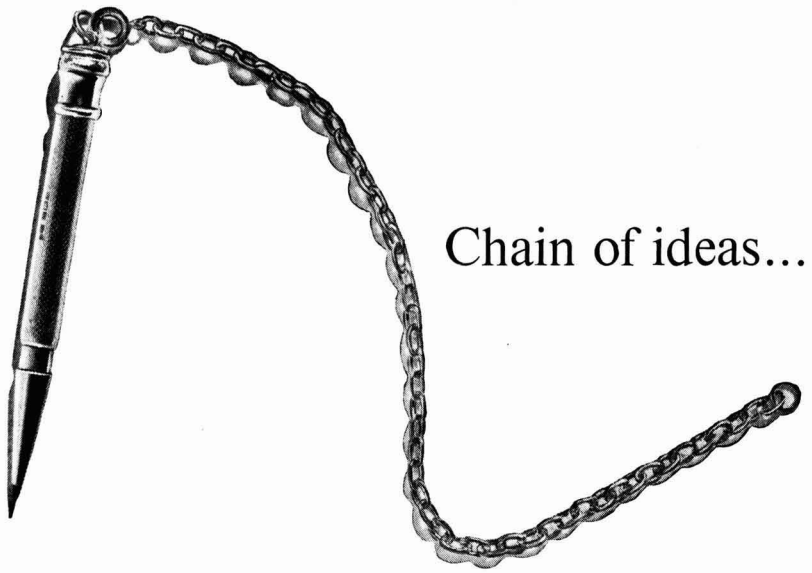
Chemical Age

incorporating
PETROCHEMICALS and POLYMERS

24 March 1962. Vol. 87. No. 2228

THE WEEKLY NEWSPAPER OF THE CHEMICAL INDUSTRY



Chain of ideas...

A host of chemical 'ideas' spring from the versatility of propylene oxide. Shell Chemicals — the first UK producers of propylene oxide — use it to make propylene glycols, isopropanolamines, polypropylene glycols and a great number of other useful derivatives.

If you are interested in propylene oxide as a basic raw material, it is readily available from Shell Chemicals to a high degree of purity and of consistent quality — in drums or in bulk. Write for technical literature.

from Shell

Propylene Oxide

truly versatile

Shell Chemicals SHELL

SHELL CHEMICAL COMPANY LIMITED Marlborough House, 15-17 Gt. Marlborough Street, London W.1

GC/6 Regional Offices at London, Birmingham, Manchester, Glasgow, Belfast and Dublin.

INDEX TO ADVERTISERS

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

(Continued on page 466)

INDEX TO ADVERTISERS

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

VOL. 87 No. 2228
MARCH 24 1962

Telephone: FLEet Street 3212 (26 lines)
Telegrams: Benformula - London E.C.4

BOUVERIE HOUSE · 154 FLEET STREET · LONDON · EC4

ONE OF THE BENN GROUP

Chairman
Glanvill Benn

Director of 'Chemical Age'
N. B. Livingstone Wallace, D.S.C.

Editor
M. C. Hyde

Manager
R. C. Bennett

Assistant Editor
C. E. Davis

Technical Editor
Shirley Mann

Pesticides & Fertilisers
V. A. J. Wakely
Editor, Commercial Grower

Leather Chemicals
Edwin Haydon
Editor, Leather Trades Review

Gas By-products
J. L. Eades
Editor, Gas World

Fire Prevention
C. R. Elliott
Editor, Fire Protection Review

Europe & Common Market
Philip J. Halls
Editor, British Trade Journal & Export World

Printing Inks & Dyes
D. G. Muggleton
Editor, Sales & Wants Advertiser

Annual subscription is: home, 57s 6d, overseas, 65s, single copies 1s 9d (by post 2s)

C

CAPROLACTAM HOLD-UP

PLANS for the production of caprolactam in the U.K., announced practically simultaneously by Courtaulds and I.C.I. in June of last year (see CHEMICAL AGE, 10 June 1961, p. 924), have met with, at the best, a temporary setback. I.C.I. have announced that they are "for the time being" deferring their plans for the 15,000-ton caprolactam plant which was to have been built on the Severnside site, and that the fate of the nylon-6 polymer plant is still under consideration.

I.C.I. have been buying nylon-6 from Emser Werke A.G. (and will continue to do so) and selling it in the U.K. with a view to the active development of the U.K. market to the point which would support the erection of a caprolactam plant based on the Inventa process. It appears that the U.K. market for nylon-6 both in fibres and plastics has been developing more slowly than was expected. Another factor influencing I.C.I.'s decision was the substantial increase in caprolactam capacity of Emser Werke in Switzerland.

Courtaulds have made no official comment on the I.C.I. decision and it is not known if they still plan to go ahead with the construction of a caprolactam plant, but, unlike I.C.I., they have never announced the site of the proposed plant. It is likely that Courtaulds too are waiting to see how the U.K. market develops. They may also wish to see the outcome of the operation of the Snia Viscosa caprolactam plant, which came on stream three months ago with a capacity of 10,000 tonnes; an expansion to 20,000 tonnes is foreseen. It was at the time that their commercial plant came on stream, that Snia Viscosa introduced their own brand of nylon-6 fibre, Lilion, to the U.K. market. Like I.C.I., Courtaulds would not be lacking a source of caprolactam if they decided to continue with their plans for a nylon-6 plant.

