

PFIZER'S POLYETHER PLANS (P. 807) BLAGDEN'S 100 YEARS IN COAL TAR (P. 809) CROSFIELD'S NEW SOAPERY (P. 812)

/19 May 1962. Vol. 87. No. 2236

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INDEX TO ADVERTISERS

The first figures refer to advertisements in Chemical Age Directory & Who's Who, the second to the current issue

Pare	ý	Page	Page
	A.P.V. Co. Ltd., The	_	253
	A. W. Instruments (Guildford) Ltd.	-	293
277	Acalor (1948) Ltd.	-	182
164	Aimer Products Ltd.	-	
	Aiton & Co. Ltd.	-	
201	Albany Engineering Co. Ltd., The	-	210
171	Alginate Industries Ltd.	-	140
139	Allen, Edgar, & Co. Ltd.	-	
146	Allen, Frederick, & Sons (Poplar) Ltd.	-	265
	Alley Compressors Ltd.	-	205
1/6	& 181 Allis-Chaimers Great Britain Lto.	_	
	Alumina Co. Ltd., The		
	Andrew Air Conditioning Ltd.	_	191
229	Armour Hess Chemicals Ltd.	_	210
	Associated Electrical Industries Itd	_	
	Motor & Control Gear Division	_	
	Associated Electrical Industries Ltd.		
	Turbine-Generator Division		166
169	Associated Lead Mfrs. Ltd.	-	
G/C	ard Audco Limited		
	Badger Ltd.	-	174
193	Baker Perkins Ltd.	-	190
198	Barclay Kellett & Co. Ltd.	-	180
	Barter Trading Corporation Ltd.	-	185
121	Barytes (Shielding Products) Ltd.	-	154
	Begg, Cousland & Co. Ltd.	802	
144	Belliss & Morcom Ltd.	_	157
CIC	Bennett, Sons & Snears Ltd.	_	
0/0	Biddle Sawyer Itd	_	
	Bios Laboratories Inc	796	147
152	Bivac Air Co. Ltd.	_	
154	Black, B., & Sons Ltd.	-	207
201	Blackman, Keith, Ltd.	-	
	Blaw, Knox Chemical Engineering Co. L	td. —	200
206	Blundell & Crompton Ltd.		309
	Boby, William, & Co. Ltd.	801	184
223	Borax & Chemicals Ltd. Co	ver iv	101
221	Borax Consolidated Ltd. Front	Cover	140
4	Boulton, William, Ltd.		196
	Braby, Frederick, & Co. Ltd.	-	149
	Brackett, F. W., & Co. Ltd.	-	162
283	British Association of Chemiste		225
184	British Carbo Norit Union Ltd		231
104	British Ceca Ltd The	800	142
179	British Celanese Ltd.	-	169
	British Drug Houses Ltd., The	-	100
170	British Ermeto Corporation Ltd.		301
Spin	e British Geon Ltd.	-	160
	British Jeffrey-Diamond Ltd.		100
285	British LaBour Pump Co. Ltd.	-	156
G/C	ard British Oxygen Company Ltd. (Heav	У	
	Industrial Dept.)	_	1
	British Railways (North Eastern Region)		
	British Rototherm Co. Ltd., The		
	British Steam Specialties Ltd., The	-	
143	British Lar Products Ltd.		
G/C	ard British Titan Products Co. Ltd.		
	British Visqueen Ltd.	795	151
	Broadbent, Thomas, & Sons Ltd.		151
	Brook Instrument Ltd.		
209	Brotherhood, Peter, & Co. Ltd.	-	170
263	Brough, E. A., & Co. Ltd.		143
	Brown, N. C., Ltd.		1.0
153	Bryan Donkin Co. Ltd., The		174

1.0	Page	Page		Page	Page	
	-	253	Bulk Liquid Transport Ltd.	-		Electro
	-	293	Bulwark Transport Ltd.	-		Elga P
		182	Burnett & Rolfe Ltd.	_	101	Elliott
	-		Burts & Harvey Ltd.	707	101	Ematic
	_	210	Bush Beach and Segner Bayley Ltd.	191		Engelha
		140	Butterfield W P Itd	_		Divis
		140	Butterworthe Publications			Esso P
			C T (London) Ltd	-		Evans
		265	& 269 Calmic Engineering Co. Ltd.	-		Evered
• 4			Carless, Capel, & Leonard Ltd.	804		Fornell
iu.			Carter Thermal Engineering Ltd.		148	Ferris
	_		Catterson-Smith, R. M., Ltd.	-	295	Ferrost
	_	191	Causeway Reinforcement Ltd.	-	271	Filtrati
	_	210	Chappell, Fred, Ltd.	-		Firepro
			Chemical Age Enquiries 829	& 830		Firkins
	_		Chemical Engineering Wiltons Ltd.	_		Flight
			Chemical & Insulating Co. Ltd., The			Fluor I
		166	Chemicals & Feeds Ltd.	-	159	Foxbor
	-		Chemie Wirtschaftsforderung	-		Fraser,
			Chimimport	-		Fullers
	-	174	Ciba (A.K.L.) Ltd.			G.Q. 1
	-	1/4	Citanoo Limited			Gallen
	-	180	Classified Advertisements	827		Gascoi
	-	185	Classined Advertisements	_		Geigy
		154	Clydesdale Chemical Co. Ltd.	-		Genera
	802	1.54	Cohen, George, Sons & Co. Ltd.	-		Glass
	_	157	Cole, R. H., & Co. Ltd.	_		Glass
	_		Colt Ventilation Ltd.	-		Glusti,
	_		Colvilles Limited	-		Glen
	796	147	Comet Pump & Eng. Co. Ltd., The			Goody
			Commercial Plastics Ltd.		267	Gravin
		207	Constantin Engineers Ltd.	-	201	Greeff.
	-		Constructors John Brown, Ltd.	-		Hadley
Ltd	i. — (200	Cook, Chas. W., & Sons Ltd.			Haler
		309	Coulter Electronics Ltd.			Hall.
	801	194	Cromil & Piercy Itd	802		Matthe
Cove	er iv	104	Crosfield Joseph & Sons Ltd		160	Haller
nt C	over	140	Crossley, Henry (Packings) Ltd.	_		Hamilt
	-	196	Crow Carrying Co. Ltd., The		172	Harris
	-	149	Cruickshank, R., Ltd.			Harvey
	-	162	Curran, Edward, Engineering Ltd.	-	6	Hawor
	_	225	Cyanamid of Great Britain Ltd.	_	188	Heanel
	_	231	Cyclo Chemicals Ltd.		177	Hearso
	800	142	Cyclops Engineering Co. Ltd., The	-	1//	Hindle
		255	Dalglish, John, & Sons Ltd.	-	180	Holder
	-	168	Danks of Netherton Ltd.			W. C.
		201	Davenport Engineering Co. Ltd.	_		Horsele
	-	160	Davey & Moore Etd.	-		Howar
		100	Davy & United Instruments Ltd		1	Humph
	-	156	Dawson, McDonald & Dawson Ltd.	-	167	Huntin
avy			Degenhardt & Co. Ltd.			I.C.I.
	-	1	Deutscher Innen-und Aussenhandel Chemie	e-		I.C.I.
n)			ausrustungen			I.C.I.
			Deutsche Steinzeug-U. Kunstoffwaren-			I.C.I.
	-		fabrik			I.C.I.
			Distillers Co. Ltd., The	820		I.C.I.
	-		Distillers Co. Ltd., The (Chemical Div.)			LCI.
	795	1.00	Distillers Co. Ltd., The (Industrial Grou	p) —		ICI
		151	Doutton Industrial Pareelains Itd			ICI
			Dow Chemical Co. (IIK) Itd.			ICI
	-	170	Dowlow Lime & Stone Co. Ltd.	_	194	I.M.P.
		143	Dryden, T., Ltd.	_		Intersc
			Dunlop Rubber Co. Ltd. (G.R.G. Duncla	(d) —		Isopad
	-	174	E.C.D. Ltd.	-		

Page -Chemical Engineering Co. roducts Ltd. Brothers (London) Ltd. otts (Filters) Ltd ard Industries Ltd. (Baker Platinum ion) etroleum Co. Ltd. _ Electroselenium Ltd. & Co. Ltd. 796 Carbons Ltd. J. & E., Ltd. tatics Ltd. ion & Valves Ltd. oof Tanks Ltd. s, G. & A., Ltd. Refuelling Ltd. = _ Engineering & Construction Co. Ltd. ro-Yoxall Ltd. W. J., & Co. Ltd. ' Earth Union Ltd., The ----Parachute Co. Ltd. kamp, A., & Co. Ltd. igne, Geo, H., & Co. Ltd. Co. Ltd., The al Precision Systems Ltd. Manufacturers' Federation Wholesale Supplies Ltd. T., & Sons Ltd. Mines Ltd. Creston Ltd. vear Pumps Ltd. mer Mfg. Co. Ltd. , R. W., & Co. Ltd. Co. Ltd., The (Bex Industrial) (Bex Industrial) J.-& E., Ltd, ew Hall & Co. Ltd. * & Phillips Ltd, Iton Company Inc. : (Lostock Gralam) Ltd. y, G. A., & Co. (London) Ltd. rth, F. (A.R.C.) Ltd. eld Industries Ltd, on. Charles, & Co. Ltd. _ on, Charles, & Co. Ltd. les Powder Co. Ltd. _ les Fowder Co. Ltd. c, Joshua, & Sons Ltd. n, Chris., Ltd. Holmes & Co. Ltd. ley Bridge & Thomas Piggott Ltd. rd Pneumatic Eng. Co. Ltd. hreys & Giasgow Ltd. _ gdon, Heberlein & Co. Ltd. (Billingham) Catalysts General Chemicals Division Ltd. Heavy Organic Chemicals Metals Titanium D. Nobel Chemicals Plastics-Darvic Plastics-Fluon Plastics-Kralastic Ltd. (Plastics Division), Corvic (Florube) Ltd. _ A. Ltd. _ ience Publishers Ltd. _ Ltd.

(Continued on page 796)

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INDEX TO ADVERTISERS

The first figures refer to advertisements in Chemical Age Directory & Who's Who, the second to

Page		Page	Page		Page	Page	
190	Jackson, J. G., & Crockatt Ltd.	-	206	Nailsea Engineering Co. Ltd.			Scientif
188	Jamesales Ltd.			National Coal Board	_		Scott I
	Jobling, James A., & Co. Ltd.	803		National Industrial Fuel Efficiency Service		190	Scottish
	Johnson, Matthey & Co. Ltd.		137	Neckar Water Soltener Co. Ltd.			Sharple
202	Johnsons of Hendon Ltd.	-	165	Negretti & Zamora Ltd.	_	3	Sheepbr
202	K.D.G. Instruments Ltd.	_	Paak	Newnes, George, Ltd.			Shell C
166	K. & K. Laboratories Ltd.		Dack	Cover Newton Chambers & Co. Ltd.	_		Shielen
100	Kaylene (Chemicale) Itd			Nordac Ltd.	799		Sinhey,
158	Kellie Robert & Sone Itd			Normalair Ltd.	_		Sigmun
150	Kellogg International Corporation	_	204	Northgate Traders (City) Ltd.		173	Silverer
196	Kenton Fluorescent Mfg Co	-	1797577N	Nuovo Pignone			Simon-f
138	Kestner Evaporator & Engineering Co. Ltd	_	178	Odoni, Alfred A., & Co. Ltd.		52	Simon
	Kestner Evaporator & Engineering Co. Lt	d.		Oil & Colour Chemists' Association Ltd			Sinon
	(Keebush)			Optical-Mechanical (Instruments) Ltd.	-		Smith
163	Klinger, Richard, Ltd.			Orthos (Engineering) Ltd.		311	Souther
	Knapsack-Griesheim Akt.			Ottord Paper Sack Co. Ltd.	-	0240040	Spence,
	Laboratory Apparatus & Glass Blowing Co			Palfrey, William, Ltd.		199	Spencer
	Laboratory & Electrical Engineering Co.			Pechiney-Saint-Gobain		156	Standar
	Laboratory Glassblowers Co.			Peebles, Bruce & Co. Ltd.		358	Stanton
	Lancashire Dynamo Co. Ltd.	-		Penrhyn Quarries Ltd.		198	Steel I
	Langley Alloys Ltd.		233	Permutit Co. Ltd., The	_	208	Steel, 1
183	Lankro Chemicals Ltd.		G/C	ard Petrocarbon Developments Ltd., The	_		Steels
	Laporte Acids Ltd.	-		Petroderivatives Ltd.	_	184	Sturge,
	Laporte Chemicals Ltd.	_		Philling Dr. M. A. & Associates			Sturteva
	Laporte Industries Ltd.	-	216	Pinkfords Limited			Super
	Laporte Titanium Ltd.	-	210	Pickitone D & E Itd			Sussex
150	Leek Chemicals Ltd.	-		Pickstone, K. & E., Ltd.		208	Synthite
214	Leigh & Sons Metal Works Ltd.			Plantin, Sir Isaac, & Sons Ltd.		291	Taylor
	Lennig, Charles & Co. (Great Britain) Ltd			Plastic Coatings Limited			Tenneco
	Lennox Foundry Co. Ltd.	_	156	Plastic Constructions Ltd.		202	Therma
215	Light, L., & Co. Ltd.	-	214	Platon G A Ltd		172	Titaniu
193	Lind, Peter, & Co. Ltd.	-	214	Podmore W & Sone Itd			Towers
	Lloyd & Ross Ltd	798	1	Podmores (Engineers) Itd		279	Tylors
141	Lock, A. M., & Co. Ltd.			Polypenco I td			Uhde.
175	Lord, John L., & Son	_	1	Polysius 1 td		196	Unicon
175	Low & Roper Ltd	_	204	Pool. J. & F., Ltd.	_	155	Unifloc
	Lummas & Co	010		Pott, Cassels & Williamson Ltd		189	Union
	Luminas & Co.	819	1	Potter, F. W. & Soar Ltd		102	United
	Luws (11 K) Ltd		275	Powell Duffryn Carbon Products Ltd.		200	United
210	McCarthy T W & Sone		G/C	ard Power-Gas Corporation	-	194	United
210	McCurray F I		192	Price Stutfield & Co. Ltd.		GIC	ard Un
	Marlellan George & Co. Ltd			Prodorite Ltd.		184	Volcrer
	Maine B Newton Ltd		1	Price's (Bromborough) Ltd.	825	179	WEY
150	Manesty Machines Itd			Purkiss, Williams, Ltd.		205	Walker
145	Marchon Products Ltd			Pye, W. G., & Co. Ltd.	-	205	Wallace
	May & Baker Itd			Pyrene Co. Ltd.	-	8	Waller
	Mechans Ltd			Pyrene-Panoram Ltd.	-		Ward.
	Matachamical Processes Itd			O.V.F. Ltd.	_		Warren
Fron	t Cover Metal Containers Ltd	_		Ouickfit & Ouartz Ltd.		164	Watson
1 100	Metal Formations Limited	_	170	Reade, M. G.		104	Watson
GIC	ard Metalock (Britain) Itd			Reads Ltd.	_		Weir (
0/0	Metallurgical Chemiste Itd	704		Reavell & Co. Ltd. Cov	er iii		Welling
192	Metcalf & Co	134		Recontainers Limited			Welwyr
	Metering Pumps Ltd			Rheem Lysaght Ltd.	_	259	Whitak
	Metrimpex	_		Rhodes, B., & Son Ltd.	_	257	Wilcox.
146	Middleton & Co Ltd			Richardson Scale Co. Ltd.		10000000	Wilkins
	Midland Road Tank Services Ltd	_		Richmond Welding Co. Ltd.	_		Wilkins
	Mineralöle Import und, Export GmbH			Robinson, James, & Co. Ltd.		212	William
	Mirrlees Watson Co. Ltd., The	_		Rosin Engineering Co. Ltd.	-		Witco
194	Mirvale Chemical Co. Ltd., The	_		Ross Ensign Ltd.		212	Wood.
	Mond Nickel Co. Ltd. The	_	278	Rotameter Manufacturing Co. Ltd.		200	Worces
	Monkton Motors Ltd.	798		Royston, George, & Son Ltd.			Wynn
	Mono Pumps Ltd.			Ryaland Pumps Ltd.	-	357	Yorksh
	Monsanto Chemicals Ltd.	_		S.P.E. Company Ltd.			(Brad
	Morgan Refractories Ltd.	-		Sandiacre Screw Co. Ltd., The	_	206	Yorksh
198	Moritz Chemical Engineering Co. Ltd			Saunders Valve Co. Ltd.		172	Young,
	Morris & Ingram Ltd.			Scientific Design Co. Inc.		152	Zeal.
-				100 100			





