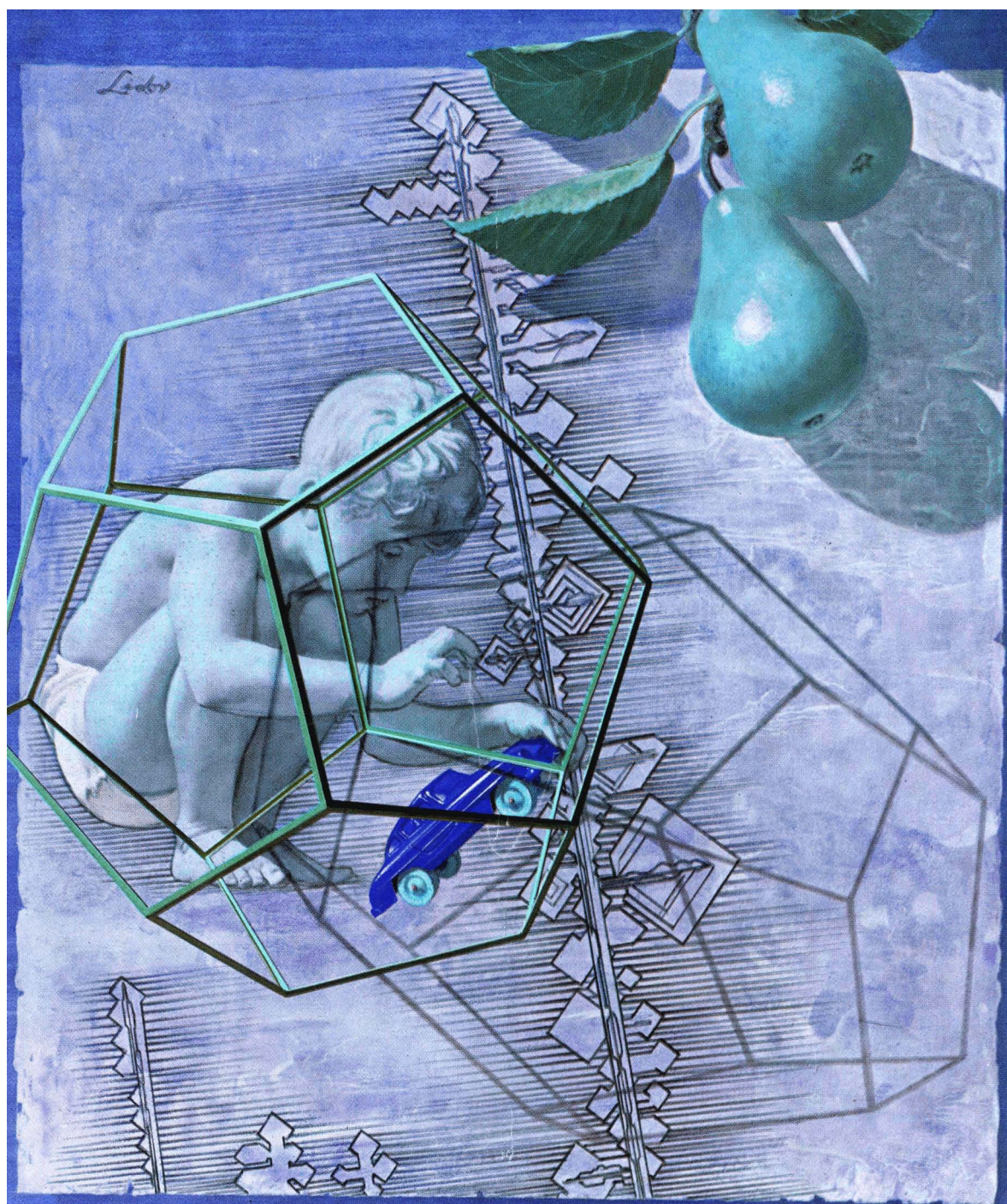
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DOW

TRADE NOTES

Light's New Catalogue

L. Light and Co. Ltd., Colnbrook, Bucks, have started distribution of their 1961-62 catalogue of over 6,000 organic chemicals, biochemicals, pure-elements and rare earth oxides. It is larger than previous lists and includes details of the Dreiding molecular models and of a metabolic chart recently published by the company. Snake venoms and cellulose ion-exchangers are among the several new features.

Paper Coating Emulsion

A new emulsion for paper coating is now available from Charles Lennig and Co. (Great Britain) Ltd., 26-28 Bedford Row, London W.C.1, manufacturing subsidiary of the Rohm and Haas Co., Philadelphia. This product, an acrylic-modified vinylidene-chloride emulsion, is highly stable and has unusually good film-forming characteristics. Applied to paper or paperboard by standard coating methods, this emulsion forms films which offer exceptionally good water, solvent, grease, scuff and block resistance. They also provide an excellent water-vapour barrier.