British Enkalon, whose plans do not so far include a caprolactam plant, are still going ahead with the construction of the polymer plant in Northern Ireland. The first stage, with a capacity of 4½ million lb. of nylon a year, is scheduled for completion in 1963. British Enkalon will presumably obtain their monomer from A.K.U., who have a 54% holding in the company. It is reported that the capacity of A.K.U.'s caprolactam plant is being expanded from 6,000 tons a year to 30,000 tons.

It is clear, among all the confusion on caprolactam and nylon-6, that the plans of continental producers to boost monomer capacity have made both I.C.I. and Courtaulds have second thoughts about their projects. British Enkalon are definitely going ahead with their polymer plant and, possibly in view of this, I.C.I. are still considering their own nylon-6 plans.

Because of all that has been said about the U.K. man-made fibres industry in the past few months, it would be ridiculous if three new nylon-6 plants were to be built in the U.K. With their existing nylon-66 link, I.C.I. and Courtaulds could not afford to be without their own nylon-6 facility. This could well herald the restart of discussions between the two companies on ways of strengthening the U.K. man-made fibre industry. Although another joint nylon venture might not be as desirable as complete integration, it would avoid the more serious problem of overcapacity.

Unions agree to chemical industry wages increase

THE general workers unions have accepted the proposals of I.C.I. for a pay increase of over 3% to 50,000 men backdated to 5 March. Similar increases, which were also accepted, were offered to 12,000 I.C.I. craftsmen and semi-skilled workers (see CHEMICAL AGE, 10 March, page 396). The two claims will cost I.C.I. nearly £1 million.

All the general workers will get an increase of 1½d an hour and some will get further substantial increases since the company has also agreed to consolidate 5% of the bonus earnings in the basic rate. The result is that the small number of men receiving no bonus at all will get an overall increase of 8%, whereas some of the higher paid workers will receive the flat 3% increase. The average increase for all the general workers is between 3 and 4%. The 1½d an hour will be paid from 5 March and the consolidated bonus payments from the first week after acceptance.

The craftsmen are to receive 2½d an hour more, also from 5 March.

I.C.I. have offered to discuss wages structure with the unions again in the autumn.

The I.C.I. settlement almost certainly influenced the discussion which took place the following day at a meeting of the Joint Industrial Council for the Chemical and Allied Industries. The employers made their promised backdated pay offer to 60,000 manual workers of the heavy chemical, plastics and fertiliser industries. The offer of about 3½% more in basic rate, representing 1½d an hour for men and 1½d an hour for women, was backdated to 1 March. The unions will reply by 27 March, after a branch vote has been taken. It was also agreed at the meeting that a sub-committee should look into ways and means of increasing the new basic rate by 5% as soon as possible by transferring the men's bonus earnings.

The offer to heavy chemical workers came after prolonged negotiations. The employers insisted that there was no money available for pay increases, but eventually agreed about seven weeks ago to make an offer operative from 1 March, a month before the end of the pay pause.

Workers in the rubber industry will also receive increases. Minimum wages will be increased by more than 11% after 25 March, under an agreement to revise the industries pay structure. Workers receiving more than the minimum rate will have proportionally smaller increases.

The only outstanding pay claim in the chemical industry is that of 25,000 manual workers in the drug and fine chemicals industry.

Dow Unquinesa to use Du Pont low-density polythene process in Spain

AN exclusive licence for use of the Du Pont low density polythene process in Spain has been granted to Dow Unquinesa S.A., jointly owned by Dow Chemical International and Union Quimica del Norte de Espana. Dow Unquinesa also hold from Studienhesellschaft, an exclusive licence for the use in Spain of the Ziegler high-density polythene process.

The Spanish company is now prepared to start construction of the polythene plants at their new petrochemical complex at Somorrostro, near Bilbao. It is stated that capacity will be enough to supply the total anticipated needs of the country for several years.

The President of Dow Unquinesa last year gave the following planned capacity figures: 10,000 tonnes of l.d. polythene, 6,000 tonnes of h.d. polythene, 8,000 tonnes of polypropylene, and 12,000 tonnes of styrene monomer.

Mr. C. B. Branch, president of Dow International, states that in addition to the polythene units, an important contribution will be made by Dow-developed technology for Dow-Unquinesa will receive full support of the plastics development and marketing organisations of Dow, who are major producers of polythene in the U.S.

The Spanish company already produces urea, phenolic and styrene based plastics at its present Axpe site. At present a major expansion of their polystyrene facilities is in hand to make use of Dow's latest process for the manufacture of Styron 475 high-impact polystyrene.

Rise in sales of synthetic detergents

Sales of synthetic detergents in the U.K. last year, excluding wetters, disinfectants, spreaders and emulsifiers, abrasives and scouring preparations containing syndets, averaged 79,300 tons a quarter, compared with 78,200 tons in 1960. U.K. production of soap in 1961 averaged 8,320 tons a week, compared with the 1960 average of 8,460 tons.