to the current issue	
Pe	ige
ific Glass Blowing Co.	-
Bader & Co. Ltd.	_
les Centrifuges Ltd.	_
bridge Equipment Ltd.	-
Chemical Co. Ltd.	
v. Aldred, & Co. Ltd.	_
Gorman & Co. Ltd.	
ind Pumps Ltd.	_
crown Limited	703
n, Richard, & Sons Ltd.	
Products Ltd.	-
, Leonard (Engineers) Ltd.	_
e. Peter, & Sons Ltd	_
er Chapman & Messel Ltd.	_
ard Chemical Co.	-
Drume I td	_
J. M. & Co. Ltd. Cov	er ii
Process Plants Ltd.	
e, John & E., Ltd.	-
Oil Seals & Gaskets Ltd	-
& & Dorking United Brick Co. Ltd.	
ite Ltd.	-
r Rustless Fittings Co. Ltd.	804
nal Syndicate Ltd., The	_
ium Metal & Alloys Ltd.	-
rs, J. W., & Co. Ltd.	_
Friedrich GmbH	_
one Co. Ltd., The	
oć Ltd.	-
1 Carbide Ltd.	
d Eilter & Engineering Co. Ltd. Th	
d Wire Works Ltd., The	· _
Iniversal-Matthey Products Ltd.	-
epe Ltd.	
A. Iraders Ltd. er P M & Co (Halifax) Itd	
ce & Tiernan	
r, George, & Son Ltd.	-
, Thomas W., Ltd.	807
on, Laidlow, & Co. Ltd.	
on-Marlow Air Pump Co.	-
G. & J., Ltd.	
yn Tool Co. Ltd.	_
ker, B., & Sons Ltd.	
x, W. H., & Co. Ltd.	
nson, James, & Son Ltd.	
ims & James (Engineers) Ltd.	
Harold & Sone Ltd.	
ester Royal Porcelain Co. Ltd The	_
(Valves) Ltd.	
shire Engineering & Welding Co.	
shire Tar Distillers Ltd.	_
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IN THIS ISSUE

N.E.D.C. and chemicals study	806
C.Z.C. and fluoro-aromatics	806
B.o.T. and polythene dumping	806
Project news : Pfizer's polyether	
plans	807
Distillates	808
Blagden's centenary year	809
Maleic anhydride price trends	809
Man-made fibres congress	810
BP's chemical investments	810
Economics of petrochemicals	811
Crosfield's new soapery	812
Indian newsletter	813
Italian oil industry	815
Overseas news	817
People in the news	821
Commercial news	822
Market reports	823
Equipment trends	826
New patents	826
Diary dates	826
Trade notes	828

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ONE OF THE BENN GROUP OF TRADE AND TECHNICAL JOURNALS

PETROCHEMICAL PROBLEMS

THE uptrend in the development of the market for petrochemicals in recent years has been one that, so far, the various European chemical industries have been well able to meet by increasing production. However, the fact that expansion has been at such a rate that it has led to some downward pressure on prices since 1959 is one that cannot be ignored. Nor, with this in mind, can one afford to ignore the warning given in the latest report of the Chemical Products Committee of the Organisation for Economic Co-operation and Development (CHEMICAL AGE, 12 May 1962, p. 771) that member countries alone were planning investments in the 1961-63 period worth \$1,250 million which, if they were all realised, would increase their total petrochemicals capacity to no less than 3,660,000 tons—more than double the 1960 output.

In short, unless available outlets show a substantial increase within the remainder of the period there is likely to be further overcapacity.

If this finally proves to be the case, the reason will not be hard to find. As Dr. Alexander Lewis Jnr., said recently at Loir-et-Cher, France, in a speech which was reported briefly in our last issue (p. 774) and which is considered in more detail on p. 811 of this issue, in periods of rapid growth, such as has been experienced in Europe in recent years, the enthusiasm for developing the industry and the ability of the markets to absorb production almost indiscriminately make it difficult to maintain sound perspective and to exercise objective business judgment. Many European chemical producers as well as others in the U.S. are now only too aware of the fact that in present-day conditions serious overcapacity can be generated in a very short period no matter how insatiable the market demand of a few years ago might have seemed.

Nor should it be thought that overcapacity is just an inconvenience —albeit a big one because of the capital it ties up. It is more than that: it is a definite adverse factor in the day-to-day operation of the company for, however favourable the economics may otherwise be for a given project, if the market has been so miscalculated that it can only operate at a fraction of its capacity it cannot fail to have difficulty in competing even with otherwise less advantageous plant which is able to operate at or near its design capacity. Then, again, overcapacity frequently leads to dumping and with the growing inter-relationship of the European, U.S. and Far Eastern markets it is now more true than ever that too great a capacity in one area is often soon reflected in prices and supplies elsewhere.

The essential, if these pitfalls are to be avoided, is an accurate assessment of the market potential before the manufacturer embarks on a particular project. It is to be hoped, as far as the short- and medium-term future of the European petrochemicals industry is concerned, that proper assessments were made before plans for the current investment programme were finalised but from the tone of the O.E.C.D. report this seems doubtful.

What appears more likely is that many of the projects now in hand have been embarked upon by companies which have adopted the attitude that whatever the state of the existing market they must undertake production of certain items if only to complement their existing range or to make fuller use of their raw materials supplies. Or perhaps, looking well ahead, they simply feel that they cannot afford to be left too far behind competitors if they are to remain in the race a decade or more hence.

C.Z.C. near marketing stage with fluoro-aromatic compounds

A RESEARCH programme into the fluorination of aromatic compounds is being continued in the U.K. by Consolidated Zinc Corporation Ltd. with the aim of evolving methods for their commercial exploitation. Certain experimental products now appear to be approaching the stage of commercial production, while other potential new products are still being studied.

This was stated by Mr. A. M. Baer, C.Z.C., chairman, in his annual statement.

Referring to the group's sulphuric acid interests, Mr. Baer states that the reduced activities last year of the South Wales sheet steel industry led to a decrease in the demand for sulphuric acid compared with 1960. The group continues with its programme to modernise its U.K. sulphuric acid plants.

Production of acid by the Sulphide Corporation of Australia rose 6%, but owing to increased captive need for superphosphate production, sales to outside consumers were cut. Sales of superphosphate rose 2.3%.

Production and sales of hydrofluoric acid again increased and demand for the by-product Synthanite, used in flooring and wall plaster, has been encouraging. Sales of Isceon fluorocarbons for aerosols and refrigerants and by-product hydrochloric acid again increased. The new fluorocarbon plant of Australian Fluorine Chemicals, owned by C.Z.C. and Monsanto Chemicals (Australia), started production in December at Rozelle, N.S.W., using the process developed at Avonmouth by Imperial Smelting Corporation.

Pure Chemicals, Kirkby, near Liverpool, achieved a satisfactory increase in sales of p.v.c. stabilisers, but sales of fine chemicals decreased owing to intense foreign competition for European business. New stabilisers have been introduced and plants for several additional fine chemicals were brought into production by the end of the year.

As previously announced, Consolidated Zinc will later this year merge with the Rio Tinto Co. Ltd.

More U.K. chemicals are exported by air

U.K. EXPORTS of chemicals despatched by air in 1961 totalled £9.9 million f.o.b., or 3% of the chemical export total of £325 million. This compares with air exports of £8.9 million last year, or 3% of the total exports of £316.7 million.

Chemicals worth £8.2 million, or 5% of all chemical imports of £167.2 million, were imported by air last year. This compares with £7.2 million, or 4% of the import total of £175.5 million, in 1960.

R. Jenkins use TV as aid to pressure vessel welding

Closed circuit TV is being used in the fabrication of high-efficiency pressure vessels for the chemical industry at Robert Jenkins and Co. Ltd., Rotherham. The fixed welding boom carries a TV camera and TV floodlights together with the British Oxygen's Unionmelt automatic submerged arc welding equipment. The camera is used for continuous observation during internal welding of the vessels. Progress is viewed on a TV monitor screen fitted to the control console.

I.C.I.'s global stand at Stockholm fair



Artist's impression of I.C.I.'s 5,000 sq. ft. stand at the current British Trade Fair, Stockholm, which ends on 3 June. The globe contains 'porthole' displays providing a résumé of the stand on which 14 of I.C.I.'s divisions, subsidiaries and associated companies are represented

B.o.T. will take no tariff action on polythene dumping

THE Board of Trade announced on 11 May that they were satisfied that British polythene producers had established a case for action against the dumping of U.S. and Italian material. However, "as the U.S. and Italian exporters currently exporting to Britain have now increased their prices", no further action is to be taken.

The announcement ended with a warning that the Board would be bound to consider the imposition of appropriate anti-dumping duties on imports of polythene manufactured by other U.S. or Italian firms if such imports were being dumped to undercut prices ruling on the British market at the time (see 'Distillates').

N.E.D.C. will ask chemical industry for information

At their first working session, the National Economic Development Council authorised the staff to examine the implications of increasing the rate of growth of the whole British economy to an average of 4% a year between 1961 and 1966. The chemical industry is among those industries in the private sector that will be approached for factual information on the implications for them of such a growth rate.

Although the Association of British Chemical Manufacturers have not yet been approached by the N.E.D.C. they are the obvious body to provide such information.

The petroleum industry will also be among the private industries approached and the gas industry will be among those in the public sector.

This work is expected to fit in with the long-range inquiries already proceeding in the public sector and in certain private industries.

Berk look for more sales in C.M.

IF the U.K. joins the Common Market, F. W. Berk and Co. Ltd. should be able to increase their sales to Europe as well as improve their general business through increased imports from the Continent. This was stated by Mr. C. H. Tanner, chairman of Berk, in reply to a shareholder at the annual meeting held in London on 9 May.

Mr. Tanner declared that the general business climate was gradually brightening and that Berk would undoubtedly benefit from an improvement. So far this year, sales had been maintained at the 1961 level, due largely to the expansion of new products.

Fire in Esso cat-cracker

A fire broke out in the early hours of Wednesday morning in a catalytic cracking unit used for breaking down crude oil at Esso's Fawley refinery. The cause of the fire appears to have been a fracture in a pipe; three men were injured.

Project News

PFIZER NAME FLUOR TO BUILD POLYETHERS PLANT

THIS week. Pfizer Ltd. have revealed some of their plans for entering the polyols field, which were first announced at the end of last year (CHEMICAL AGE, 9 December, p. 918). Main contractors for their propylene oxide-polyethers plant, which will be sited at Baglan Bay, are Fluor Engineering and Construction Co. Ltd.

Pfizer, in their first U.K. venture into petrochemicals, will use Jefferson Chemical's manufacturing rights for both products, basing production of propylene oxide on the chlorohydrin route. Work on the plant has already been started and construction is due for completion during the third quarter of 1963.

Until they are in production, Pfizer will market polyethers, starting in June. Initially sales and technical service will be handled from the headquarters and laboratories at Sandwich. Kent.

The plant will be built adjacent to the new petrochemical facilities of British Hydrocarbon Chemicals Ltd., from which propylene feedstock will be taken by pipeline; chlorine will be brought in. Pfizer also plan to construct laboratories at Baglan Bay for technical service, research and development work in the field of polyethers and other chemicals based on oil; these will augment the work of the laboratories at Sandwich.

Fluor's contract is for process and engineering design, procurement and construction. Since Fluor have an office at Houston, Tex., where Jefferson are based, collaboration will be simple. Jefferson have been successful in developing petrochemical processe based on steam cracking: they produce propylene oxide at Port Neches. Tex., and some 15 million lb./year of polyethers at Conroe, Tex.

The main engineering design and procurement work is being carried out by Fluor from their office at Finwell House, Finsbury Square. London E.C.2, which has overall responsibility for management of the project. **F. A. Reed and Partners**, chartered surveyors are handling general site development and building work.

Existing U.K. producers of propylene oxide are I.C.I. and the Shell Chemical, whose 1962 capacity is estimated at a combined total of over 30.000 tons. Shell supply Lankro Chemicals with propylene oxide for the production of polyethers.

Mersin oil refinery due on stream soon

● THE second biggest oil refinery in the Mediterranean area, at Mersin in southern Turkey, is due to come into full production (65.000 barrels/day) this month. Occupying a 350-acre site three miles from the city, the refinery has been built at a cost of £20 million supplied by three oil companies— Socony Mobil, Shell and British Petroleum. Foster Wheeler Ltd., London, were responsible for the construction.

The refinery will import crude oil from the Middle East oilfields. It will also process Turkish crude oil obtained from the Bulgurdag wells situated some 30 miles away.