Change of Address

Due to continued expansion, the London sales office of the Evode Group are being moved on 19 June to bigger premises at 450/452 Edgware Road, W.2 (Ambassador 2425). Storage facilities at Greenford have been enlarged to cater for the continued heavy demand for the Group's products, which include Evo-Stik impact adhesives, Evomastic sealing compounds and chemical products for the building industry.

New address of Minerals Separation Ltd. is 30 Gresham Street, London E.C. (Monarch 6321).

Glycerine Prices Cut

New revised price list of Glycerine Ltd., 8 Tudor Street, London E.C.4, has meant a general reduction in prices. The rate for technical grade glycerine in 10 cwt. drums for under 1 ton lots is now 226s/cwt.; for 1 ton and under 5 tons, in 10 cwt. drums, the price is 220s/cwt.; for 5 tons and under 25 tons, 217s/cwt., and for over 25 tons it is 215s/cwt.

B.I.P. Isophthalic Resins

Two new Beetle polyester resins introduced by B.I.P. Chemicals Ltd., Oldbury, Birmingham, are L.2016 and L.2051, the latter being in gel form. In these products isophthalic acid is substituted for phthalic anhydride. The resultant resin is said to have 50% more bending strength and to be ideal for use in car bodies and boats. These new isophthalic resins can be made in putty compositions for the on-the-spot repairs.

Vermiculite Publication

First comprehensive handbook on vermiculite and its uses, both in building and in many other industries, has been published by Mandoval Ltd., 59

Gresham Street, London E.C.2, the suppliers of vermiculite ore, a company under the management of the Rio Tinto Mining Group. Vermiculite is the geological name given to a group of hydrated laminar minerals which are aluminium-iron-magnesium silicates. It is a member of the mica family. The publication is free on request from Mandoval Limited.

Change of Name

Claffin Chemical Ltd., 12 Whitehall, London S.W.1, have changed their name to Sterling Drug International Ltd.

Faetice and Chemical Supplies Ltd., 4 Lloyds Avenue, London E.C.3, have changed their name to Tampimex Trading Ltd.

Talanol Ltd. of 3 Esher House, 11 Edith Terrace, London S.W.10, have announced a change of name to Talonal Ltd.

Rare Earth Metals

Johnson Matthey, 73-83 Hatton Garden, London E.C.1, are now able to supply scandium, yttrium, and most of the 14 rare earth metals in sheet form in thicknesses down to 0.001 in. and with a maximum width of 3 in. The sheet is available either cold worked or annealed.

Colours for Concrete

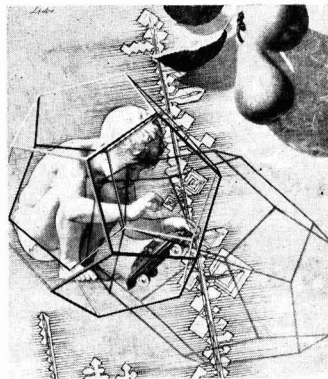
Concrete colours incorporating special plasticising agents are the latest addition to the wide range of specialised building materials manufactured by Plycol Ltd., Slough, Bucks. Plasticisers in the colours make for easily workable mixes, keep gauging water to a minimum: the mix comprises two 10 oz. bags of colours to 56 lb. cement.

Sales Agreement on Gauges

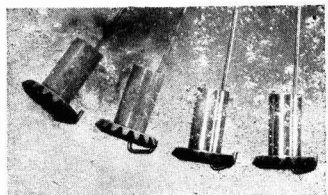
Following a sales agreement with the American Meter Co. Inc., Philadelphia, U.S., Parkinson Cowan Gas Meters are now marketing in Britain the U.S. company's volume and pressure gauges and base pressure and volume indexes. All the equipment covered by the agreement is for use with the new type of high pressure meter recently introduced to this country by Parkinson Cowan and with the Connorsville-type meters distributed by W. C. Holmes and Co. Ltd.

Polyvinyl Fluoride

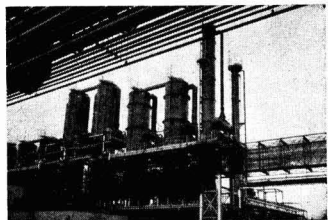
Trade name of the new polyvinyl fluoride film now being produced in pilot quantities in the U.S. by the Du Pont Co. is to be Tedlar, not Teslar as previously, to avoid confusion with an existing trade name. Tedlar, which is to be manufactured in a new plant at Buffalo, New York, from about the middle of 1962, is claimed to have outstanding weatherability toughness, chemical inertness and electrical insulating properties. Expected major applications include surfacing film for prefabricated commercial building panels and industrial roofing, glazing material for greenhouses, and air-supported structures.