Cyanamid Jefferson hold product talks in London

PRODUCT discussions have been held in London between Cyanamid of Great Britain Ltd. and the Jefferson Chemical Co., jointly owned by American Cyanamid and Texaco. A number of Jefferson Chemical's products, including morpholine and piperazine, are being sold and distributed in the U.K. by Britain's Cyanamid's General Chemicals Division.

The addition of Jefferson Chemical products has further increased the range of Cyanamid specialist chemicals supplied to industry and possible developments in this range have been under discussion with Mr. Ernst Kuehn, Jefferson's European representative.

Other Jefferson products handled by Cyanamid of Great Britain include piperazine anhydrous 99%, ethylene and propylene glycols, ethanolamines, morpholines, polyethylene glycols, urethane chemicals ethylene and propylene carbonate, and Surfonic surfactants.

Output usage of synthetic rubber rises

PRODUCTION of synthetic rubber in 1961 averaged 8,800 tons a month, or 105,000 tons in the year, compared with 7,500 tons/month or 80,000 tons in 1960. The following is an extract of Board of Trade statistics:

	Production		*Consumption**	
	1960	1961	1960	1961
Synthetic	7.5	8.8	9.3	9.7
Tyres, etc. ...	—	—	6.1	6.2
Other	—	—	3.2	3.5
Reclaimed ...	3.8	3.9	3.0	2.8
Natural	—	—	15.0	13.9
Tyres, etc. ...	—	—	6.9	6.5
Other	—	—	8.1	7.4
Carbon black† ...	12.0	11.2	—	—

*Figures for synthetic and natural rubber include latacies

†Excluding acetylene and bone black.

Power-Gas hold world rights in Krystal process

LICENSEES of the Krystal, Oslo and Jeremiassen process of crystallisation for the British Commonwealth, Europe and other parts of the world for nearly 20 years, the Power-Gas Corporation Ltd., Stockton-on-Tees (a member of the Davy-Ashmore Group) have now revealed that in 1960, as an extension of this arrangement, they acquired from A/S Krystal of Oslo, Norway, all that company's rights in the process. It is intended to perpetuate the use of the trade mark Krystal in the future marketing of this particular design of plant.

Evans Medical drugs for Iraq

A CONTRACT worth £105,000 has been awarded to Evans Medical Ltd. by the Government of Iraq. This contract, which was won in the face of the world wide competition, is for tablets, injections and other pharmaceuticals. About half the total consignment will be delivered in four months and the balance within eight months. Most of the bulk goods will be shipped from Liverpool but many of the more urgent items will be sent by air freight.

Project News

REGENT TO GO AHEAD WITH £30 M. REFINERY AT MILFORD HAVEN

SUCCESSFUL completion of negotiations with the Government for the setting up of a £30 million refinery at Milford Haven has been announced by **Regent Refining Co.**—wholly owned U.K. subsidiary of Texaco, U.S. As reported in CHEMICAL AGE, 13 January, page 93, the capacity of the refinery will be between 80,000 and 100,000 bbl./day, the products, including petrol, distillate fuel oils and heavy fuel oils, to be supplied mainly to the Regent Oil Co., jointly owned by Texaco and Caltex—the latter firm itself being jointly owned by Texaco and Standard Oil Co., of California.

The site chosen for the refinery is at Pwllchrochan, near Pembroke, and just across the water from the Esso refinery at Milford Haven. B.P. also have a terminal at Angle, near the mouth of the estuary and when the new Regent refinery is in operation Milford Haven will become the largest oil port in Europe.

An Admiralty objection to the siting of the refinery, believed to be based on the close proximity of a mines supply depot for the Royal Navy, has been resolved. Regent Refining will now proceed with normal applications for approval to local planning authorities and with the submission of a private act to Parliament. Construction work is expected to start as soon as all the necessary approvals have been obtained. No contractors have so far been named and it is understood that tenders have not yet been called for, but it is hoped that work can begin later this year and that the project will be completed in about 18 months. The site covers some 1,000 acres.

Distillers' Indian yeast factory in production

● THE Rs.300 million factory of Distillers at Bhadrakali near Calcutta is now in full production. The factory, which is the first yeast production unit in India, has an initial capacity of 800 tons a year.

Polyester plant for U.C.C.

● IMMINENT completion of new plant for the manufacture of Orkast polyester resins by **United Coke and Chemicals Co. Ltd.** is referred to in the annual review of the United Steel Companies Ltd. The new plant will double present production capacity. The company reports increasing interest in polyester resin reinforced with glass fibre as a structural and engineering material as well as in its better known applications such as motor cars, boats, caravans and scooters.

U.C.C. also report that work on the erection of new coke oven batteries and associated chemical plant which should have come into production this year at Brookhouse and in 1963 at Orgreave has been temporarily suspended.

It has previously been reported that U.C.C. have a new process for manufacturing a highly efficient catalyst for use in phthalic anhydride manufacture; U.C.C. report that a considerable tonnage of catalyst has been exported to Germany and the U.S.

H_2S removal plant for N.W.G.B.