Equipment contracts

Triple effect evaporator plant for corrosive acid

◆ A SECOND Hygrotherm triple effect evaporator plant has recently been put to work at the Widnes works of **Bowmans Chemicals Ltd.**, where it was commissioned by **Hygrotherm Engineering Ltd.**, 414 Chiswick High Road, London W.4.

These plants, which concentrate 15% feed liquor to 80% acid product, have many interesting and novel features. The product is highly corrosive at elevated temperatures to the majority of constructional metals. Since the main application of the product is in food preparations, it must be absolutely free from metallic contamination.

This is achieved by the use of evaporators constructed on the Polybloc system from solid graphite blocks. The Polybloc evaporators now have cemented joints and the acid in the boilers contacts only graphite and the p.t.f.e. joint rings. Important fuel savings result from the combination of triple effect evaporator arrangement, high heat exchange coefficients and freedom from scale in the passages.

Polyblocs are made in the U.K. under licence from Soc. le Carbonne-Lorraine by **Robert Jenkins and Co. Ltd.**, Rotherham. Sulphuric acid filter for Esso's Fawley facilities



This specially designed Simplex 3-in. bore reverse flow acid filter unit was recently despatched from Eagle Iron Works, Newbury, Berks, to the Esso Petroleum Co.'s Fawley plant. It has an in-flow filtration of 65% (by weight) sulphuric acid, at 20 U.S. gall/min. flow rate

A.E.I. to supply motors for B.H.C.'s Baglan Bay plant

• An order for over 100 electric motors ranging in size from $\frac{1}{2}$ h.p. to 400 h.p. has been placed with the motor and control division of Associated Electrical Industries Ltd. by Stone and Webster Engineering Ltd. for use with ethylene, butadiene and steam producing plant which they are supplying for the Baglan Bay, South Wales, complex of British Hydrocarbon Chemicals Ltd.

Fisons' store re-roofed with Corroplast

• MAIN store at the Avonmouth works of Fisons Fertilisers Ltd. is being reroofed with 120,000 sq. ft. of Corroplast corrosion-resistant corrugated sheet. Fisons say that experience gained at other chemical works and practical tests carried out with Corroplast led to the choice of the material for the Avonmouth store. Corroplast is made by Holoplast Ltd., 2 Caxton Street, S.W.I.

A Hygrotherm triple effect evaporator of special design for concentration of corrosive liquor being tested at the Widnes factory of Bowmans Chemicals Ltd. A model of the evaporator will be shown at the Chemical and Petroleum Engineering Exhibition in London from 20-30 June

แผนกห้องสมุด กรม์วิทยา**ศาสคร**์





COMPETITION is warming up in the U.K. urethanes foam field. Already Du Pont are under way on the construction of their TDI plant, which will provide the only U.K.-produced competition to I.C.I.'s Fleetwood facilities. Now Pfizer have disclosed some of their plans -but not capacity or cost-to enter the already competitive propylene oxidepolyethers market. This year I.C.I. and Shell Chemical are likely to have capacity for a total 70 million lb. of propylene oxide, but I hear that U.K. demand will probably not exceed around 30 million lb. Their capacity, in fact, should be enough to supply most of the entire European demand for propylene oxide for polyethers.

Leaders in polyethers are Lankro Chemicals, but it is felt that I.C.I. having initially backed polyesters, will sooner or later break into this faster-growing field. In any event, urethane foams, while acknowledged to have a good growth potential, have not developed as speedily as was originally thought (from 7.000 tons in 1960 to 10,000 tons in 1961 and an estimated 25.000 tons by 1965). It now seems likely that over-capacity problems will remain for some years.

In any event, Pfizer's breakthrough into petrochemicals could well spearhead their entry into other oil-based chemicals.

STILL on the subject of polyol capacity and the whole question of over-capacity generally, which is dealt with at greater length on p. 805. I note from reports in the U.S. Press that Union Carbide have just completed the installation of a "deliberately planned over-capacity" at their site at Institute, W.Va. The new installation, it is said, can turn out 30 million to 50 million Ib./year of high viscosity polyols, depending on product mix, which translates into 60 million to 100 million Ib. of rigid urethane foams or four to seven times the total U.S. output in 1961.

According to the reports, this deliberate over-building of raw material capacity reflects the company's firm optimism over the long-term prospects of rigid urethanes. And how!

DECISION of the Board of Trade to take no tariff action against the U.S. and Italian exporters who have been sending cheap polythene to this country in recent months (see p. 806) is thought to have been taken not so much because the offenders have stopped dumping as a matter of course, as the official statement would seem to indicate at first reading, but rather because they have been prevailed upon to do so as a result of behind-the-scenes talks.

Certainly that is how the Board prefer to act on problems of this kind, believing that such an approach is less likely to create ill-will than the swift imposition of a protective duty at the first howls of protest from home producers. At the same time, however, it is debatable whether they generate much good feeling on their behalf from the companies which suffer as a result of dumping. In fact, as was pointed out in CHEMICAL AGE as recently as 17 February, what most people in the chemical industry in this country would prefer would be to see machinery set up like that in some Continental territories whereby anti-dumping duties could be imposed quickly without the need for full-scale enquiries each time a specific complaint is made as at present.

With the best will in the world, the majority still feel that the present machinery takes far too long so that by the time it is agreed that a case has been made out and that some action must be taken, conditions have frequently changed all over again. Meanwhile, the plaintiffs may have suffered considerable inconvenience, if nothing else.

But in this particular case they can take some comfort from the warning issued by the Board about the possibility of further dumping by other U.S. and Italian polythene producers. Unless I am reading into it far more than is intended, any future offenders will not be treated so courteously. They are more likely to find that British officialdom can move swiftly when it chooses, even though it does not choose very often.

THE next few months will see something of a rush of U.S. and other foreign-based oil companies into the U.K. market. A number of companies are known to be actively considering starting up commercial operations here on the lines of the Italian Agip organisation, which came into the U.K. market only last year. Now that three of the leading U.S. companies, Phillips Petroleum, Standard Indiana and Murco, have taken definite steps in this direction within the space of a few days of one another, it may well be that some, at least, of the others will start to scramble for what they can get of the market before it is all divided up.

As always, where oil companies are concerned it is not only the oil market that is likely to be fought over, however. The entry of Phillips and Standard Oil of Indiana may well mean changes in the chemical scene, too. Phillips Petroleum, for instance, while initially concentrating on marketing their products through their new subsidiary, Phillips Petroleum U.K., are believed to have long-term plans for manufacturing in this country.

Standard Oil of Indiana, on the other hand, will be manufacturing from the outset, for they are planning to take over the Vigzol Oil Co., through their Swiss subsidiary, Amoco International S.A., and Vigzol already manufacture and distribute lubricants and various other products including rust solvents and preventives, anti-freeze preparations and agricultural chemicals.

Murco have acquired a site for a deepwater terminal at Grays, Essex. Contractors have yet to be appointed, but the terminal should be operational by the end of the year.

SOAPMAKING goes back to Biblical times, but it is not such a far cry to the days when it was still a protracted process. Today saponification takes minutes instead of hours and the total process a few hours instead of days. Eloquent testimony to this amazing advance is provided by the newlycommissioned Crosfield plant at Warrington, Lancs, said to be the world's most modern.

As Mr. J. P. Van den Bergh, Unilever's U.K. committee chairman, remarked in officially opening the plant, the original Joseph Crosfield would see very little of actual soapmaking were he to visit the site today. Joseph was apprenticed to a chemist and druggist from 1807 to 1813 and was subsequently set up in business—a diary gives 1815 as the year in which the original soapworks at Warrington were "very complete"—by his father, George Crosfield of Lancaster.

COMMENDATION is due to the British Standards Institution for issuing a recommended list of 36 common names and abbreviations for the most-widely used plastics materials which is now available as B.S.3502 from the Institution's sales branch, 2 Park Street, London W.I. With the public finding the chemical names of many modern plastics difficult and confusing, there is a danger of them using wrong ones or misapplying them. This should decrease, however, as the booklet becomes known and the man-in-the-street 'educated.'

The standard will not break new ground since current names or abbreviations, such as nylon for polyamide and p.v.c. for polyvinyl chloride, have been adopted for the list. Manufacturers selling under a trade name are recommended to include the common name in describing their products. A more comprehensive standard to cover nomenclature for technological use is being prepared.

Alemlin

With 100 years in coal tar products, Blagdens are expanding into speciality chemicals

HISTORY of the British coal tar products industry is largely synonymous with that of the famous London chemical merchants and steel drum reconditioning manufacturers, Victor Blagden and Co. Ltd., Plantation House, Fenchurch Street, London E.C.4, who this month celebrate their centenary.

The story begins when a young North of England man, W. G. Blagden, was taken into partnership in 1862 in London by Eugene Carless, founder of Carless, Capel and Leonard, who three years previously had built a chemical works at Hackney Wick. Blagden, a member of an industrialist family, envisaged the great possibilities of the infant chemical industry and he and Carless pioneered burning oil for lamps and developed an interest in crude petroleum refining and coal tar distillation. Coal tar products have been Blagden's main business ever since.

In March 1870 Blagden set up on his own as a chemical merchant at 15 Fish Street Hill, City of London, and the certificate authorising him to act as a City broker is still in the company's possession. The Gas Light and Coke Co. appointed him selling agent for their by-products and he moved about 1890 to 4 Fenchurch Avenue, widening his field bevond petroleum and coal tar products. He and Sir S. A. Sadler were largely responsible for the formation in 1897 of the Sulphate of Ammonia Committee, forerunner of the British Sulphate of Ammonia Federation.

Victor Blagden

Victor Blagden, born in 1867, joined him in 1892 after a period of work in the German chemical industry, but this father and son partnership was dissolved four vears later when Victor went into partnership with Mr. Walter Waugh to found Blagden, Waugh and Co. In 1918 this firm was split up and Victor Blagden and Co. Ltd. formed. With Burt. Boulton and Havwood Ltd, Victor also founded Dominion Tar and Chemical, Montreal.

Victor, who died in 1960, aged 92, was prominent in the trade, and was instrumental in founding the British Chemical and Dvestuffs Traders' Association. His portrait in the Westminster Palace Gardens, London, offices of the association marks his completion in 1944 of 21 years as their foundation president. He continued in that office until 1949.

His son, Cecil. who died in December. 1960. was a director of the company for many years, and, following his father's footsteps, a president of the association and a popular personality in the coal tar products industry. The family link is still maintained in that the present chairman, Mr. A. J. Lush, is a son-in-law of Victor Blagden. Mr. Lush, who joined the company after serving throughout the 1914-18 war, has been a director since 1925, and chairman since 1948 when Victor Blagden retired.

Mr. Rolf Stein, the present managing director has also been associated with the company for many years and is the third generation of a family well-known in the chemical industry.

The drum manufacturing and reconditioning business is operated by associated companies with factories in London and Manchester. But in the tradition set 100 years ago, Blagden's are still prominent in the field of coal tar products. In keeping with the vast strides made since 1862, the company is now expanding its interests in the more highly specialised chemicals demanded by consumer goods industries throughout the world.

U.K. chemical industry attends I.L.O. meeting in Switzerland

NEARLY 200 delegates representing 20 countries have been meeting in Geneva since the beginning of last week at the sixth session of the International Labour Organisation's Chemical Industries Committee, where the subjects under discussion have included safe practices by audio-visual teaching methods in the chemical industries and principles and methods determining extra rates for shift work and overtime.

The employers' side of the U.K. chemical industry is being represented at the talks by Mr. S. Chapman, director of the Association of Chemical and Allied Employers, and Mr. E. T. Grint, chief labour officer of I.C.I. Ltd., with Mr. I. E. Baggs, personnel manager of the Imperial Smelting Corporation, and Mr. J. Rhodes, assistant chief labour officer of I.C.I., as their advisers.

The workers side is represented by Mr. D. Basnett, national industrial officer of the National Union of General and Municipal Workers and Mr. J. Williams, national secretary of the Chemical and Allied Trades, Transport and General Workers' Union. Their adviser is Mr. J. Matthews, national industrial officer of the National Union of General and Municipal Workers.

European slide in maleic prices has gone too far, may rise this year-say Synres

THROUGHOUT the world the price of maleic anhydride dropped dramatically in 1961, but particularly in Europe, where the level at the end of the year was 50% below that at the end of 1960. The price drop in the U.S. was less spectacular—from 25 cents a lb. to about 21 cents in bulk.

It is suggested, however, by NV Chemische Industrie Synres, that the slide in Europe has gone too far and that prices are likely to stabilise in 1962 at a level of about 30% above the present line.

Three years ago, undercapacity in a growing market made prices favourable to suppliers. To meet the rising demand existing producers started to expand capacity and several newcomers were attracted to this profitable field. The result was that by early 1961, capacity was at least three times demand.

At the moment, world capacity of maleic anhydride is such that, for existing applications, a balance between capacity and demand cannot be expected for three to five years. However, research is developing many reactions involving the carbon carbon double bond of maleic anhydride instead of reactions of its acid groups, which could lead to some novel applications.

The approach through the double bond has already produced a number of new products. Among them are polymaleic anhydride, a laboratory compound, which has potential uses in the fields now occupied by polyacrylic acid derivatives. Commercial copolymers and rubber products based on maleic anhydride are already on the market.

The butene-based process for maleic anhydride used by I.C.I. in their 10,000 ton a year plant (see CHEMICAL AGE, 15 April 1961, p. 615) and a similar process used by Petro-Tex in their 3 million lb. a year plant at Houston, Tex., are theoretically more efficient than the conventional benzene-based processes. The raw material butene is about half the price of benzene.

The combination of overcapacity and cheaper, more efficient processes could speed up the commercial production of new maleic products now at a laboratory stage of development.

In Parliament

Voluntary scheme cuts drug prices £4 million yearly

The voluntary regulation scheme with manufacturers had achieved price reductions totalling about £4 million a year, the Minister of Health, Mr. Powell, told the Commons this week. He said most prices had now been reviewed and a number of substantial reductions in patent drug prices agreed. Negotiations were continuing.

Man-made Fibres Congress

NATIONAL GOVERNMENTS URGED TO PUBLISH MORE STATISTICS

THE need to develop a statistical service on an international basis was the subject of one of the resolutions derived from the main congress lectures and the conference sessions and discussions which formed part of the Second World Congress of Man-made Fibres (see CHEMICAL AGE, 5 May, p. 728).

Many of the papers demonstrated that there is scope for an increased use of statistics in connection with production, international trade and marketing. The congress believes that their value is not sufficiently appreciated and expresses the wish that the Comité International de la Rayonne et des Fibres Synthetiques, under whose auspices the congress was held, will develop statistical services on an international basis. It urges national groups of man-made fibre producers to encourage their governments to produce more detailed statistics, in particular with regard to end uses. It recommends that the C.I.R.F.S. will assist in promoting international meetings with regard to statistics between producers themselves and also with other textile trade organisations.