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OVERSEAS NEWS

(Continued from p. 1000)

and leather dressings at 15.3 million units, rose by some 13%. Aerosol coatings and finishes (67 million units) increased by 25%.

The survey shows that nearly 25 million starch aerosols were used, making this the third most important household aerosol. More than 14 million de-icing units were used. Downward trends were shown in a number of sectors: space insecticides with a 1960 output of 37 million units were down from the 1959 figure of 37.7 million; mothproofing aerosols totalled 4.8 million units (5.6 million); glass cleaners totalled 17.6 million (18.4 million); shaving lather output was 68 million (72.6 million); toothpaste declined to 2.7 million from 11.2 million.

The Chemical Specialties Manufacturers' Association believes that a big boom in food type aerosols may be coming. A new free-piston aerosol package developed by American Can Co. completely separates propellant from product, thus overcoming objections likely to be raised by the Food and Drug Administration. E.I. du Pont de Nemours are awaiting official clearance for food usage of their octafluorocyclobutane.

Rumania to Supply Chemicals to Brazil

Under a five-year agreement on trade, payments and economic co-operation, Rumania will supply Brazil with oil equipment, oil products, paraffin, bitumen, chemical products and drugs. In addition, contracts can be signed in the period up to 1966 for Rumanian deliveries to Brazil (including equipment for refineries, the oil, chemical and petroleum industries, etc.) for which Rumania will grant credits of up to \$50 million.

F.M.C. to Enter Hydrogen Peroxide Field

A large-scale hydrogen peroxide plant, which will use a new organic process, is to be built by the Food, Machinery and Chemical Corporation at South Charles- ton, W.Va. Hydrogen, the main raw material, will come from F.M.C.'s nearby chlor-alkali plant.

Union Carbide Plan Phthalic Plant at Institute

A 50 million lb./year plant for phthalic anhydride using the fluid bed process and naphthalene as the raw material, is to be built by Badger Manufacturing for Union Carbide Chemicals at Institute, W.Va. To be on stream late next year, the plant will meet the plasticiser needs of U.C.C., as well as the phthalic requirements of Food, Machinery and Chemicals Corporation.

Fast Expansion Rate for Italian Chemicals

Figures issued by the Italian Chemical Industry Association show that the chemical industry of Italy is continuing to expand at a faster rate than in any other Western country.

PRODUCTION OF SOME ITALIAN CHEMICALS

	1958	1959	1960
	(Metric tons)		
Sulphuric acid (100%)	1,983,668	2,133,027	2,277,765
Nitric acid (100%)	477,520	516,442	650,254
Hydrochloric acid (2021 Be)	103,863	118,514	138,850
Synthetic ammonia (100%)	608,680	743,233	839,377
Caustic soda (100%)	263,674	336,085	440,186
Calcium carbide	320,635	301,400	290,371
Acetic acid (100%)	32,852	35,223	36,572
Methyl alcohol (100%)	43,127	47,689	57,885
Carbon disulphide	37,775	46,061	46,135
Crude benzole	35,537	31,285	37,814
Crude tar	174,767	163,827	184,622
Chemical fertilisers	753,161	812,239	819,816

Based on a 1953 average of 100, chemical production in 1960 was as follows (1959 in brackets): Italy 252 (209); France 237 (195); West Germany 223 (196); U.K. 156 (138); U.S. 147 (141); Belgium 145 (135).

Although later figures are not yet available, in 1959 chemical production accounted for 22.5% of Italy's total industrial output. During the first quarter of 1961, Italian chemical exports were valued at Lire 57,447 million (£33.2 million), a 40% increase on the same period of 1960. Above are production statistics for some major Italian chemical products in 1958, 1959 and 1960.

Asahi Chemical Buy Soviet Process for Silicatic

At a cost of \$3 million to be spread over 10 years, Asahi Chemical plan to purchase sole Japanese rights to the Soviet Silicatic process. A U.S.S.R. invention, Silicatic is produced from sand by a unique method; the material is lighter and stronger than cement and is suitable for use as a construction

material, for building services, sewage and water pipes, piling and other purposes.

High-density Polythene Price Falls in U.S.

Most U.S. producers of high-density polythene have now reduced their moulding grade prices by 3 cents to 32 cents/lb., following the example of Hercules Powder. For this type of polythene companies are producing to capacity and 1961 sales are expected to total 233 million lb., some 63 million lb. up on 1960.