● ORDER for a Stretford H_2S removal plant for the Higginshaw Works of the **North Western Gas Board** has been received by **R. and J. Dempster Ltd.,** Manchester. The plant is designed to remove hydrogen sulphide from 11 million cu. ft. of town gas per day and to produce a saleable sulphur.

Dempster expect to commission the first Stretford plant operating on refinery gas at 8 atm. in Antwerp, and a third plant operating on reformed gas at the Norwich Works of the Eastern Gas Board, in the near future.

Equipment contracts

Graphite heat exchangers for petrochemical processes

● A GRAPHITE high-pressure cubic heat exchanger of 50 sq. ft. heat transfer area, designed and manufactured by **Powell Duffryn Carbon Products Ltd.,** has been supplied to **Esso AG** at Cologne and another to the **Standard Vacuum Oil Co.,** Altona, Melbourne. In both cases the heat exchangers are high pressure on the service and process sides and are used as heaters and coolers. A similar unit has also been supplied to the Heavy Organic Chemicals Division of I.C.I. at Billingham for use in a multi-purpose pilot plant.

Heat exchangers of this new design are claimed to be especially suitable for handling materials of a highly corrosive nature, as for instance in the production of synthetic rubber, where isobutylene is converted to the dimer by reaction with 65% sulphuric acid. This process is worked at pressures of 250 p.s.i.

I.C.I. evaporator order for Mirrlees Watson

● ORDER for a quadruple effect evaporator, valued at over £170,000 has been received from **I.C.I.** by the **Mirrlees Watson Co. Ltd., Glasgow.** No details are released as to the intended location of the unit or of the duty to be performed.

Orders for vacuum flash evaporators

● ORDER for a 1.32 million gall./day evaporator to provide boiler feed water for its refinery on Curacao has been awarded by **Shell International Petroleum Co.** to **Richardsons, Westgarth.**

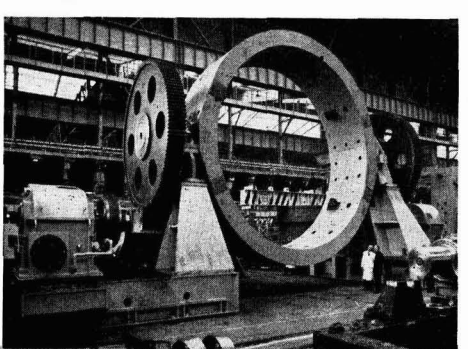
An agreement has been made with N.V. Machinefabriek 'Breda' Voorheen Backer en Rueb to make evaporators to Richardsons Westgarth design. As a result Bataafse Internationale Petroleum Maatschappij N.V. have placed an order with Machinefabriek 'Breda' for a 635,000 gallon a day industrial vacuum flash evaporator for the Shell Nederland Raffinaderij N.V. at Pernis, Holland.

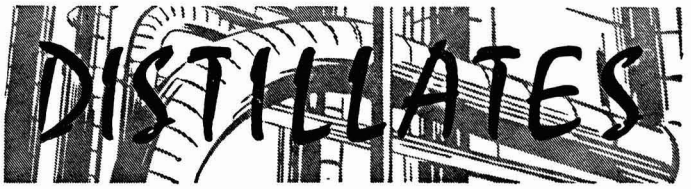
Albright acquire electro-polishing process

WORLD patent rights for the Electropol process for the electrolytic polishing and machining of stainless steel have been acquired by Albright and Wilson (Mfg.) Ltd. by the purchase of the shares of Electropol Processing Ltd., who brought the process into commercial production at their Farnham works some years ago, and who still hold the sole jobbing licence in the U.K. Electropol Processing will remain a separate company. Licences have been granted for the operation of the Electropol processes in some overseas countries.

Oxygen steelmaking plant for Australia

Massive scale of modern oxygen steelmaking plant is illustrated by this trunnion ring, tilting gear and drive box assembly for a 200-tons capacity oxygen converter furnace—one of two which Davy Ashmore are building for the Newcastle works in New South Wales of the Broken Hill Proprietary Co. Ltd. Into the trunnion ring will be fitted the converter vessel, which will weigh 143 tons





DISCLOSURES of Mr. Roy Jenkins, the Labour M.P. for Stetchford, in last Sunday's *Observer* will, I am sure, have been read with interest by most of my readers. It is not every Sunday that one can learn what was said by directors at their board meetings and how those directors voted on particular issues—provided of course that Mr. Jenkins was right.

I was also interested to read last week what Mr. Patrick Sergeant, the *Daily Mail's* City editor had to say, for it was Mr. Sergeant who first let the cat out of the bag last December. Mr. S. P. Chambers left him with the impression that it would not be long before I.C.I. would seek seats on the Courtaulds board. "It is at this point that they could collide with the Courtaulds' directors, who do not want I.C.I. to know their business that intimately."

The Times, which has been one of I.C.I.'s most bitter opponents in the bid, says "Eventually I.C.I. will have to be represented on the Courtaulds board" to achieve the co-operation between the two groups that must surely come. The City editor of *The Times* adds, "It now looks more like a question of tact and diplomacy to heal the breach and get together."

The Financial Times in a leading article said, "Because co-operation can mean such different things to the two companies it is hard to see how fruitful relations in the long-term can really be worked out. What will be the position, for example, of I.C.I. when it comes to the matter of nominating directors to the Courtaulds board?"