Removal of trade barriers

The progressive removal of obstacles to international trade was welcomed by the congress as consistent with liberal economic principles. An essential condition, however, for increased international trade, is the international recognition by governments and by the textile industry of the elimination of unfair competition, and also the avoidance of action, which would provoke the disruption of markets. In this connection the congress hopes that government and supra-national bodies will make use of the knowledge and world-wide relations which the C.I.R.F.S. and other international textile organisations have at their disposal.

Many technical advances have been achieved by all sections of the textile industry in recent years. Examples covering the achievements that can be secured by co-operative research and developments by man-made fibre producers and their customers. The congress welcomes the work of the C.I.R.F.S. Technological Committee in collating and disseminating expertise. Further developments are necessary and the congress recommends that particular attention should be given to the newer processes of bulking, bonding of fibres to form non-woven fabrics and to the field of fibre blends, specialised finishes, plastics laminates and clothing technology.

The importance of polymer research to the man-made fibre industry has been recognised by the conference sessions to which seven papers of many aspects of polymerisation and fine structure made outstanding contribution and have stimulated an exchange of views which will lead to further progress. It is therefore recommended that at future world congresses held under the auspices of the C.I.R.F.S. scientists should be invited to attend sessions on a suitable field of current research. Delegates at the second world congress came from outside the man-made fibre producing industry.

Altogether 11 resolutions were approved. They represent the impartial views and recommendations of the lecturers and are supported by the concensus of those delegates who participated in the discussions.

Big attendance for chemical engineering congress

SEVERAL hundred requests for registration forms have been received from 42 countries for the third congress of the European Federation of Chemical Engineering, to be held at Olympia. London, from 20-29 June. The congress, organised by the Institution of Chemical Engineering on behalf of the European Federation, will consist of four symposia, the topics of which will be: interactions between fluids and particles; the handling of solids; process optimisation; and the physics and chemistry of high pressures.

Lord Hailsham, Minister for Science, will open the first session and Mr. S. P. Chambers, chairman of I.C.I., will be the principal speaker at the congress dinner at the Dorchester on 20 June.

Fourth European congress of petroleum equipment

The fourth European Congress of Petroleum Equipment will be held at Church House, London S.W.I, from 25 to 28 June. Technical papers will be presented by leading West European specialists in the design and manufacture of equipment for the oil industry.

BP's chemical investments total £54 million

UP to the end of 1961 capital spending by British Petroleum and associates on chemical and anti-knock compound plants in the U.K., France and Germany totalled £122 million. The BP Group share was about £54 million and the total production of chemicals was 440,000 tons. This was stated by the directors in their annual report.

Oil refined in the U.K., Aden, Australia, Belgium, Canada, Eire, Egypt, France, Germany, Iran, Italy, Kuwait and the Lebanon was about 51 million tons, or 4 million up on 1960. Record throughputs were achieved at Aden, Dunkirk, Hamburg, Kent, Kwinana and Lavera. BP now have an interest in 11 joint projects in various stages of development (Mersin; Algiers; Durban; Mombasa; Port Sudan; Strasbourg; Whangarei, N.Z.; Port Harcourt, Nigeria; Abidjan, Ivory Coast; Dakar; and Umtali, S. Rhodesia).

Bonus for Boots

Members of the wholesale staff of Boots Pure Drug Co. received a total of £200,000 in bonuses this week. The bonus was paid as part of the profitsharing scheme operated by the company. By 1 June, payments will have been made to about 30.000 people. bringing the total amount to £861.196.

1 000 .

Jan./Feb. U.K. rubber consumption up 4%

CONSUMPTION of all types of rubber in the U.K. in the first two months of 1962 was 4°_{6} higher than a year earlier, reports the Board of Trade. Consumption of natural rubber was a little lower but that of synthetic and reclaimed rubber was higher.

			Years			lan	-Feb.	February		
			1959	1960	1961	1961	1962	1961	1962	
e proc	ucts									
			82.7	83.0	77.7				-	
2010	1000	1	57.2	72.7	75.1	11.6	12.6	5.3	6.2	
			_	13.7	14.0	2.1	2.6	0.9	1.3	
			_	169.4	166.7	26.3	28.1	12.0	13.9	
cs .			101.6	96.9	88.4	14.7	14.1	7.1	6.9	
			23.0	43 1	46.7	74	7.7	3.6	3.8	
	2.12		25.0	21.5	20.6	29	3.5	1.3	1.7	
				21.5	10.0			(1, 1, 1, 1)	0000	
			—	161.5	155.2	25.0	25.3	12.1	12.4	
			184 3	179.9	166.0	27.3	27.0	12.8	13.3	
			80.2	115.8	1213	19.0	20.3	8.9	10.0	
			24.0	25.2	24.6	5.0	61	23	3.0	
			34.9	35.2	34.0	5.0				
			299.4	331.0	321.9	51.3	53.4	24.0	26.3	
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Source: B.o.T. Business Monitor

Petrochemical marketing

LOWER U.S. FEEDSTOCK CHARGES ARE OFFSET BY OTHER COSTS

THE future of the chemical industry is likely to be increasingly tied to petroleum and almost all companies planning to expand in the organic chemical field will eventually have to rely, at least in part, on this source. This was the view expressed by Dr. Alexander Lewis Jnr., vice-president of the Gulf Oil Corporation, when he spoke at the international chemical market research conference held recently at Loiret-Cher, France (see also CHEMICAL AGE, 12 May 1962, p. 774).

12 May 1962, p. 774). In the U.S., where petrochemicals already predominate, they are expected to account for 40% by volume and 60% by value of the country's entire chemical output by 1965, Dr. Lewis added. This trend towards petroleum as a source of raw materials was also showing itself in practically every other industrialised area, he went on. As an instance of the growing importance of petroleum as a chemical feedstock in Europe, he quoted the example of the severe competition of recent years between ethylene from petroleum sources and acetylene based on coal, from which ethylene seems to have emerged as the more important. "Even if, by some of the newer processes now being promoted, acetylene production becomes very cheap, it will undoubtedly be produced mainly from natural gas or some other petroleumbased raw material," Dr. Lewis said.

Similarly, while much of the benzene used in Europe for the production of styrene for plastics and rubber. dodecyl benzene for detergents, and phenol for fibres and plastics was still coal-based, the long-term growth in the use of petroleum-based benzene would be much more rapid if only because the use of petroleum products as prime fuels was increasing at a significantly greater rate than that of coal.

In the case of toluene and xylene, petroleum-based products would be even more important in future. Dr. Lewis said, because of the relatively greater abundance of these chemicals in petroleum as compared with coal-tar sources.

In discussing the economics of the petrochemical industry in some detail. Dr. Lewis referred particularly to the production of ethylene. benzene and—in less detail—propylene and how the various factors to be considered when planning to produce each of these varied between Europe, the U.S. and Japan. "In Europe," he said, "there has been

"In Europe," he said. "there has been a remarkable increase in the capacity for producing ethylene over the last several years, and almost without exception, this ethylene capacity is based on the cracking of petroleum naphtha. We have estimated the economics for a 500.000 ton/ year naphtha cracker producing 120,000 ton/year of ethylene, and the related products including propylene, butadiene, and benzene.

"In doing so, we have made allowances for the difference in construction costs, hourly wages, employee benefits, productivity index, fuel and feedstock costs, interest rates, depreciation rates, and methods of financing. For identical plants operating in Europe, the U.S., or Japan, our calculations show that there is only a spread of plus or minus 4% in the total manufacturing cost, excluding feedstock costs, but including all direct operating costs, investment based items, and overhead expenses. In the U.S., all the cost factors are generally higher than in the other two areas, with the exception of fuel which is available in the entire south-west portion of the U.S. at \$1.26/FOE barrel, as compared with prices as high as \$2.80/barrel in Europe, and \$3.00/barrel in Japan. The U.S. fuel savings essentially counter-balance the higher costs for labour and construction."

In the case of feedstock, naphtha was available at the most advantageous price in Europe, and was probably most expensive in the U.S. This was why at present little ethylene was produced in the U.S. based on naphtha cracking.

In the U.S., too, there were numerous refineries large enough to permit the production of 150,000 to 200,000 tons/ year of ethylene, based solely on refinery gas, Dr. Lewis said. In addition, there were virtually unlimited quantities of ethane and propane available and their prices were only a fraction of those prevailing in Europe. Consequently, the U.S. producer not only had more advantageous feedstock costs, but the yield of ethylene from refinery gas, ethane, and propane was much more selective.

Lower investment

Another point was that the investment required per pound of ethylene produced was lower. Therefore, at any particular profit margin between cost and selling price, the percentage return on investment was generally more favourable.

"As a result, when we compare the naphtha cracker in Europe with an ethylene plant in the U.S., based on refinery gases or natural gas liquids, we find that for a given return on investment (20% pre-tax), the ethylene price in Europe would be 20% higher than that in the U.S., and in Japan 30% higher."

A project evaluation should be made based not on specific current costs, but on the various cost factors projected

over at least the first five years of operation of the plant, Dr. Lewis continued, illustrating with regard to labour costs. Over the last five years, he said, labour costs had risen at an average annual rate of 8.8% in Western Germany, 8.3% in France, and at rates of 6-7% in Japan and the U.K. By contrast, labour costs in the U.S. over the same period had risen an average of 3.5% annually. Assuming that for a project now under consideration it would take two years to bring the plant on stream, and that for Europe, the total labour costs now were 50% of those in the U.S., but growing at the rates already mentioned. at the end of five years of operation for the plant, labour costs in Europe would be 68% of those in the U.S., as compared with the initial 50%. Conversely, the European project would have lost one-third of its advantage in labour costs.

A similar convergence of costs between Europe and the U.S., but in this case in favour of Europe, was expected in the case of natural gas, Dr. Lewis declared. It was unlikely that gas would be available at the price levels now prevailing in the U.S., but certainly in some areas of Europe, it was expected that natural gas would become available at prices considerably more attractive than those now being paid for equivalent raw materials and fuels, while on the other hand, gas prices in the U.S. were rising slowly but steadily.

U.S. advantage in benzene

, Dr. Lewis's second product example was the production of benzene. "Here again," he said, "in calculating the total manufacturing cost, excluding feedstock, we find that costs are almost identical for the U.S. and Europe but are about 10% higher in Japan, principally because of the higher power and fuel charges. Again we have lower fuel costs in the U.S. counterbalancing higher labour and construction costs.

"This comparison is based on the extraction of benzene from reformer gasoline in identically sized units and does not include the reformer operation. If we recognise the fact that the U.S. has a greater number of large refineries than Europe, then we see that much of the U.S. benzene can be produced in relatively larger benzene plants than would be possible in Europe. This size advantage for the extraction⁶ and purification route would give the U.S. producer an advantage of as much as 50% in the total production cost, excluding feedstock. Average feedstock values in

(Continued on page 812)

19 May 1962

WORLD'S MOST MODERN SOAPERY WORKS 120-HOUR WEEK



Main soapery control panel and centrifuges

Completes third stage of J. Crosfield's £5 m. Warrington development programme

COMPLETING the third major stage of a £5 million development programme at their Warrington, Lancs, works, the new soapery—claimed to be the most modern in the world—of Joseph Crosfield and Sons Ltd. was officially opened last week by Mr. J. P. Van den Bergh, chairman of the U.K. committee of the Unilever board.

First stage was the new chemicals building, costing £1,175,000, which came into operation in July 1959 (see CHEMI-CAL AGE, 26 September 1959, p. 399) and the second the opening in June 1961 of a technical research centre, costing £666.000 (CHEMICAL AGE, 1 July 1961, p. 13). The company will now proceed with demolishing the old soapery build-, ings in preparation for new buildings and facilities to meet their growing chemical business. Referring to this, Mr. Van den Bergh said: "We are convinced that Unilever has a great future in chemicals and we intend to go ahead with the expansion of the Crosfield chemical business." He told CHEMICAL AGE that developments in this connection were likely "in a few months".

Mr. Van den Bergh said some of their soapmaking had been transferred to Port Sunlight, enabling concentration at Warrington on the production of spraycooled soap powders, as well as soapbased powders formerly made at Port Sunlight. This redeployment facilitated streamlined, continuous soapmaking (the plant operates a three-shift, five-day, 120hour week).

The plant, main contractors for which were Matthew Hall and Co. Ltd., 101 Tottenham Court Road, London W.1. who were responsible for the engineering, design, procurement and for supervising its erection, was completed in under 12 months. It incorporates the latest chemical engineering processing techniques, involving controlled saponification. liquid/liquid extraction and finally centrifugal separation. Most important sections are blending, involving some 20 different oils and fats and caustic soda, and the saponification unit.

Gas-liquid chromatography is used to determine the component fatty acids of



The multi-storey Crosfield soapery facilitates gravity flow in processing. This view of the south and east faces shows the filter press house and tank farm all oils and fats purchased, and the blends selected finally depend on the technical specification of the end product. The costing is determined by linear programme methods at Unilever headquarters, for which an Elliott 405 electronic computer is employed.

The saponification unit consists of three inter-connected vertical cylinders lined with nickel and fitted with internal baffles. The mixture, held under controlled temperature and pressure, circulates through two of these with the assistance of an associated pump, and soap comes off the third cylinder through a pressure control valve. Viscosity measurements, taken in the form of pressure drop across the cylinders, provide a signal for adjustment of the oil-to-caustic soda ratio.

A continuous countercurrent process to remove glycerine from the soap by washing with dilute brine takes place in the liquid/liquid extraction unit. This comprises a stainless steel tower containing horizontal baffles which surround a rotating vertical shaft which itself carries rotors.

The building, erected by A. Monk Ltd., Warrington.

Petrochemical marketing

(Continued from page 811)

Europe and the U.S., based on the value of gasoling at the refinery, are not much different and accordingly would have little effect."

If the reformer operation were included as part of the benzene economics, the total manufacturing costs would approximately double or result in a net increase of approximately 25-30% in the cost of producing benzene. There was an additional factor, in that the reformer operation cracked a certain portion of the gasoline feedstock to lower value gases, and therefore, the net feedstock cost would also increase. Accordingly, in Europe, it was unlikely that there would be installed significant aromatic capacity requiring construction of the reformer unit as well as the extraction and purification unit, unless by recovering also toluene and xylene the size advantages compensated for the added costs.

In the U.S., although the combined operation was more expensive than simple extraction and purification, many such units had been built, Dr. Lewis said, largely because the overall availability of coal-based benzene was less than 40% of the domestic requirement. Conversely, in Europe, the overall availability of coal-based benzene in crude form in 1960 exceeded the total consumption of benzene for chemical use.