Computer May Boost SBR Output by 3-6% Say Goodyear

The styrene-butadiene rubber production process of Goodyear Tire and Rubber plant at Houston, Tex, is being controlled by an analogue computer. The company expects the computer, which has been used on one of six reactor lines, to raise productivity of the 90 million lb./year line by between 3 to 6% and to pay for itself in one year.

New Ammonia, Urea and Acetaldehyde Plants for Japan Gas-Chemical

DETAILS of their plans to extend their Niigata plant have been submitted to the Government by Japan Gas-Chemical. Ammonia synthesis capacity is now 340 tons/day, to which a 120 tons/day unit is to be added. Chemico urea units will boost total annual capacity from the present 54,000 tons to 89,100 tons by a complete circulation process. When this increase is implemented, ammonium sulphate output will be lowered from 80,000 to 50,300 tons/year.

Hydrogen cyanide capacity is to be trebled to 5,250 tons/year, part of which will be used in a new acrylonitrile plant and part of which will be sold. The acrylonitrile facility will have a capacity of 6,600 tons/year based on the Knapsack process; the contract is now under negotiation with Farbwerke Hoechst.

A 40,000 tons/year capacity plant will be built to make high compound fertilisers. Japan Gas-Chemical are considering buying a foreign process for phosphoric, such as Prayon's wet method. Production of some 37,100 tons/year aqueous ammonia is foreseen. In addition, some 7,000 tons/year of re-

covered ammonium will result as a by-product of acrylonitrile.

To cope with this expansion programme, the company intends to raise natural gas output to 940,000 cu.m. and they will purchase a further 500,000 cu.m./day which will be brought to the site by a pipeline, construction of which should start this autumn. On completion of this project—construction is estimated to take 10 months from receipt of Government approval—the company expects to cut its ammonia price to Yen 15,000/ton.

Additional to this development programme, permission has been sought for the acquisition from Friedrick Uhde GmbH of a process licence to manufacture acetaldehyde from ethylene by direct oxidation. Approval for use of this Wacker process has already been given to Mitsui Petrochemical, Shin Nippon Chisso, Showa Denko and Kyowa Fermentation. Japan Gas-Chemical plan to produce 60,000 tons of acetaldehyde from 40,000 tons of ethylene to be supplied by the Idemitsu Kosan refinery.



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In providing a permanent solution to this ventilation problem Colt have added yet another chapter to their record of success—success which has brought repeat orders from many world-famous concerns. Send for a free Data Manual to Dept. 36



● **General Sir Brian Robertson**, until recently chairman of the British Transport Commission, has been appointed a director of the Dunlop Rubber Co. Ltd. Before the last war, Sir Brian was managing director of Dunlop's South African subsidiary.

● **Mr. A. L. Whittaker** has been appointed trade sales manager of the Chemicals Division of Newton Chambers and Co. Ltd., Thorncliffe, Sheffield. He succeeds **Mr. J. A. Burckhardt**, who left Newton Chambers at the end of May.

● **Mr. W. G. B. Mills** has been appointed deputy manager of the Thermoplastics Research and Development Laboratory based at the Silvertown, London, factory of B.T.R. Industries Ltd. Previously technical director with Dohm Ltd., Mr. Mills is especially interested in chemical engineering, paints, adhesives and resins. He graduated from London University with honours in chemistry, is a Fellow of the Royal Institute of Chemistry and a Member of the Institution of Chemical Engineers.

● **Mr. Jack Denson**, chief chemist, industrial rubber products, Goodyear Tyre and Rubber Co. (Great Britain) Ltd., recently delivered the Foundation



J. Denson

Lecture, entitled 'Some ancillary aspects of compounding' at the Institution of Rubber Industry's annual conference. His lecture included, among other things, the growing complexity of compounding materials, the diverse number of synthetic rubbers available, and the possible future of natural rubber. This was only the second such occasion that a member of the Goodyear organisation has had the honour of being Foundation Lecturer for this major item in the I.R.I. year.

● **Mr. W. W. Cross**, formerly manager of the United Glass plant at Sherdley, Lanes, now has overall responsibility for the co-ordination and operation of the United Glass Northern factories at Sherdley, Ravenhead and Castleford. New works manager at Sherdley is **Mr. J. Saunders**, who is also appointed to the English divisional board.

● **Mr. A. E. C. Hatton** has been appointed export sales manager of Laporte Chemicals Ltd. Before joining the Laporte Group last year he spent some 14 years in the South African chemical industry, firstly with African Explosive and Chemical Industries Ltd. and latterly in charge of the Johannesburg Office of Alfred Pearson and Co. (Pty) Ltd., a well-known firm of chemi-

PEOPLE in the news

cal agents and importers. **Mr. L. D. Smith**, who has been appointed export sales office manager has been active in the Junior Chamber of Commerce movement, and has just been nominated national secretary for Great Britain for the coming year.