Two of *The F.T.* readers last week thought that Courtaulds' stockholders should be eternally grateful to I.C.I. Mr. J. J. Fargher suggests that Courtaulds should co-opt on their board someone of proved financial ability, perhaps Mr. Paul Chambers himself.

Mr. H. A. H. Crowther says that a picture has been created of a mild, benevolent, Courtaulds-Hanbury-Williams figure on the one hand and a "red in tooth and claw" I.C.I.-Chambers figure on the other. This he believes does I.C.I. an injustice and that I.C.I. should be seen as a figure with a first-rate record of good staff relations, a well-integrated management and its spokesman, Mr. Chambers, a man who sees any situation stripped of self-deception and who speaks and acts in the light of what he clearly sees to be the truth. As an example, he quotes Mr. Chambers' plea at the annual dinner of the Farmers' Club for an end to the present system of subsidies and grants.

Mr. Crowther added "I believe that in retrospect it will be seen that Mr. Chambers was unquestionably correct in his thinking and that united development and production of man-made fibres would make us far better equipped for entry into the Common Market."

HAVING played a prominent part in agricultural chemicals for many years, Dr. W. E. Ripper has, as recently stated in this journal, resigned as managdirector of Dow Chemicals Ltd. He took this step to free himself so that he can start work on a new project with agricultural chemicals and a new principle of their application to agriculture in the U.K. in the world.

Dr. Ripper, who founded Pest Control Ltd., in 1939, now an important part of the Fisons group, also founded Dow Agrochemicals Ltd., in 1958, in partnership with Dow Chemical of the U.S. in order to manufacture the grass weedkiller Dowpon. The Dow plant at King's Lynn, Norfolk, was opened by the Duke of Edinburgh in November 1960. The company's plants at North Lynn are now in capacity production, largely because the company has recently much increased its exports. Dr. Ripper sold his important interest in Dow Chemicals to the parent company in March 1960.

With extensive farming interests in East Anglia, Dr. Ripper lives at the Manor House, Docking, near King's Lynn, where he farms some 2,000 acres.

WITH a chemical industry that has grown 14% per year for the past 10 years and shows no sign of slowing up—output, worth $8,400 million last year, is aimed at $28,000 million by 1970—the Soviet Union is no mean performer in the industrial race. Some disquieting facts about the comparative performance of the U.S. and the U.S.S.R. as industrial developers were reported by Dr. Raymond Ewell, vice-chancellor for research at the University of Buffalo, U.S., at the Chemical Industry Association presidents' luncheon in New York recently. Dr. Ewell points out that in 1961, the national economy of the Soviet Union was 60% that of the U.S., whereas 10 years ago it was only 30%. By 1970, the Soviet will be able to muster about 75-80% of the economic strength of the U.S.

Backing the Soviet efforts are the best natural resources of any nation, coupled with adequate supplies of brainpower—190,000 Soviet engineers and scientists were graduated in 1960-61 against 90,000 in the U.S. On the debit side, the U.S.S.R. is being hampered by the Soviet-Chinese discord and by the disappointing agricultural results. Also, Dr. Ewell thinks the European Common Market may come out as a strong ally of U.S. economic power.

Dr. Ewell, who has had a varied career as a research chemist, chemical economist, and in several governmental and educational positions, bases his remarks on the U.S.-Soviet economic struggle on his first-hand observations of Soviet industry.

IN these days when so many industrial firms are trying to increase productivity and efficiency without upsetting workers, the successful ideas used by Esso at their Fawley refinery and chemical complex are inspiring. Apart from the ingenious new wages structure in operation there (see C.A., 3 March, page 534), both management and employees benefit from the Fawley suggestion scheme which last year led to 6,773 ideas being submitted. Some 1391 awards were made, totalling £10,043.

Latest whopper award of £1,400 to a process leader is reported on page 477. Awards presented to 37 other employees on the same occasion included one of £645, another of £336, a third of £266, and totalled £3,217.

MONTECATINI, whose sales in 1961 totalled 194,072 million lire, compared with 167,095 million lire in 1960, this week expect the arrival of the tanker *Agostino Farsio* from the Persian Gulf with the first load of crude oil for the new petrochemical complex at Brindisi. First of the 23 plants here will come on stream in April.

Using some 2 million tonnes of crude a year, Montecatini will produce polypropylene, polythene, elastomers, raw materials for synthetic fibres, aldehydes, alcohols, organic solvents to a total of 700,000 tonnes/year. Some 6,500 men are working on the site and when the plants are in full production, there will be a work force of 2,500.

For readers interested in less vital statistics, my Italian correspondent tells me that the site fencing stretches for 10 km., that there are 50 km. of roads, 25 km. of rail tracks, and that the site occupies an area of 600 hectares, or four times more than the town of Brindisi.

A much smaller but important new Montecatini plant will come on stream at Follonica later this year with capacity for 600,000 tonnes of concentrated sulphuric acid, using pyrites mined in Maremma.