Quickfit set up second European subsidiary

In future, products of Quickfit and Quartz Ltd., of Stone, Staffs, will be sold in France by a new subsidiary, Quickfit S.A. This, the second Quickfit company on the Continent—the first was Quickfit Laborglas GmbH, of Schierstein, near Wiesbaden—will have its offices and warehouse at Port Gennevillers, Paris.

Indian Newsletter

Chemical industry sustains rapid growth, production up by 75% in last 10 years

APID and continuous expansion under the impetus of planned development has marked the growth of the chemical and fertilisers industry in India between 1951 and 1961 when production rose about 75%. The total value of chemicals produced during this period has risen from £105 million to £326 million. Investment in chemical and allied industries amounted to £19.5 million during 1951-56 and £99 million during the following five years. During the Third Five-Year Plan (1961-66) a sum of £487.5 million has been allocated for development of chemicals and fertilisers, which is roughly one quarter of the total allocation set apart for all industries.

This trend of rising investments and production in the industry continues unabated as the country embarks upon the programmes to meet the targets set for five years ending 1965-66.

Koyali refinery.—A nine-man team of Indian engineers has arrived in Moscow to take part in the preparation of the project report for a 2-million-ton refinery to be set up at Koyali near Baroda in Gujarat State. The report is expected to be ready in about eight months.

An Indo-Soviet contract for the preparation of the report and working drawings was signed recently between the Oil and Natural Gas Commission, who are setting up the refinery, and the Soviet State Tjazhpromexport, who will supply equipment and machinery during 1963-64 against a Soviet credit of £7.5 million. It is proposed to set up the refinery in two stages, each of one million ton capacity.

Meanwhile it has been decided that the other two-million ton refinery to be set up at Barauni (Bihar) will be commissioned in three stages: one million ton distillation capacity to be completed by February 1963; another one million ton of distillation capacity will be commissioned by June 1963; and a third stage to include the kerosene refining unit which will be ready in January 1964 and the lubricating oil unit in April 1964.

Synthetic rubber for Gujarat.—According to the recommendation of Gujarat State-Committee on Industrial Planning, there is great scope for setting up in the State a synthetic rubber plant with a capacity of at least 20.000 tons per year. Capital requirement for such a plant is estimated at £15 million. India is already establishing the first synthetic rubber factory in Bareilly (U.P.) (C.A., 5 Dec. 1959.)

The Planning Committee has also suggested establishment of three units to produce ethylene oxide, ethylene dichloride and ethylene tetrachloride. In view of the availability of natural gas in the State, a carbon black plant of substantial capacity (estimated cost £1.5 million) is also considered feasible.

The Committee has pointed out that Gujarat has a very suitable area for the location of caustic soda and soda ash industries. It has recommended the utilisation of salt bitterns for the recovery of calcium chloride, magnesium sulphate and magnesium carbonate.

Antibiotics plant.—The £16 million antibiotics plant whose foundation stone was laid at Rishikesh (U.P.) on 16 March, is expected to go into production in 1964, a year earlier than the target date set by the Russians who are collaborating in the project. The Rishikesh plant, which will be the biggest antibiotics factory in the East, will produce 300 tons of various antibiotics.

A model of the plant was recently (7 March 1962) presented to the Indian Minister of Industry by M. F. Cherkosov, Chargé d'Affaires of the Soviet Embassy in New Delhi. Mr. Cherkosov also presented models of the synthetic drugs plant to be set up in Hyderabad, and the phyto-chemical plant to be set up in Kerala.

The total cost of the four Soviet-aided projects, earlier estimated around £26 million will now go up to £39 million, it is understood. The estimated foreign exchange expenditure of £6.75 million, covered by a special Soviet credit will also increase by about £2 million.

Lederle antibiotics.—At Atul, near Bulsar, the Governor of Gujarat State. Nawab Mehdi Nawaz Jung inaugurated recently the Lederle antibiotics fermentation plant which is the first antibiotics plant in India to be based on a fermentation process. Operated by Lederle's Laboratories, an affiliate of American Cyanamid Company, the plant will produce aureomycin, tetracycline and dimethyltetracycline.

Polystyrene.—The Indian Government is likely to license soon some additional capacity for the manufacture of polystyrene and styrene monomer in the eastern region of India.

The licensed capacity of Polychem's factory in Bombay is 61,750 tons of polystyrene and 6,750 tons of styrene monomer. Shri Ram Mills have been recently licensed to set up a unit in Andhra Pradesh with a capacity to produce 10,000 tons of polystyrene. Two Bombay firms, Bharatex Private Ltd. and Hiran and Sons have also submitted proposals for setting up plants for manufacture of styrene and polystyrene.

Fine chemicals.—For the first time in India, a wide range of fine chemicals required for pharmaceuticals, cosmetics, food products, confectionery, electroplating, photography, etc. will be manufactured jointly by an Indian and West German firm in one of the latest streamlined factories of fine chemicals at Jessore Road, near Calcutta.

The firm, Dr. Paul Lohmann (India) Ltd., will manufacture more than 50 varieties of fine chemicals over 60% of which are now imported by India. The foundation stone of the factory (installed capacity 2,000 tons) was laid in Februaary 1962 by Mr. Rudolf Lohmann of Dr. Paul Lohmann Co., West Germany. The factory is expected to start production by February 1963.

Menthol.—A modern factory, the first of its kind in India, for the production of natural and synthetic menthol from imported peppermint oil will start operating at Baroda (Gujarat) about the beginning of May 1962. The unit, with a production capacity of 82.5 tons of menthol a year, is being set up by Bhavane Chemicals Private Ltd. at a

An Indo-Soviet contract for the preparation of a project report and working drawings for a 2-million ton refinery near Koyali, north of Baroda in Gujarat was signed recently in New Delhi by Shri P. R. Nayak on behalf of the Oil and Natural Gas Commission and Mr. A. E. Nikitin on behalf of Tjazhpromexport, U.S.S.R.





cost of £60,000 with German technical collaboration.

Proposals for setting up two more plants for menthol, one to be located in Bombay and the other in Jammu (Kashmir) or Kulu (Punjab) are being finalised. The plants will have a joint annual capacity of 75 tons of menthol, 77.34 tons of geraniol crude, 85.92 tons of citronellol and 16.98 tons of terpenes. The Bombay plant will produce synthetic menthol while the Jammu plant will produce menthol from *Mentha arvensis*.

India's annual requirements of over 75 tons of menthol are at present met entirely by imports.

Chemical plant. The U.S. firm of Struthers Wells International Corp. are collaborating in a £1.75 million project to be set up at Poona for the manufacture of a complete range of plant and equipment for sulphuric acid, nitric acid, fertilisers, petroleum refining, caustic soda and soda ash besides fired heater converters, evaporators, dryers, waste heat boilers, etc. Struthers Wells will also participate in the equity capital of the new company called Struthers Wells India Ltd. The project envisages an annual output of machinery and equipment valued at £2.6 million.

Mettur Chemicals to expand. The Mettur Chemical and Industrial Corporation, Mettur Dam (Madras), have completed the first stage of expansion of their caustic soda capacity from 20 to 40 tons per day. Plans are now under way for creating the additional capacity of 60 tons per day to complete the projected 100 tons. The company is negotiating for U.S. technical collaboration for the manufacture of chlorinated organic chemicals to utilise the additional output of chlorine resulting from expanded caustic soda capacity. The entire expansion scheme is expected to cost the company £2.25 million.

Durgapur coal chemicals. Plans are under way to set up at Durgapur (West Bengal) a chemical plant for producing initially 6,600 tons of phenol, 3,300 tons of phthalic anhydride and 990 tons of pentachlorophenol, and caustic soda. chlorine and some minor organic chemicals mainly from the by-products of the Durgapur coke oven plant. The project is estimated to involve a total capital outlay of £4.5 million. Bengal Chemical M. J. Marshall, Principal British Trade Commissioner, Eastern India, opens the Indian Yeast Co. factory. L. to r., K. P. Mookherjee, Home (Police) Minister, W. Bengal, Mr. Marshall, S. M. Smith, chairman, Indian Yeast Co., and S. C. Stewart, managing director, Distillers Co., Yeast Division

and Pharmaceutical Works and India Alkalis Ltd. are collaborating with West Bengal Government in the project. Krebs and Co. of Paris will provide consulting services. The factory is expected to be in production by 1964.

Tetraethyl lead. A Bombay firm. Ind-Com Corp., has plans to manufacture 3,000 tons of tetraethyl lead a year besides ethyl chloride, ethylene dibromide and ethylene dichloride. The other two raw materials, namely, lead and sodium, will be imported. Indian imports of TEL are at present valued at a little over £750,000 a year. The company has obtained the technical and financial collaboration of Societe Lavorazioni Organiche Inorganiche of Italy. Capital outlay on the project is estimated around £1.5 million.

Sandoz dyestuffs. The Sandoz factory at Kolshet, Thana (Maharashtra), is being expanded to undertake the manufacture of dyestuffs and intermediates used by the textile industry. The factory will go into production in 18 months. The project has been licensed to manufacture 540 tons of dyestuffs and intermediates per annum. Of the 58 items to be manufactured, 47 will be produced for the first time in India.

Total consumption of dyestuffs in India is estimated at £11.25 million of which approximately 50 per cent is met through imports.

Protection for calcium carbide. Tariff protection for Indian calcium carbide industry has been extended until 31 December 1964 at the existing rate of 50% ad val. Selling price of the product has also been fixed in accordance with the Indian Tariff Commission's recommendations at the 1958 level.

Production of calcium carbide in India has risen from 2,935 metric tons to 20,000 metric tons during 1956-61. The present installed capacity of the industry is about 34,500 metric tons while the production is, estimated at 32,000 metric tons which is sufficient to meet present Indian requirements. By 1965-66, demand for calcium carbide is expected to go up to 60,000 tons per annum. A significant development reported in this connection recently from the Central Fuel Research Institute. Jealgora (Bihar), is a process for producing coke of requisite purity from Indian coal for use in the manufacture

of calcium carbide. Hitherto, on account of high phosphorus and ash content, the coals were considered unsuitable.

Industrial oxygen. A new company. Hindustan Oxygen Gas Co. Ltd., will undertake production of industrial oxygen (28 million cu. ft. yearly) and acetylene (7 million cu. ft. yearly). The factory, to be located at Ahmedabad. will go into production by end-1962.

The Indian Planning Commission has set the 1965-66 target for production of oxygen at 2,300 million cu. ft. and for acetylene 250 million cu. ft. Present production of the two gases is of the order of 1,650 million and 200 million cu. ft.

Meanwhile, two oxygen plants each of 432,000 cu. m. installed capacity, now under erection at Bhavnagar and Baroda are nearing completion and are likely to be commissioned in the next two months. Machinery and equipment for both these plants have been imported from D.I.A. Chemicusruestungen of Berlin.

South India Viscose. The first combined staple fibre and rayon yarn factory of India was recently put into commission at Sirumughai (Madras State). Installed at a cost of ± 7.5 million, the factory is equipped to turn out per day rayon yarn (10 tons), staple fibre (10 tons), carbon disulphide (7.5 tons), and sulphuric acid (35 tons). It has been erected with technical collaboration of the Italian firm, Italiviscosa Eastern Trading S.p.A. of Milano.

First nylon plant goes into production. A multi-filament nylon yarn plant set up by Garware group of companies has gone into production at Pimpri, near Poona. The first of its kind in India. the plant will produce 1.5 tons of nylon yarn per day. The company has also been licensed to install a 2-ton per day polymerisation plant. This plant is expected to start production by April 1963. Both the projects involve an outlay of about £750,000.

Also at Kotah, in Rajasthan, J.K. Synthetics have started production of nylon 6 for the first time in India using their own polymerised materials. The project involves an outlay of $\pounds 1.5$ million.

Explosion at Crosfield's new soapery

AN explosion on 14 May hit the new £1 million soapery opened last week by Crosfield's of Warrington (see p. 812).

The explosion could be heard several miles away. It is believed that one of the machines in the plant built up an excessive pressure. There was only one casualty caused by flying glass. It has not yet been possible to ascertain the extent of the damage.

Cartels in Europe

An international cartel conference with the title 'European right to compete' is being held at the International Chamber of Commerce, 38 Cours Albert ler, Paris 8, from 21 to 25 May. With papers on cartels in each of the Common Market countries and the U.K., it is being organised by the International Educational Association, Wiesbaden.

Italian oil industry

Rapid growth in refining potential causes no alarm in Italy's oil industry

TODAY Italy has some 40 petroleum refineries with an aggregate processing capacity at 1 May 1961 of 40,934,000 tonnes. As each refinery is obliged to have a 30% reserve, total capacity is over 53 million tonnes. Since then there have been various authorisations for expansion of single plants. When and if all such authorisations to date are utilised (which is not likely before five or six years), capacity will increase to 83,589,000 tonnes (108,665,700 tonnes counting the 30% reserve).

During 1961, Italian refineries processed 34,959,000 tonnes of crude oil, of which 34,003,000 tonnes were imported. Home production was nearly two million tons, of which Gulf Italia's oilfeld in Sicily supplied 74%.

Refinery figures (all thousands) for the past six years are: 1956, 19,249 tonnes; 1957, 20,794; 1958, 24,184; 1959, 26,428; 1960, 30,801; 1961, 34,959. This expansion of 81.5% in six years, however, has not affected the various products in a uniform manner. Figures for particular products are:

1061

1054

	1,20	1.01		
C	000 metr	ic tonnes	s) %	,
			incr	ease
Gasoline				
for cars	3,098	4,782	54.3	
Jet fuel	570	689	20.8	
Kerosene	565	690	22.1	
Fuel oil	8,508	17,788	109	
Gas oil	3,944	6,377	61.6	
Lubricants	175	165	6	(de-
				crease)
Bitumen	440	842	91.3	
Liquefied p	etro-			
leum gas	es 333	690	107.8	

While fuel oil and gasoline outputs show heavy increases in the above figures, in terms of percentage of the whole output, however, fuel oil is getting greater and greater interest from Italian refiners. The percentage yield obtained by Italian refineries from each tonne of crude oil processed is: fuel oil, 1956, 44.2; 1961, 50.9; gas oil, 20.5; 18.2; gasoline, 16.1; 13.7.

Of processed products in 1961, 74.7% was for the home market, 12.4% was for export and 12.9% processed on behalf of other countries.

The Italian refining industry's 1961 output accounted for 17.6% of the aggregate production of European companies belonging to O.C.E.D. (Spain excepted) and for 25.5% of the total output in the C.M. area.