● **Mr. D. J. Cudmore**, who has joined the board of Crop Protection (Grantham) Ltd., will continue to act as general manager.

● **Dr. P. F. Holt** has been appointed reader in chemistry at Reading University.

● **Mr. Clifford Hunter**, construction works manager, Wilton Works, has been appointed head of the I.C.I. Central Safety Department, London, to succeed **Mr. J. B. Doyle**. Much of his career with the company has been associated with the building and operation of polythene plants. Mr. Hunter takes up his new post on 1 July.

● **Mr. G. Peters** has been appointed works general manager at the Baglan Bay works of British Hydrocarbon Chemicals Ltd. He was formerly works manager with B.H.C. at Grangemouth and joined them from Abadan in 1952. In August 1955 he left B.H.C. to join

the Consortium in Abadan. His last appointment with the Consortium, which he left in April this year, was as head of operations division in the Abadan Refinery.

● **Sir Laurence Merriam, M.C.**, chairman of British Xylonite Co. Ltd., has been nominated for election as president of the Plastics Institute at the annual meeting to be held on 25 July. Other nominations are: chairman of council, **Mr. L. M. Read**, administration manager. Research and Development Laboratories of the D.C.L. Plastics Group; hon. treasurer, **Mr. A. W. Sherwood**, Bakelite Group sales manager; hon. general secretary, **Mr. J. Taylor**, consulting chemist. The following are nominated as vice-presidents: **P. C. Chaumeton**, **Sir John Dean**, **P. A. Delafield**, **G. Dring**, **S. T. Ellice-Clark**, **C. H. Glassey**, **G. W. Hodds**, **J. Lesser**, **W. F. Mitchell**, **A. E. Skan**, **Sir Miles Thomas**, **W. C. Wagborne**, **Sir Hugh Warren** and **G. J. Wevell**.

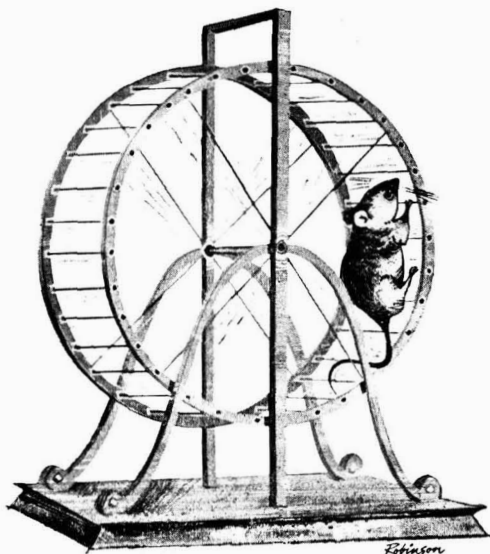


H. H. Woolveridge, a director of the Distillers Company, presents the highest individual award to **R. D. Berry** who beat all-comers in the Hague first-aid competition finals held in London recently. Mr. Berry scored 95 out of 100; he also led the Kenfig Works first-aid team to an outright victory in the D.C.L. team event

I.C.I. Apprentices at Commonwealth Training Week



I.C.I. apprentices in London to attend the recent Commonwealth Training Week are, l. to r., **Richard Grieve**, Dyestuffs Division; **J. A. Roberts**, Alkali Division; **Thomas Andrew**, Nobel Division; **W. J. Davies**, Marston Excelsior; **Peter Wright**, Wilton Works; **David Greensmith**, Plastics Division; **Frank Layton**, Wilton Works; **Brian Ellis**, General Chemicals Division



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Marchon

Commercial News

Amber Chemical

Group net profit of the Amber Chemical Co. for 1960 was more than doubled at £17,825, before tax of £9,790 (£1,554 credit) and minority interests of £1,742 (£965). No dividend is proposed (same).

Ashe Chemical

Group net profit of Ashe Chemical for 1960-61 was £40,365 (£35,002). Dividend is maintained at 16%. Expansion in turnover has not shown any slackening in the current year and further improvement can be expected in the company's position, states the chairman.

Whessoe

Due to lower prices under severe competition, trading profits of Whessoe Ltd. fell from £990,139 to £626,254 for the year ended 31 March. Final dividend of 22½% is proposed, making 27½%. After tax of £295,000 (£550,000) net profit was £331,254 (£440,130).

Orders on hand are at a high level and gross work in progress has increased, but the effect of lower price levels will continue to be felt. The company is reorganised for expansion and confidence is felt in the long-term future.