Alembic

Laporte reorganisation involves Yorkshire chemical companies and Derbyshire mineral interests

REORGANISATION of Laporte Industries Group chemical interests in Yorkshire under Laporte Acids Ltd. and of their mineral interests in Derbyshire under Glebe Mines Ltd. will come into effect on 1 April.

Laporte Acids will absorb the other two Yorkshire Manufacturing companies —James Wilkinson and Son Ltd. and the Sheffield Chemical Co. Ltd. Both these companies have works at Sheffield and Rotherham and both became wholly-owned subsidiaries of Laborte Industries Ltd. in 1959.

C. B. Bolland, chairman of the Yorkshire manufacturing companies and the Derbyshire mineral companies of the Laporte Group

Wilkinson's specialise in the production of aqueous hydrofluoric acid and inorganic fluorine compounds, and early last year brought on stream new plant at Sheffield to produce "substantial tonnages". Main products of Sheffield Chemical are ammonia, gas purifying materials and sulphuric acid.

Steps towards this integration have been proceeding for some time and last October, the sale offices and administration of the three companies were centralised at Eastgate House, Leeds. From 1 April, their products will be sold under the name of Laporte Acids Ltd.

From the same date, Glebe Mines Ltd. and the Cupola Mining and Milling Co. Ltd., Laporte Industries' two Derbyshire mineral companies, will be amalgamated under the name of Glebe Mines Ltd.

This company became a wholly-owned subsidiary of Laporte Industries in 1959 and Cupola, formerly a subsidiary of Head Wrightson and Co. Ltd., joined the Laporte Group in 1960. During 1961 these two plants were responsible for three-quarters of the U.K. production of high-grade fluorspar.

The Glebe mine at Eyam has been considerably enlarged during the past 25 years and there are now seven miles of underground workings. In the same period an advanced froth flotation plant has been developed for the separation of galena, barytes and fluorspar from the ore, to a high degree of purity.

At the nearby Cupola site at Stoney Middleton, the plant is being extended and modernised on the lines of the Glebe plant, but complementary to it. On completion of the project later this year the two plants, operating together, will provide an advanced mineral treatment facility with an annual production capacity of 40,000 tons of high-grade fluorspar, 18,000 tons of barytes and 2,000 tons of galena.

Worker's idea wins £1,400 at Fawley

THE sum of £1,400 has been awarded to a 52-year-old process leader, Ted Lamb, at the Esso refinery, Fawley, under the refinery's suggestion scheme. His suggestion was for a technical improvement that enabled the dewaxing plant—part of the refinery's lubricating oil facilities—to be operated at a higher rate of efficiency.

Mr. Lamb, who has worked at the refinery since 1946, has received 14 suggestion scheme awards. A cheque for £1,400 for the latest suggestion was presented to him by Mr. D. C. Dewdney, director, at a recent ceremony.

Prof. Raphael among new R.S. Fellows

LEADING figures in fields of chemistry and related sciences are among those just honoured by election as Fellows of the Royal Society, London. Distinguished for his work on the synthesis of natural substances is **Professor R. A. Raphael,** Regius Professor of Chemistry in the University of Glasgow since 1957. I.C.I. Research Fellow, University of London, in 1946-49, he was Lecturer in Organic Chemistry, University of Glasgow, in 1949-54 and Professor of Organic Chemistry, Queen's University, Belfast, in 1954-57. In 1948 he was Meldola Medallist, Royal Institute of Chemistry. He is the author of several publications as well as papers in the Journal of the Chemical Society.

Also honoured are **Dr. W. G. Schneider,** Principal Research Officer, Division of Pure Chemistry, National Research Council of Canada, Ottawa, noted for his studies of intermolecular forces and for his work on nuclear magnetic resonance, and **Dr. L. E. Orgel,** Assistant Director of Research in Theoretical Chemistry in the University of Cambridge, outstanding for his application of molecular orbital theory to the structure of complexions and to the nature of the bonding involved.

Other Fellows include **Sir William Cook,** Member for Reactors, United Kingdom Atomic Energy Authority, who has made major contributions to the application of science in the development of atomic power; **Dr. H. K. F. Blaschko,** Senior Research Officer, Department of Pharmacology in the University of Oxford, noted for his work on the occurrence and metabolism of catechol amines.

Oleum fires sacks at Lancs chemical works

OLEUM leaking from a drum caused a fire at the Halebank, Lancs., chemical works of Ward, Blenkinsop and Co. Ltd. on Tuesday. The acid dripped on to some sacking, which was ignited, filling that particular section of the factory with choking fumes. Firemen and works firefighters wearing breathing apparatus tackled the fire and quickly extinguished it, averting the danger of explosion.

U.K. penicillin production

Production of penicillin in 1961 averaged 5,137,000 mega units a week, nearly 40% up on the 1960 average of 3,718,000 mega units.