Natural gas stripping and cracking plants

Today petroleum accounts for 43.6%of Italy's energy budget while in 1960 it accounted for only 39.3%. The importance of petroleum products to the economic life of Italy is bound to continue to increase for some years and is one reason why the rapid growth of the refining potential is not viewed with alarm in that country.

Preliminary 1961 figures from the *European Petroleum Industry's Surveys* show refinery output increased by 13.6%, over 1960 while the consumption rose by 18%. Nearly two-thirds of the output is consumed at home. Of the total input to 36 refineries (19 of which are below one million tons capacity) 2.2 million tons came from Italian fields, 18.5 from Iraq and Kuwait, about equally, and 11.5 from Saudi Arabia and U.S.S.R., Egypt and Venezuela rose in 1961, while those from Persia and Saudi Arabia fell slightly.

Exports of finished products reached 8.7 million tons in 1961, consumption 21.8 and reserves 4.5. Biggest relative sales rise was wax and petrochemical stock which, together with other unspecified products, reached 0.7 million tons. Largest tonnage rise was fuel oils, from 10.8 to 12.8 million, i.e. to nearly 55% of the total; 5.2 million tons of fuel oils were exported, or put in reserve. Some products were imported.

Natural gas consumption in 1961 was approximately equivalent to 6 million tons of crude. Together these two have supplied over half of Italy's requirements for industrial and domestic power.

For some years, State investments in the Italian oil and petrochemical industries has been growing rapidly and as the following figures show are expected to grow even more rapidly in the next few years:



Scope for more trade with Czechoslovakia

EXTENT of Czechoslovakia's industrial progress is underlined by the fact that her volume of overall production increases by about 10% yearly, special attention being paid to heavy industries such as chemical, metallurgical and engineering. Her Commercial Counsellor at the London Embassy, Mr. Ladislav Maly, mentioned this at a recent London conference held to announce the holding at Olympia, from 16 to 28 July of his country's first national exhibition. The display will include stands from Chemapol, the trade corporation for chemicals and Technoexport who deal with chemical plant and equipment.

This year marks the second year of Czechoslovakia's third Five-Year Plan under which heavy engineering production is to rise by 15%, with attention focused on ensuring supplies of chemicals, rubber, metallurgical and other equipment. The 1962 plan provides for the chemical industry maintaining the high production rate of 111.3% to enable increased output in crude oil processing and rubber. Target production 1962 figures include: fuel 2.2 million tonnes; sulphuric acid, 683,000 tonnes; plastics, 88,000 tonnes; chemical fibres, 75.000 tonnes.

The Czechoslovak market for complete plant and equipment for chemical manufacture is said to be 'wide open' in a report published this week under the title 'Czechoslovakia—a survey for businessmen' (London Chamber of Commerce, 5s). The report refers to a 'sincere wish' to buy more from the U.K., but there are complaints of British selling terms and methods.

f million

State investments in oil and petrochemicals

					1960	1961	1958-61	f.	1962*	1962-65*
Petroleum Oil prospecting Refining, transp	and p ort an	roduct d distr	ion ibutior		20.9 13.8	20.6 25.7	65.9 60.2		22.9 48.1	56.0 172.0
Total					34.7	46.3	126.1		71.0	228.0
Natural gas Petrochemicals					3.3 6.0	2.3 12.9	19.2 42.9		6.3 22.9	17.5 94.0
*Estimated				1						

CHEMICAL AGE

Chemical Industry Growth in Europe

Right : Development of the chemical industry in O.E.C.D. countries from 1953 to 1956

Bottom right: Development of petroleum chemical production in O.E.C.D. countries from 1953 to 1956 and estimates of production capacity to 1963

Below: O.E.C.D. member countries' investments in petroleum chemicals from 1954 to 1960 and their estimated average investments for the years 1961 to 1963

From The Chemical Industry in Europe, 1960-61, a study prepared by the Chemical Products Committee of the Organisation for Economic Co-operation and Development (see also CHEMICAL AGE, 12 May, 1962, p. 771)











DU PONT DROP PRICE OF GLUTARIC, PLAN NEW PLANT

A REDUCTION in the price of glutaric anhydride of 20% has been announced by Du Pont. The development price of 50 cents a lb. has been reduced to 40 cents in lots of 100 lb. and over, and 45 cents in 10 lb. lots f.o.b., Belle.

The price reduction follows the announcement of plans to build a succinic and glutaric anhydride plant at Belle. With a _____

glutant anyon be plant at belie. With a multimillion-lb-a-year capacity the plant is claimed by Du Pont to be the world's first commercial unit to produce glutaric anhydride. The plant is expected to come on stream in mid-1963, and the new prices, as far as is possible to predict, will be the commercial prices when the plant goes into production. The reason for price reductions at this stage is to help develop the market in the fields that glutaric anhydride is expected to enter, i.e., in the fields of plasticisers, curing agents for epoxy and polyester resins, polyurethanes, pharmaceutical intermediates, photochemicals and textile treating materials.

Glutaric anhydride will be the main product of the Du Pont plant, with succinic anhydride as a co-product. The process is described in the company's patent on the production of dicarboxylic acid anhydrides by the catalytic air oxidation of cyclohexane. The process is claimed to give a 100% conversion of the lower molecular weight dicarboxylic acids to their anhydrides which' are then separated by fractional distillation.

Du Pont plan to sell the output of the new plant mainly for outside use but some internal uses may be developed.

New 40,000 t.p.a. Brazilian SBR plant now on stream

A new synthetic rubber plant, operated by a new company called Fabrica de Borracha, a subsidiary of the Petrobras organisation, has now begun production of styrene-butadiene rubber, according to a recent statement by the Brazilian Government Information Service. Its output rate has been given at 40,000 tons/year.

U.S.-German combine plans fertiliser plant in Cyprus

A permit for the construction of a £2 million fertiliser plant has been issued by the Cyprus Government to the International Development and Investment Co., a joint U.S.-German combine. The plant at full capacity will produce 100.000 tons per year of all types of chemical fertilisers for sale to the Cypriot farming community and for export.

Half the necessary capital will be supplied by 1.D.I.-50% of which is owned by C. and I. Girdler International and the other half by Phoenix Overseas, an

affiliate of Phoenix Rheinrohr AG, of Dusseldorf. The remainder of the capital will be provided by Cypriot investors.

Soviet delegation visits Snia Viscosa

A five-man Soviet delegation, headed by Mr. Fedor Orlov, vice-president of the U.S.S.R. Planning Committee, recently visited Italy to study cellulose plants of Snia Viscosa and S.A.I.C.I. and the processes used in the production of cellulose.

Asahi Electro-Chemical develop process for epoxies

A PLANT to produce 50-tonnes/ month of epoxy resins is due for completion in August by the Japanese company, Asahi Electro-Chemical. The plant will be based on a new technique —the subject of a number of patent applications—developed by the company.

The products will be marketed under the trade name ADK resin EP-1000 through Mitsubishi Shoji K.K., Nichimen and Co., Showa Kosan and Yoko Sangyo. The price will be approximately 500 yen a kg.

At present, the epoxy market in Japan is dominated by Shell Sekiyu K.K. and CIBA. By technical collaboration with these groups, Mitsubishi Petrochemical made 4,000 tonnes of epoxies in 1961.

Plastics-cellulose grafting by Canadian research chemicals

Canada's University of Toronto, after 4 years' research, has developed a plastics-cellulose grafting process that should bear important results for certain Canadian industries. Using cobalt-60 in a gamma cell, research chemists have induced a reaction which 'permanently' grafts certain vinyls to cellulosics.

Nitto Chemical's own ABS resin process may compete with U.S.-licenced production

THE Japanese company, Nitto Chemical, have asked the Ministry of International Trade and Industry for a subsidy against the 14 million yen they have spent on the development of a technique for the production of ABS polymers.

The demand for ABS polymers has been increasing rapidly in Japan but so far there has been no domestic production. Four companies, however, are involved in negotiations for the introduction of technique from U.S. companies. They are Mitsubishi Monsanto Chemical, who wish to use a Monsanto licence, Japanese Geon (Goodrich B.F.), Ube Industries (Marbon Division of Borg and Sumitomo Chemical Warner). (Naugatuck Chemical Division of U.S. Rubber). Nitto Chemical have decided to go into production with their own process.

Basic research on the scale of 5 kg. batches has already been completed by Nitto Chemical. Plans for a 200 tonnesa-month plant, to be increased to 500 tonnes a month, are already in hand.

Bristol Aeroplane in solid rocket fuel project in Canada

The production in Canada of solid rocket propellants is to be undertaken by Bristol Aeroplane of Canada, a subsidiary of the Bristol Aeroplane Co. Ltd. and Aerojet General, of Azuza, California. The latter company is a subsidiary of General Tire and Rubber.

The two companies have set up a

joint subsidiary, Bristol Aerojet, and arrangements have been made for the acquisition of a suitable site on the outskirts of Winnipeg for the establishment of a manufacturing plant which will cost an estimated \$2 million. Work on the project is expected to begin next month and it is hoped to have the plant in operation in 1963. The solid propellant produced will be used for Canada's missile and rocket programmes.

Air Products plan \$16 million gas expansion

A \$16 million expansion of industrial gas production is planned by Air Products and Chemical. Two \$8 million plants will be constructed at Delaware City and Chicago. Both plants will proproduce 200 tons of oxygen, nitrogen and argon a day, mostly in the liquid form. On stream date will be mid-1963, Eventually a capacity of 600 tons a day is planned for each plant.

E.N.I. study new Cupello-Rome pipeline

S.N.A.M., of the E.N.I. Italian State oil group, are currently studying a project for a pipeline to carry natural gas discovered at Cupello, Abruzzi, to Terni, where it would be used by industry, and to Rome, for use as town's gas. It is estimated that the Cupello gas reserves will yield 1,600,000 cu. m. of gas a day.

Overseas news

New carbon black gives tyres with 100% stereo rubber

 \mathbf{N}_{black}^{OW} commercially available from United Carbon Co. Inc., U.S., is a new carbon black, United 65-SPF (super processing furnace), that is said to permit use of high levels, up to 100%, of stereo rubber in tyre compounds and other rubber products. Until now 100% polybutadiene could not be compounded satisfactorily.

Produced in new facilities and using a new process, this carbon black is said to reduce by 50% or more the mixing time needed to incorporate the black into rubber. Compared with HAF, it is said to impart higher modulus and hardness to rubbers, allowing the use of more process oil to lower the compound cost.

Properly compounded with added process oil, it will produce high-performance compounds cheaper than equivalent HAF or ISAF compounds. United 65-SPF is priced at $7\frac{1}{2}$ cents/lb. in bulk Gulf Coast areas, or ³/₄ cents/lb. below ISAF black.

Note: A strong swing in the next few months toward the use of polybutadiene synthetic rubber as a replacement for SBR synthetic rubber in passenger car tyres was forecast by Mr. G. R. Vila, president of United States Rubber Company, in a talk last week to the International Institute of Synthetic Rubber Producers in Brussels. He added that this trend, together with the growing use of other stereo types of synthetic rubber, would have a "dramatic impact" on the future of both natural and SBR usage.

E.N.I. deny link with new pharmaceutical venture

E.N.I. have denied persistent rumours in Italy that they have a large investment in Alpha of Bologna, a pharmaceutical company, who are at present expanding their production of tetracycline and cortisone. Alpha have applied to Isveimer for a loan of 1,500 million lire for the construction of a large new plant to make these compounds at Latina.

Increase in French fertiliser sales

For the first nine months of 1961-62, French sales of fertilisers totalled 485,264 tonnes, an increase of 13.2% over the same period of last year.

New 'master-plan' for Italian sulphur industry

The Italian Ministry of Industry has worked out, in cooperation with local authorities in Sicily, a complete plan covering both the reorganisation of the production of sulphur and its utilisation on the spot by chemical producers. This plan will be submitted to a special Common Market Commission during the next three months in order to ensure renewal of the existing agreements which allow the Italian sulphur industry to be treated in isolation. The period of isolation may last six to eight years.

Celene to bring new oxo alcohols units on stream

Celene of the Edison Group, Milan, will this year bring new plants on stream in Sicily. These will produce alcohols by the oxo synthesis and propylene oxide.

Ammonia plant for New ersey Zinc

The New Jersey Zinc Co. plan to enter the petrochemical field with a \$4 million complex at Palmerton, Pa. The first plant, due on stream in about 18 months, will produce ammonia using natural gas as a raw material.

Buna claim world's biggest carbide facilities





The Buna chemical works, East Germany, claimed to be the world's largest and most modern carbide factory. The furnaces (six new ones were built in 1958) are fully automatic and by 1965, when all heavy manual labour will be eliminated, total carbide capacity will be 8,000 tons/year and that of acetylene over 300,000 tons/year. After the completion of the Baku-Schwedt pipeline, Buna will also make acetylene from mineral oil

Terni boost calcium carbide output, will switch to methane for ammonia production

 \mathbf{N}^{EW} storage facilities with a capacity of 6.000 cu. m. is being installed at the electrochemical plant operated at Papigno by Terni. This will permit the storage of about 7,000 tonnes of calcium carbide and consequently the output of this chemical will be increased. During 1961, this plant produced 113,000 tonnes of raw calcium carbide or 2.6% more than in 1960.

The company is planning to add at Papigno, a new plant for the fractionation of air. Capacity of this unit is scheduled at 6,400 cu. m./hour and the resulting extra supply of oxygen will be sufficient to meet the growing demand from the steel industry.

Terni's output of ammonia, produced at Nera Montoro, remained at the same level as in 1960, totalling 34,500 tonnes. The company is now planning to utilise methane instead of fuel oil for production of ammonia and to add to its range other related chemicals needed for the production of nitrogen fertilisers.

Toyo Rayon to build new nylon plant

Tovo Ravon Co. will start construction of a new nylon plant with a 25tonne-a-day capacity at their Okazaki factory. The company already has a total nylon capacity of 99 tonnes a day.

Ethylene-propylene rubber plant planned by Polymer

Polymer Corporation of Canada plan the construction of an ethylene-propylene rubber plant at Sarnia. The company expect to be in full scale commercial production with EPR in the near future; they have been producing the compound on a pilot plant scale for some time. The rubber will be marketed both in Canada and overseas.

At present the only other EPR manufacturers operating on a commercial scale in the U.S. are Enjay Chemical, who produce a peroxide-cured variety at Baton Rouge.

Consolidated Mining to double fertiliser capacity

A \$16 million expansion planned by Consolidated Mining and Smelting will double fertiliser capacity and triple pig iron capacity. Fertiliser capacity will be increased 170,000 tons a year. Together with increased production of sulphuric and phosphoric acids, the fertilisers' share of the expansion programme is \$11 million.