British Oxygen

Sales of the British Oxygen Co. Ltd. for the half-year ended 31 March totalled £30.65 million, an increase of just under 4% compared with the figure of £29.5 million recorded for the same period last year. Sales in the full year to 30 September last totalled £59.8 million. After depreciation, the half-year group trading profit totalled £4,651,000 (£4,951,000). After investment relief, tax accounted for £2,015,000 (£2.4 million), leaving a net balance of £2,636,000, an increase of 3.7% on the same period of last year when the total was £2,551,000. Parent company's consolidated net profit for the half year was £2,308,000 (£2,219,000).

An interim dividend of 4% is announced on capital increased last November by a one-for-five rights issue and a recent one-for-two scrip issue.

Hardman and Holden

Hardman and Holden Ltd., the Manchester subsidiary of Borax (Holdings) Ltd., have acquired the issued capital of J. M. Beckett and Son Ltd., pigment producers. Beckett will continue to trade as a separate entity.

Horlicks/B.B.H.

In view of the increased profits of Burt Boulton and Haywood Ltd., which totalled about £250,000 for the year ended 31 March, the directors of Horlicks Ltd. have increased their offer for the £1,170,672 ordinary shares of the former. The new offer is for three 5s Horlicks ordinary units and 45s. in cash for every two B.B.H. £1 units; this compares with a previous offer of four Hor-

- B.O.C. Half-year Sales Increased 4%
- B.B.H. Urge Rejection of New Horlicks Bid
- Courtaulds Profit Down by £2.3 Million
- Wellcome Foundation to Raise £7 Million

licks ordinary and 60s cash for three Burt Boulton ordinary.

B.B.H. have declared a second interim dividend, in lieu of a final of 11%, making 16% (against 10% on a smaller capital). The directors forecast increased profits and higher dividends for the current year.

"Strongly and unanimously" the directors of Burt, Boulton have advised holders to reject the revised Horlicks bid. Mr. H. C. Hitchcock, chairman, says that the apparent increase in income from the new offer is insignificant and takes no account of the anticipated increased B.B.H. dividends for the year to 31 March next. Since the B.B.H. management was reorganised in 1957, the company's profit had grown by 132%, compared with 3% for Horlicks.

Courtaulds Ltd.

Group profit of Courtaulds Ltd. before tax for year to 31 March was £18,696,544 (£21,044,043), before tax of £8,235,169 (£9,176,672). Group profit after tax was £10,461,375 (£11,867,361); after deducting minority interests the Courtaulds interest in group profit was £9,822,430 (£11,217,524). The capital general reserve takes £4,389,989 (£6,496,685).

A final dividend of 1s 2d (1s 6d) is declared making 2s (2s 6d). The 1961 dividends are paid on capital increased by shares issued on the acquisition of Pinchin, Johnson and Associates and a subsequent one-for-three scrip issue. The comparative figures for 1960 do not include the results of Pinchin, Johnson, who were acquired at the end of that year. (See also p. 986.)

Wellcome Foundation

The Wellcome Foundation Ltd. plan to raise their issued share capital from £3 million to £10 million by capitalising reserves and issuing additional shares to the Wellcome trustees. The new share capital of £10 million is more in line with the capital employed and is a more realistic figure to reflect the relative position of this rapidly growing British pharmaceutical company (see also 'Distillates').

Wm. Neill

Group profit of Wm. Neill and Son (St. Helens) fell to £209,312 from £339,983 for the year to 31 March. Dividend is reduced by 4d to 7d per 2s share. Net balance was £105,312 (£178,983)

Aspro-Nicholas

Pre-tax group profit of Aspro-Nicholas for the year ended 31 March was £1,127,734, compared with £1,000,036 and with a figure of £1.5 million anticipated following the acquisition of Griffiths Hughes. Profits of the latter

group have been fully maintained, but a loss was incurred by the new North American subsidiary of Aspro-Nicholas, while the low turnover in relation to money invested in other ethical pharmaceutical and veterinary activities, had an adverse bearing on results. Additional expense was incurred in the initial costs of integrating the business of Griffith Hughes. Group turnover was a record and was up 15%.

Net profit was £41,654 (£445,817); a fourth and final interim of 3½% makes 14% against an equivalent 13.6%.

Air Reduction

Air Reduction of the U.S. have made a bid worth nearly \$32 million for the assets and trade of Speer Carbon. The acquisition would give Air Reduction facilities for the production of carbon and graphite, of which Speer's sales in 1960 totalled some \$25 million.