At the I.Chem.E. Manchester dinner

L. to r. at the annual dinner of the North Western Branch, Institution of Chemical Engineers: A. D. Wilson (chairman of Joseph Crosfield and Sons and new branch chairman); Dr. J. Avery (chairman, I.C.I. Dyestuffs Division); Mrs. Avery; Dr. J. Brennan (general secretary, I.Chem.E.); E. S. Sellers (vice-president, I.Chem.E.); Professor Frank Morton (acting branch chairman)

In Parliament

Cheaper ammonium sulphate if Eire was U.K. agent, says peer

PRICES charged for U.K.-produced ammonium sulphate in Eire came in for discussion in the House of Lords when Lord Stonham asked the Government whether they were aware that I.C.I. were selling ammonium sulphate in Eire at £12 10s/ton (c.i.f.) compared with the price of over £18/ton charged to U.K. farmers. He asked whether, having regard to I.C.I.'s near-monopoly position in that material, the Government were satisfied that the price of £18/ton did not include an unreasonably high profit.

The Parliamentary Secretary to the Ministry of Agriculture, Earl Waldegrave, replied that the Government were aware that ammonium sulphate from the U.K. had been offered to Irish importers at the price mentioned, for compounding. He understood that the price to the Irish farmer was substantially more than that figure. Today's price of sulphate to the British farmer was £20 7s 6d, 6-ton lots, carriage paid buyer's station. The prices which were charged in export markets for small quantities of sulphate could not validly be compared with home market prices. In those marginal sales in export markets it was often necessary for British exporters to charge a price lower than the home market price if they were to obtain the business in competition with suppliers in other countries who were themselves often exporting at a price below their domestic price.

Monopolies Commission's report

Earl Waldegrave went on to recall that in its Report on the Supply of Chemical Fertilisers, published in July, 1959, the Monopolies Commission found that I.C.I.'s profits on the sale of ammonium sulphate in the home market were not unreasonable, and indeed, that I.C.I. in the development and conduct of its fertiliser business had shown a conscious regard for the public interest. Since the last year considered by the Monopolies Commission (1956-57) the price to farmers in the U.K. had fallen by between 14s 6d and £1 2s 6d/ton and the Government had no reason to believe that current prices gave I.C.I. an unreasonably high profit.

Lord Stonham then asked whether Earl Waldegrave was aware that I.C.I. recently persuaded the Government to increase the duty on ammonium sulphate from East Germany, on the grounds that they were 'dumping', and the East Germans wanted to sell here at precisely the same price at which I.C.I. were selling in Eire. Could he justify forcing British farmers to pay that high price and the taxpayers to pay a subsidy? Or would it not be possible for us to appoint the Government of Ireland as our buying agent and sell it to British farmers at £13 a ton? Was that Alice in Wonderland suggestion any less credible than Waldegrave in Ireland?

Earl Waldegrave replied that he was aware of the anti-dumping duty of £3/ton on imports of sulphate from East Germany. This followed an application made on behalf of all the British producers of sulphate and after investigation the Board of Trade were satisfied that the East German sulphate was dumped, that the dumping threatened material injury to the British industry, and that the imposition of the duty would be in the national interest. He thought they had to keep economic sense there. When products such as sulphate of ammonia were made in large plants, it was economically sound to export the surplus over home market requirements at a price sufficient to cover prime costs and to make some contribution to overheads. If that were not done, the alternative must be to load all the overheads on to home market prices and thus increase them.

Lord Shepherd said that the price of ammonium sulphate shipped to Colombo from Western Germany was today £16 5s/ton. That would give an f.o.b. price of approximately £10/ton. If it were brought to the U.K., taking into account freight, it would land at approxixmately £13 10s/ton.

Earl Waldegrave replied that he would look carefully into those figures.

(As reported in CHEMICAL AGE, 10 March, page 396, the imposition of a U.K. anti-dumping duty on ammonium sulphate from East Germany brought allegations from Propane Fertilisers Ltd., an importing concern, that the home price was now unreasonably high. Prices of I.C.I. ammonium sulphate to Irish buyers were also cited by Propane Fertilisers Ltd.).

Ammoniun sulphate anti-dumping duty

In the House of Commons, Mr. Godman Irvine (Con., Rye) asked the President of the Board of Trade whether the price at which ammonium sulphate was exported to Eire was a factor taken into consideration when deciding to increase the duty on imported sulphate of ammonia.

The President, Mr. Frederick Erroll, replied that the protective duty had not been increased. An anti-dumping duty had been imposed on sulphate imports from the Soviet zone of Germany because he was satisfied that dumped imports from that source threatened material injury to the British industry. In reaching that conclusion he had taken account of all the relevant factors, including the British producers' costs of production and profits, and in relation to those the general level of their export prices.

Scope and purpose of Pipelines Bill discussed in House of Lords

LAST week the Lords gave an unopposed second reading to the Government's Pipelines Bill. Moving the Second Reading, the Minister Without Portfolio, Lord Mills, said that in the immediate future the kind of pipelines that they would be dealing with would be for crude oil, petroleum products and chemicals; pipelines for coal and other substances might well make their appearance later.

The Bill was summarised in CHEMICAL AGE, 10 March, page 402.

Lord Mills said that the Government's policy in controlling the development of cross-country pipelines was to allow private enterprise the greatest possible scope, while at the same time guarding against unnecessary lines. The Minister was to have complete discretion whether or not to grant a pipeline construction authorisation. He could, if he wished, decline to allow the application to proceed unless the route was altered to his satisfaction, or unless a fresh scheme was submitted.