Monsanto's new ABS plant on stream

The Lustran styrene-acrylonitrile copolymer and the styrene-acrylonitrilebutadiene terpolymer plant of Monsanto is now in full production at Addyston. The capacity of the plant is 40 million lb. a year.



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• Mr. C. H. Goodwin has been appointed director of production for Chemstrand Ltd., taking over responsibility for operations at the company's Coleraine plant from Mr. J. J. Sosa, who has returned to Chemstrand of the U.S. Other appointments made following further developments in the U.K. company's expansion are: Mr. D. W. H. Galbraith, formerly director of marketing, as director of commercial development (he will continue in charge of overseas operations including exports of Acrilan); Mr. N. G. A. Ireland-Smith, C.B.E., as U.K. director of marketing; and Mr. R. E. H. Sheridan, company secretary, as director of finance and administration.

• Mr. F. J. F. B. Jackson, managing director of A.P.V.-Paramount Ltd., has been elected to the board of the newly formed company, A.P.V. Holdings Ltd. Mr. E. R. Cash, general works manager, has joined the board of the new operating subsidiary, the A.P.V. Company Ltd., Manor Royal, Crawley, Sussex.

• Hickson and Welch Ltd. have announced the appointment of **Mr. Ian Hall** as buying manager. Mr. Hall previously held the post of divisional mar-



I. Hall

keting officer (by-products). National Coal Board, North Eastern Division and represented the division on the executive of the British Tar Confederation, the council of the British Sulphate of Ammonia Federation, the By-Products Committee of the British Coking Industry Association and the National Benzole Association.

• Hudnut-Lambert Ltd. have announced the appointment of Mr. K. Lofts as brand manager of lay pharmaceuticals manufactured by the Lambert Chemical Co. Ltd. Mr. Lofts joins the company from Jeyes, where he had been new products manager and, more recently, product manager.

• Mr. T. L. Birrell, a director of the Yarsley Research Laboratories Ltd., Chessington, has been nominated by the council to succeed Sir Laurence Merriam as president of the Plastics Institute at the annual meeting to be held on 24 July.

• Mr. Robinson Ord, president of Canadian Chemical Co. Ltd., has been elected chairman of the newly-formed Canadian Chemical Producers' Association. Mr. H. L. Blatchford, president of H. L. Blatchford Ltd., has been elected vice-chairman, and Mr. A. A. Cumming, president of Union Carbide Canada Ltd., secretary-treasurer.

Thirty-five chemical producing com-



panies and their representatives were declared founder members at the association's first annual general meeting held recently in Montreal, and a nine-man board of directors was elected. The directors are: Mr. H. H. Rank, president of Du Pont of Canada, Mr. Leonard Hynes, president of Canadian Industries, and Mr. G. H. Clifford Smith, president of Bate Chemical Corporation, for oneyear terms; Mr. A. A. Cumming, Mr. Robinson Ord and Mr. H. S. Sutherland, president of Shawinigan Chemicals Ltd., for two-year terms; Mr. H. L. Blatchford and Mr. D. E. Jones, president of Electric Reduction Co., for three-year terms.

• Mr. F. Dickinson, a director, and the general manager of the development and research department of the International Nickel Co. (Mond) Ltd., has been appointed a director of Henry Wiggin and Co. Ltd. and a member of the Wiggin executive committee. Mr. J. Thexton, chief metallurgist of Henry Wiggin and Co., has also been appointed a director of the company, and will assume the duties of technical director.

• Mr. N. F. Hibbert, accountancy manager of Laporte Titanium Ltd., has been appointed a director of G. D. Holmes Ltd., and Goole Docks Fresh Water Boat Co. Ltd. (both subsidiaries of Laporte Industries Ltd.).

• Dr. W. Paul Tucker has been appointed managing director of Phillips Petroleum U.K., the new British subsidiary of the American Phillips Petro-leum Co. (see also 'Distillates', p. 808). Dr. Tucker was previously assistant director of public affairs, advertising and promotion of the parent concern.

• Dr. G. Valerio has resigned from the board of Monsanto Chemicals, St. Louis, Miss.

• Mr. M. H. L. Whitehouse has been appointed secretary of the British Engineers' Association, London. He joined the association in 1949 and was head of the technical division.

• Mr. S. C. Ginn has been appointed as chief executive of the National Industrial Fuel Efficiency Service in succession to the late Dr. Angus Macfarlane, C.B.E. Mr. Ginn, who joined N.I.F.E.S. in 1955, was appointed commercial manager in 1956. From 1950 to 1953 he was in the U.K. Scientific Mission in Washington, D.C., where he was engaged principally on the U.K./ U.S. Technical Co-operation Plan.

• Mr. D. J. Lewis, of the research and development division of Baird and Tatlock (London) Ltd., has been appointed assistant technical sales manager. Mr. S. J. Kennedy has joined the company's technical sales department.

• Mr. E. A. Duligal has joined the board of Metalife Corrosion Ltd., the manufacturing organisation for the Metalife group, which specialises in corrosion-resistant coatings and metal filling compounds, as technical director responsible for production and technical development research programmes.

• Mr. J. K. W. Berry and Mr. J. P. Koppel have been appointed directors of British Celanese, a subsidiary of Courtaulds. Mr. J. H. Givens and Mr. J. G. Smith have resigned from the board.

● Sir Roger Makins, chairman of the U.K. Atomic Energy Authority since 1960, and a former British Ambassador to the U.S., has become chairman of the governing body of the Imperial College of Science and Technology in succession to the late Lord Falmouth.

• Mr. S. O. A Thomas has been appointed general manager of Chemical Engineering Construction Ltd.. Montfort House, Lower High Street, Stourbridge, to be directly responsible to Mr. E. W. Mulcahy, chairman and managing director. Mr. Thomas has spent the past 35 years with the General Electric Co. and until recently was area controller of the G.E.C. Birmingham office.

• Mr. J. W. Martin has been appointed a director and secretary of Ashe Chemical.

• Mr. R. M. Winters has been appointed general marketing manager of Avisun Corporation's film and packaging division. Philadelphia.



Plymouth's Lord Mayor, Ald. A. Goldberg, cutting the tape at the official opening recently of the 36,000 sq. ft. scientific instruments factory, Burrington Way, Plymouth, of Griffin and George (Sales) Ltd. Also pictured are the Lady Mayoress and Mr. K. G. Sinclair, Griffin and George's chairman

Commercial News

A.P.V.

The A.P.V. Company Ltd. have now changed the name of the parent company to A.P.V. Holdings Ltd. and formed a new company, the A.P.V. Co. Ltd., to take over the present operating business.

Mr. W. E. Jenkins, chairman, in his annual statement said that the group profits for 1961 of £900,300 (£750,235) were again a record. Turnover was valued at £7.4 million (£7.1 million). A sum of £300,000 is to be capitalised out of reserves by making a bonus issue of 600,000 ordinary shares of 10s each on a one-for-five basis.

Ashe Chemical

Gross profit of Ashe Chemical Ltd. for 1961 was £110.257 (£80,579). Tax took £61.881 (£40.214) and net profit was £48.376 (£40,365). A final dividend of 14% (11%), making 19% (16%) is proposed.

Associated Lead

Profit for 1961 of Associated Lead Manufacturers Ltd., a subsidiary of Goodlass Wall and Lead, was £795,000 (£745,000). After tax of £439,000 (£391,000). He net balance was £356,000 (£354,000). A tax free interim for 1961 of £250,000 (£350,000) is to be paid. but no further dividend is recommended.

Boots Pure Drug

Pre-tax group profits (after depreciation and interest) of Boots Pure Drug Co. Ltd. for the year ended 31 March totalled £9,270.516 (£8,826.093). Tax took £4,930,312 (£4,562,790) leaving group profits of £4,340,204 (£4,263.303). A final dividend of 8% making 12%(same) is proposed.

B.D.H.

British Drug Houses have made a bid of £1 each for the 134,210 ordinary shares of James Woolley and Co. The Woolley directors have recommended acceptance of the offer.

Bydand Distillers

Consolidated trading profit for the year ended 31 March of Bydand Distillers and Chemicals Ltd. was £185.079 (£181,159). Net profit was £88,999 (£81,961). A final dividend of $12\frac{1}{2}\%$ makes 20% (same).

C.J.B.

Corrosion and Welding Engineering Ltd., a subsidiary of Constructors John Brown Ltd., have acquired the good will in the field of cathodic protection of Sturtevant Engineering Co. Ltd., and their subsidiary, E. Reader and Sons Ltd. This business will be carried on by Corrosion and Welding on their own account at the Research and Development Station, Kingston Road, Leatherhead, Surrey.

Courtaulds

Pre-tax group profit of Courtaulds Ltd. for the year to 31 March was £17.7

A.P.V. change name, plan bonus issue B.D.H. bid for J. Woolley and Co. capital Courtaulds pre-tax profit exceeds forecast Profit cut for African Explosives & Chemicals

million (£18.7 million) after depreciation of £8.2 million (£8.1 million). The 1961/62 group profit is $5\frac{1}{2}$ % below the 1960/61 level, but is £200,000 higher than the figure of £17.5 million that was forecast during the I.C.I. takeover bid. At that time it was also estimated that group profits would rise to £23 million this year and £28.5 million for 1964/65.

No dividend is announced in the preliminary statement, but during the I.C.I. bid, the directors said this would total 2s 6d (2s).

Hickson and Welch

Hickson and Welch (Holdings) Ltd.. London, have declared an interim dividend on their ordinary shares of 8%less tax (same), payable 15 June, for the year ending 30 September.

Laporte Industries

Laporte Industries Ltd. have issued 31,580 Ordinary shares of 10s, each credited as fully paid, as part of the consideration for the acquisition of certain freehold and leasehold mining and other assets in Derbyshire adjacent to the property already owned by their subsidiary, Glebe Mines.

The balance of the consideration, amounting to ± 105.000 , has been paid in cash.

Matthew Hall

Matthew Hall and Co. Ltd. had records in both turnover and orders during 1961. Gross profit was £348,267 (ξ 388,544) and taxation took £200,602 (£200,761). Dividend recommended is 20° , and tax-free capital dividend 5% (both same). Although the 1962 order book is very substantial, many contracts are long-term, says Mr. Edwin Baden, chairman, Due to local difficulties they have decided to close their South African and Rhodesian branches.

Reckitt and Colman

A difficult year for Reckitt and Sons' chemical subsidiaries is reported by Mr. B. J. Upton, chairman of Reckitt and Colman Holdings Ltd. in his statement with the accounts for the year ended 31 December. However, the ultramarine factories of Reckitts (Colours) Ltd. worked to capacity and could have sold more had their output not been slightly and temporarily restricted by the planned reconstruction of the Hull works.

Royal Dutch/Shell

Sales and operating income of Royal Dutch/Shell for the first 1962 quarter was £721,949.000 (£662,050,000). Net income was £47,917,000 (£42,060,000). Capital spending was £74,200,000 (£83,100,000). Crude oil processed totalled 2,756,000 bbl./day (2.635,000 bbl./day).

Unilever

Operations and profit margins of Unilever Ltd. and Unilever N.V. in the first four months of 1962, were about 8%, and showed no material change from the trend visible last year.

African Explosives

Group profit for 1961 of African Explosives and Chemical Industries, owned jointly by I.C.I. (South Africa) and De Beers Industrial, was R6,754,000 (R7,263,000), after depreciation of R5,120,000 (R2,496,000) and tax of R2,691,000 (R2,392,000). Dividend of $12\frac{19}{20}$ (same) is proposed. Authorised capital is to be raised.

Larderello

Soc. Larderello of Italy recorded a 1961 net 'profit of 956.726,135 lire. During the year the company produced 27,000 tonnes of chemicals, or 29% up on 1960. Larderello started operations at the new Saline di Volterra plant utilising local rock salt for the production of chlorine, soda and derivatives. All the output of the new plant was sold. fetching about 600 million lire.

Magnesio S.p.A.

Net profit for 1961 of Soc. Italiana per il Magnesio e Leghe di Magnesio S.p.A. was 88,365,332 lire. Output at the Bolzano plants last year was 17% up on 1960.

Pricel

Pricel Participations Industrielles et Cellulosiques, formed some months ago from the former 'Celtex' concern, report net profit for 1961 of NF.3.990,000 and plan to pay a $7\frac{1}{2}$ % dividend on NF.50 million capital. Pricel are holding company for those Celtex activities—in the cellulose industry—not taken over last year by Rhône-Poulenc. A sum of NF.253.9 million for activities taken over was paid to former Celtex shareholders earlier this year.

Saint Gobain

Cie de Saint Gobain are to seek shareholder approval on 29 June for the issue by their Italian subsidiary of a lire 12,000 million debenture Ioan. A special meeting will be convened on 28 May to authorise the board to transfer all the company's chemical holdings to Societé Produits Chimiques Péchiney-Saint Gobain, the company set up in association with Péchiney to raise output to a level comparable with other large international companies in this sphere. to be revised

U.K. trade statistics

Market Reports

STEADY TRADING IN INDUSTRIALS

It has been decided that certain changes, to take effect from 1 January 1963, should be made in the commodity classification used for the U.K. overseas trade statistics. The present classification was introduced in 1954 and is based on the Standard International Trade Classification (S.I.T.C.). However, it was recommended by the Statistical Commission of the United Nations in May 1960, that countries compiling data according to the S.I.T.C. should when convenient substitute for it a revised classification. It is this substitution that the U.K. will be effecting next year.

The main consequences of the introduction of the revised classification will be an increase in the commodity detail available in the statistics together with some changes in content of a number of headings.

In the chemical section (Code No. 5), division headings will be as follows: 51 chemical elements and compounds, 52 mineral tar and crude chemicals from coal, petroleum and natural gas, 53 dyeing, tanning and colouring materials, 54 medicinal and pharmaceutical products, 55 essential oils and perfume materials, toilet, polishing and cleaning preparations, 56 manufactured fertilisers, 57 explosives and pyrotechnic products, 58 plastic materials, regenerated cellulose and artificial resins, 59 chemical materials and products n.e.s.

LONDON Steady trading conditions prevail in most sections of the chemicals market with the movement to the chief industrial outlets covering good volumes. Export trade remains competitive but the flow of inquiry for overseas destinations has kept up to recent levels. An active buying interest has been reported for hydrogen peroxide, borax and boric acid, and the routine soda products are moving well against contracts. There has been a steady call for basic slag and compound fertilisers. In the coal tar products market there has been no change in quoted prices. Crude and refined tar are in active demand and new business in other directions has been about maintained.

MANCHESTER With an odd exception, prices on the Manchester chemical market have been steady. Traders have been handling a fair number of inquiries from both home consumers and on shipping account and these have resulted in sizeable additions to order books. In the meantime, old contracts are being drawn against reasonably well on the whole in the alkalies, plasticising materials and industrial solvents, and other bread-and-butter lines. There is a quietly steady movement of most of the tar distillates. The demand for compound fertilisers has been somewhat less active than of late.