Elektrochemische Werke

Elektrochemische Werke München AG, the West German company taken over by Laporte Industries Ltd. (CHEMICAL AGE, 3 June, p. 884), have a capital of DM4 million. The company was formerly owned 46% by members of the Pietzsch family, though the largest single shareholder was E. Merck AG, the Darmstadt, West Germany, pharmaceutical-chemical producers. Elektrochemische have already jointly erected a sodium chloride plant in the U.K. with Laporte and will now build a new hydrogen peroxide plant at Höllriegelskreuth working to the AO process. Dr. Karl Merck (Germany) remains the company's chairman. Mr. G. Hickson, a director of L.I.L., has become vice-chairman.

I.C.I.A.N.Z.

Present indications, state Imperial Chemical Industries of Australia and New Zealand, are that profits for the current year will be considerably lower than those for the previous year. A three-for-seven scrip issue is to be proposed at a meeting on 26 June; the dividend rate will be cut accordingly.

NEW COMPANIES

D. G. BENNETT CHEMICALS LTD. Cap. £500. Manufacture and distribution of chemicals, including dyes, pigments and colours, detergents, emulsifiers, disinfectants, toilet products, etc. Directors: D. G. Bennett, Mrs. S. E. Bennett and H. S. Bennett. Reg. office: 11a St. Johns Hill, Battersea, London S.W.

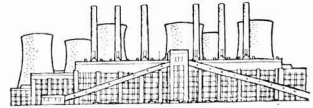
MONOGRAM CHEMICAL CO. LTD. Cap. £1,000. Manufacturers, importers and distributors of chemicals, etc. Directors: H. A. White and L. H. Hubbard. Reg. office: 171 Strand, London W.C.2.

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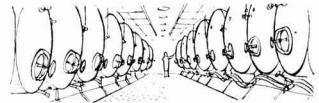
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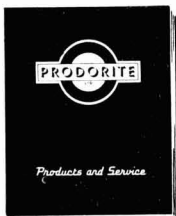
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Specifications filed in connection with the acceptances in the following list will be open to public inspection on the dates shown. Opposition to the grant of a patent on any of the applications listed may be lodged by filing patents form 12 at any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

ACCEPTANCES

Open to public inspection 19 July

Olefin polymerisation processes. Petrochemicals Ltd. **873 225**
 Preparation of lactones. Pfizer Ltd. **873 296**
 Catalytic polymerisation of olefins and catalyst therefor. Petrochemicals Ltd. **873 226**
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 Method of conducting gaseous chemical reactions by treatment with electric discharges. Imperial Chemical Industries Ltd. **873 090**
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 Hydrocarbon polymers. Shell Research Ltd. **873 065**
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 Process for preparing condensation products of polyvinyl alcohol and carbonyl compounds. Sekisui Kagaku Kogyo Kabushiki Kaisha. **873 263**
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 Halogen-containing hydrocarbon polymers. Shell Research Ltd. **873 068**
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 Penicillins. Beecham Research Laboratories Ltd. **873 244**
 Polymers. Shell Research Ltd. **873 069**
 Phosphorus- and nitrogen-containing polymers. Shell Research Ltd. **873 070**

Market Reports

Price Reduction for Methanol

LONDON Most sections of the industrial chemicals market have experienced a steady call for supplies for home consumption while the flow of export inquiry has continued on a reasonably satisfactory scale.

The price position generally continues very steady, the only alteration reported at the time of this report being a reduction of 50s per ton in the price of zinc oxide; the new rates are White seal £100, Green seal £98, and Red seal £95 per ton.

Business in fertiliser materials has been quiet and the coal tar products market is without feature with the under-tone steady.

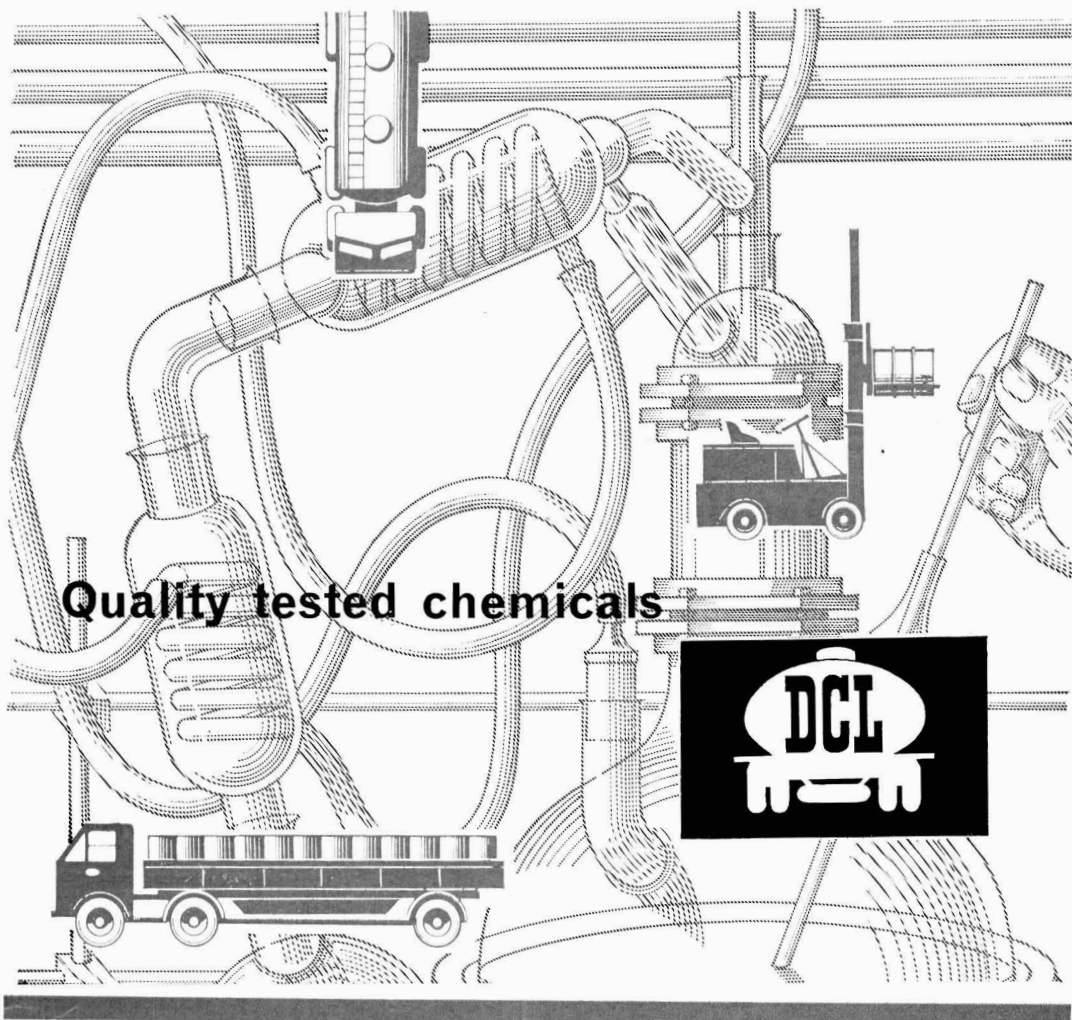
MANCHESTER The past week has seen little change on the Manchester chemical market. A satisfactory feature is the steady call for supplies against contracts of textile bleaching, dyeing and finishing chemicals, as well as other industrial chemicals, while new business has been on a fair scale. With the approaching holiday season in industrial areas, however, the usual seasonal lull in the consumption of chemicals in the home section is anticipated. On the export side the movement of supplies to most of the Commonwealth countries and to other overseas outlets has been on reasonably steady lines.

SCOTLAND There has not been a great deal of change in the Scottish market. Home buying for the most part has been on steady lines involving the usual range of general chemicals.

The level of off-take against contract requirements have been fairly well maintained with quantities showing little change. In regard to agricultural chemicals, the trading position has been rather quieter due to the approaching end of season, but there has been some activity in urgent spot demands.

The overseas market is still fairly active with quite a number of varied enquiries being received.

Prices have remained reasonably firm, the exception being the reductor, in the price of methanol with the resultant lower prices for all grades of formaldehyde with effect from 12 June.



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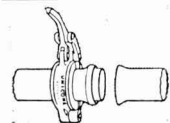


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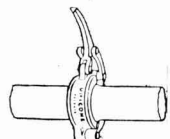
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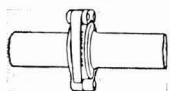
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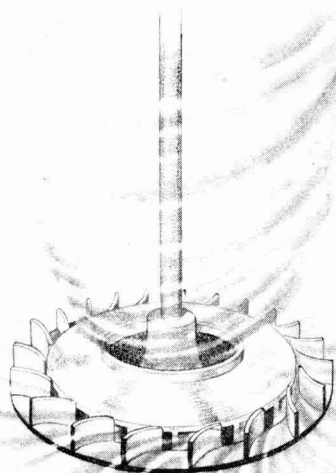
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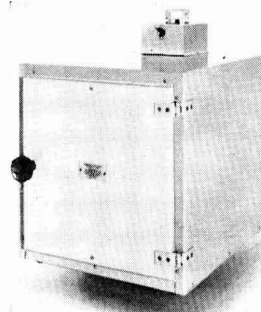
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