SCOTLAND Business has been active in most sections of industry during the past week. Demands against contracts have been very well maintained while those against current requirements continue steady with little variation in quantities. In regard to agricultural chemicals an improvement has been made; likewise the overseas market has been active both in enquiries and resultant business.

World review of pest control

The first edition of a new magazine, published by Fisons Pest Control Ltd. and called 'World review of pest control', contains articles on: 'The pros and cons of pests, pest control and pesticides'; 'Inhibitors of photosynthesis as herbicides'; 'Organophosphorus insecticides'; and on the University of Bristol Agricultural and Horticultural Research Station. A guide to new compounds is included as a supplement.

The new publication, which will be published quarterly, is aimed entirely at the scientific and technical worker in the crop protection field in the western world. The consultant editor is Dr. Hubert Martin.





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2 4-2½" Pumps and 1-1" pump on an experimental rig.



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Equipment news and trends

SLIGHT modification to the Levolog continuous level indicator enables it to be used with various types of electropneumatic converters to provide automatic level control. Working on the



Continuous level indicator

capacitance principle, the product is suitable for a wide range of liquid or freeflowing solid materials.

Thomas Industrial Automation Ltd., Station Buildings, Altrincham, Cheshire.

. . .

Automatic control of density of liquids and slurries in process has been improved by a new continuous density controller by which the liquids can be held within .001 specific deviation with standard controllers and closer with precision instrumentation. Density of any pumpable liquid can be measured, including corrosive chemicals and food products without them being affected by other physical properties of the liquid, such as suspended solids and viscosity.

Blaw Knox Chemical Engineering Co. Ltd., 20 Eastbourne Terrace, London W.2.

* * *

Two new gas chromatographs, one for operation at fixed temperatures up to 300° C, and the other for programmed temperature operation up to 350° C, both employ a flame ionisation detector. Designed for research and industry, the instruments (24 in $\times 15$ in. $\times 12$ in. high) have few controls but provide considerable flexibility in the range and length of columns that may be used and the range of sensitivity that may be selected. Also newly introduced are a

micro-injector for injecting samples up to 2*A* and a **peak catcher** for recording off-scale signals without changing sensitivity.

Marryat and Place Ltd., 40 Hatton Garden, London E.C.1.

* *

To complement a well-known straightway range of p.t.f.e. sleeved **taper plug** valves, three-way valves are now available in stainless steel, cast iron and Audcoloy, with either 'L' or 'T' ports in 1, 2 and 3-in. sizes suitable for a maximum working pressure of 150 p.s.i. at temperatures up to 120° C. The makers state they have recently introduced improved production techniques and reduced prices for their valves, some by as much as 50%.

Audco Ltd., Newport, Shropshire.

To meet a demand for containers giving an initial hermetic seal with a key-opening feature and subsequent reclosure, a range of **collar cans** has recently been completed by the addition of two further base sizes, $5\frac{1}{8}$ in. and 6 3/16 in. With alternative heights this gives a volumetric range of 25 to 250 cu. in. Many pharmaceutical and chemical products are among items suitable for packing in the cans.

The Metal Box Co. Ltd., 37 Baker Street, London W.1.

. . .

With a new Wavintite **coupler**, hard p.v.c. pipe, the manufacturers state, can now be jointed in seconds. It consists of a hard p.v.c. sleeve housing rot-proof rubber rings in recesses at each end, and in the centre is a raised register to stop the pipe going in too far. Sizes are 2 in. to 6 in. The same company have produced a new self-tapping ferrule which incorporates its own non-ferrous cutter and is for use with their new hard p.v.c. saddle.

Wavin Pipes Ltd., Abford House, Wilton Road, London S.W.1.

. .

Intended for fundamental, instructional and plant process work, a new bench scale reactor may be combined for continuous processing. Its small size facilitates university unit operation courses as it is ideal for the study of heat transfer to jacket vessels, gas absorption, correlations and combined processes and is demountable for cleaning and demonstration.

International Sales Associates, Elion Building, U.S. Route 130, Burlington, N.J., U.S.A.

* * *

The reversing feature of a new hydraulic rotor jet **tank cleaning unit** is stated to double its effectiveness. It is designed for a wide range of industrial applications, including petroleum and chemical plants. Operation is automatic and personnel need never enter the tank.

C.P. Equipment Ltd., Mill Green Road, Mitcham, Surrey (agents for Sellers Injector Corp., Philadelphia, U.S.A.)

. . .

Now on the market, the Verticone conditioner is described as a completely new method of adding liquids and powders to solids and to be suitable for all types of granular and powdered materials, including moisture and pressure sensitive ones. Industrial plant applications include chemicals, drugs, pharmaceuticals, fertilisers and rubber. It can be integrated into an automated process and into any part of a sequence of operation or can be supplied complete with feeding and pumping units.

Dust Suppression Ltd., Olding's Corner, Hatfield, Herts.

. . .

Ability to negotiate bends and curves in pipelines—cutting, done with scissors, is only necessary on acute bends and elbows—is a feature of a newly introduced **pipe insulation material** called Raplag. Constructed from foamed polyurethane sheeting with corrugations on one side running parallel to the run of pipe, it fits snugly when wrapped around the pipe. It is supplied in 12 ft. lengths.

Bell's Asbestos and Engineering Ltd., Bestobell Works, Slough, Bucks.

* *

Known as the Hydorit model HZV, a double column ion-exchange purifier being introduced on the British market produces up to 80 gal/hr of water to a specific resistivity of two million ohms. The unit is designed for industrial applications such as battery charging, electroplating and photographic processes, as well as in scientific institutions. laboratories and hospitals. It can be regenerated on the spot.

The H. G. Stevens Co. Ltd., 16 Coverdale Road, Willesden, London N.W.2.



Hydorit ion-exchange unit

824



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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. Opposi-tion 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.

AMENDED SPECIFICATIONS On sale 13 June

Oxygen-containing compounds from carbon wygen-containing compounds from carbon monoxide, hydrogen and olefins. Anglo-Iranian Oil Co. Ltd. and ors. 702 192 ellular plastic materials formed by reacting

Cellular polyurethane products with water. Du Pont de Nemours & Co., E. I. 790 527

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- Esters of Chlorinated benzyl alcohols and their in herbicidal compositions. Fisons Pest use 899 243 Control Ltd.
- Control Lta. 899 243 Synthetic fibres for blending with attral fibres. Du Pont de Nemours & Co., E. I. 899 263 Polymerisable vinyl-dioxolane compounds and their production. Du Pont de Nemours & Co., 899 065 F I
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- Triazine derivatives, the manufacture thereof, and pharmaceutical preparations Wellcome Foundation Ltd. thereof 899 404
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- 899 011 Manufacture of foamed polyurethane products
- Imperial Chemical Industries Ltd. 899 222 Process for the extraction and recovery of aromatic hydrocarbons from a liquid hydro-carbon mixture. Shell Internationale Re-
- 899 280, 899 281 search Maatschappij NV. 899 280, 899 281 Fertilisers. Imperial Chemical Industries 899 373 Process for the polymerisation of unsaturated
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- Naphthalene monoazo triazine dyestuffs. Imperial
- Chemical Industries Ltd. 899 376 Isomerisation of paraffin hydrocarbons. British Petroleum Co. Ltd., Haresnape, J. N., and By 378, 899 379
- White, P. T. 899 378, 899 379 Vinyl ester of 1,4,5,6,7,7-hexachlorbicyclo-(2,2,1)
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- Wacker-Chemie GmbH. 899 382 ammonium compounds. Farben Quaternary
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- d-2-phenyl-3-methyltetrahydro-1,4-oxazine and a Spofa, method of manufacturing same.
- Sdruzeni Podniku Pro Zdravotnickou Vyrobu. 899 386

- Production of steroid compounds. Laboratoires Francais de Chimiotherapie. 899 216 Aromatic aminohydroxyl compounds, their production and uses. Soc. Monsavon L'Oreal. 899 051
- Method of bleaching polyalkylene ethers. Och Domsjö AB. 899 388
- Production of expanded polyethylene. Expanded Rubber Co. Ltd. 899 389
- Therapeutically active organo arsenic compounds. Friedheim, E. A. H. 899 218 899 218 Separation of aromatic isomers. Union Oil Co
- of California. 899 314 Derivatives of phenoxazine and processes for production. Laboratoires Francais their de
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- lates and sweetening agents therefor. Du Pont
- active and sweetening agents interest. Du Point de Nemours & Co., E. I. 899 032 Bis-santhine compounds. Boehringer, E., Lie-brecht, I., Liebrecht, J., Mayer-List, W., Boehringer, W. D., and Boehringer, H. A. [trading as Boehringer, Sohn E. N.]. 899 207
- Production of organosilicon polymers. Gold-schmidt AG, Th. 899 148 899 148 Production of alkali metal cyanides. Du Pont
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- is stable when exposed to moist air, and the use of same for producing dense compacts. Deutsche Edelstahlwerke AG. 899 398
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- Maatschappij NV. 899 400 Process for the production of tropolone. Shell Internationale Research Maatschappij NV.
- 899 370 N.N1-tetrasubstituted 3-amino-2-azaprop-2-en-1-
- ylidene ammonium halides. Farbenfabriken Bayer AG. 899 060 Resolving optically active a-phenoxy
- alkanoic acids. Pfizer & Co. Inc., Chas. 899 023 Substituted maleimidomethyl-phenol. United
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Polysiloxane stabilisation. Dow Corning Cor poration. 899 152 Estratrienes, Searle & Co., G. D 899 026

- Process for working up solutions of highly poly-meric hydrocarbons. Chemische Werke Hüls Hüls 899 154 AG.
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- form olefin polymer. Phillips Petroleum Co. 899 156
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- Polymeric products. Rohm & Haas GmbH. 899 347
- Steroid compounds and processes for their preparation. Laboratoires Francais de Chimio therapie. [Divided out of 899 216.] 899 217



- MONDAY 21 MAY Inst. of Metal Finishing—London: Northampton Col. of Tech., St. John St., E.C.I, 6.15 p.m. 'The electro-deposition of the less common metals' by I. A. Menzies.
- UESDAY 22 MAY
- S. Instr. Tech.-London: Manson Hs., 26, Portland Pl., W.1, 6 p.m. A.g.m.

- WEDNESDAY 23 MAY S.C.I.—London: 14. Belgrave Sq., S.W.I. A.g.m. & 'The role of the consulting chemist in the food industry' by Dr. D. W. Kent-Jones.
- FHURSDAY 24 MAY F.S.—Aberdeen: Visit to the Macaulay Inst. for Soil Research, Craigiebuckler.

FRIDAY 25 MAY R.I.C.—Swansea: Col. of Further Education, Gorseinon, 7 p.m. A.g.m.

SATURDAY 26 MAY

R.I.C.-POTSMOUTH: Col. of Tech., 2.30 p.m. A.g.m., S.Instr. Tech.-Visit to C.E.G.B. 1000 Megawatt. Power Station, High Marnham, Nr. Tuxford, Notts., 10 a.m.

New Geon p.v.c. dispersion resins

Two additional dispersion resins for easy processing-Geon 111 E and Geon 115-have been added to British Geon's range of p.v.c. resins. The first is a high molecular weight resin with the porosity of the resin particles carefully controlled to give a rapid rate of plasticiser absorption. This allows for very rapid processing when using internal mixers.

Geon 115 has a low molecular weight and has been especially processed for use in unplasticised compounds. It is intended for injection moulding and sheet extrusion applications. Details of both are available from the Information Department, British Geon Ltd., Devonshire House, Piccadilly, London W.1. To avoid confusion with the new Geon 111 E, the resin previously known as Geon 111 will henceforth be designated Geon 112.

International Rubber Exhibition

A second International Rubber Exhibition is to be held at Church House, Westminster from 22-25 May, in con-junction with the 4th Rubber Technology Conference organised by the Institution of the Rubber Industry.

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TRADE NOTES

New silicone rubber

DP2482, a new, tougher grade of silicone rubber has been introduced by Midland Silicones Ltd., 68 Knightsbridge, London S.W.I. It is said to have higher mechanical strength than previous silicone rubbers, coupled with an extremely low brittle point and excellent electrical properties. It is intended for general moulding and extrusion work where a silicone rubber with improved physical properties is required.

New I.C.I. pigment

A new phthalocyanine pigment that gives bright bluish-green shades—Monastral Fast Green GBS Powder—is available from I.C.I. Dyestuffs Division.

Thermometers

A revised publication T/40/3 dealing with their mersteel (mercury in steel) thermometers is available from Negretti and Zambra Ltd., 122 Regent Street, London W.1.

These instruments are constructed on the mercury expansion principle ensuring accuracy and reliability. Another illustrated booklet T/50/2 deals with their glass thermometers.

Permanent lubrication

Built-in permanent lubrication of injection moulded parts for sleeve and



Corrosion inhibitor

Use in media other than anti-freeze of their benzoate-based corrosion inhibitor Sobenite is described in a booklet available from W. J. Bush and Co. Ltd., Ash Grove, Hackney, London E.8.

Baker chemicals

Further supplies of catalogue No. 620 of the J. T. Baker Chemical Co., which lists their analysed reagent and other laboratory chemicals, including 66 new specialities, with export prices, are available from their U.K. agents, Omni (G.B.) Ltd., 35 Dover Street, W.I.

Moisture meters

Details of their range of over 60 hydrometers for solids, liquids and gases

are given in a colour leaflet recently issued by Shaw Moisture Meters, Rawson Road, Bradford, Yorkshire.

Weighing machines

Claim that they have a machine for weighing material at every stage of manufacture is made in the latest leaflet catalogue of Richard Simon and Sons Ltd., Phoenix Works, Basford, Nottingham. They have specialised in drying plans and automatic weighing machinery for over 50 years and have supplied units, and also complete installations, to chemical concerns throughout the world.

Rust preventive

Known as G.P.2587, a quick-drying rust preventive recently introduced by Croda Ltd., Cowick Hall, Snaith, Goole, Yorks, is designed to remove water from articles such as machined parts and to act as a protective coating. It is made of plasticised bituminous materials, dewatering agents, drying oils and metallic soaps dissolved in quick-drying solvents.

Pigments for polythene

Pigments for colouring polythene are now being produced in 'master batches' by Loudwater Chemicals, 60-66 Wardour Street, London W.1, so that risk of error in preparing the plastics material for moulding or extruding is greatly reduced. The company say the pigments are freeflowing powders that do not stain the equipment in which mixing takes place and considerably simplify weighing out.



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