He might make it a condition of his authorisation that a cross-country pipeline should be constructed to a capacity that would accommodate other companies' traffic and thus avoid a multiplicity of lines where one would serve.

Economics of salt water conversion in U.K.

Demineralisation of salt water was unlikely, in normal circumstances, to be economic in the U.K., according to available information, said Mr. Denzil Freeth, Parliamentary Secretary for Science. He was answering a question by Mr. C. Hughes as to the recent results of research in this field and stated that such research was mainly undertaken by industrial firms who were not bound to publish their results. The Tropical Products Institute of the D.S.I.R. was doing a small amount of work on solar distillation which might find applications in warmer countries.

I.C.I. AND COURTAULDS MEETINGS

First steps taken towards improvement of relations on man-made fibres

FIRST steps towards an amicable settlement of their differences were taken last week at the meetings of Courtaulds (on Thursday) and I.C.I. (on Friday). The chairmen of both companies read carefully prepared statements.

Sir John Hanbury-Williams, for Courtaulds, declared "It now remains a matter of earnest hope that all concerned will be able to find a sound basis for the new relationship." The following day, Mr. S. P. Chambers, I.C.I.'s chairman, said that he shared fully this "earnest hope" and added "I want to say nothing today that might exacerbate feelings between I.C.I. and Courtaulds."

On the question of past relations, Sir John told the 500 stockholders present that since the formation of I.C.I. in 1926, Courtaulds had had extensive and entirely satisfactory business relations with them, buying from them, selling to them, and as partners in British Nylon Spinners. While there had been problems these had been met with good sense from both sides and practical solutions had been found.

Replying to a stockholder who wanted to know whether the 38% holding would be sufficient to make Courtaulds buy their raw material from I.C.I., Mr. Chambers said that I.C.I. believed that in supplying materials they could face any competition. "We would certainly not use our holding in Courtaulds to *require that company, or even to influence* that company, to buy anything from I.C.I. if, in their judgment, it would be more advantageous to buy it elsewhere."

Sir John told stockholders that Courtaulds' directors would continue to provide them with more information in the future. His company's proposals for the issue of about £40 million of loan stock and a capital dividend of 2½% tax free were approved at the meeting. The distributions will be made to stockholders registered on 31 March.

Asked if there had been negotiations on I.C.I. representation of the Courtaulds' board, Sir John said "We have received no approach from I.C.I." Another shareholder, amid applause, declared that stockholders generally did not want I.C.I. representatives on the board.

Other comments from stockholders included the following:

"I do not think Courtaulds realise how keen I.C.I. still are to try to get hold of this company."

"I think you got exactly what you asked for—you are not out of the wood yet." This questioner hoped that stockholders would now be treated as the actual owners of the business.

Sir Alan Wilson, chairman-designate, pointed out that the Board's forward plans had disclosed far more than any company had ever done before. That was necessary because it was the only way that Courtaulds could let the stockholders know the real value of their shares.

He added "You know our plans and if we do not fulfil them you can come to the annual meeting and ask why we *did not fulfil them . . . what we have* promised we will carry out."

Mr. Chambers also dealt with a number of 'difficult' questions. He made it clear that while there was no intention "in present circumstances" of buying or selling any Courtaulds ordinary stock, the holding would not be regarded as non-voting stock, but the voting power would only be used in the cause of the effective and efficient operation of the Courtaulds business.

Because of I.C.I.'s close associations with Courtaulds and their joint interest in B.N.S., "this very large holding of Courtaulds ordinary stock could never be regarded merely as an investment".

In his opening remarks, Mr. Chambers said that the resolution creating £75 million of capital had been amended to £25 million. He also stated that the offer now covered 38.5% of Courtaulds equity, or about £30.5 million, a result which was disappointing to I.C.I. directors.

There has been much speculation as to whether Mr. Chambers has had the full support of the I.C.I. board, but he emphasised "our directors remain unanimously of the opinion that a full merger of the two undertakings would have been very much in the interests of both bodies of stockholders and also in the national interests.

"However, having submitted this to the judgment of the Courtaulds stockholders, we must accept that judgment."

The offer had been declared unconditional because I.C.I. had been advised that the number of acceptances would be greatly enhanced. I.C.I. would be by far the largest holder in Courtaulds.

Mr. Chambers did not wish to say more about the future and thought it better to allow for a period of quiet reflection on both sides before any further action was taken or any further statement made.

Despite that, Mr. Randolph Churchill said that these were early days; a war was seldom won in the first skirmish and he added "If at first you don't succeed, try, try, try again."

Asked why I.C.I. did not intend to go ahead and buy more shares, Mr. Chambers declared that the Press and others had unfairly alleged that I.C.I. had acted in a bullying and arrogant manner. In view of I.C.I.'s willingness to submit to the judgment of Courtaulds' shareholders, any action now to acquire more shares by purchase would be interpreted as a hostile act against the present *Courtaulds' board with whom* I.C.I. hoped to resume good relations.

One stockholder thought I.C.I.'s present position was humiliating and ludicrous; the company owned 38.5% of Courtaulds, yet was not represented on the board and was not immediately going to seek representation. Why, he asked, the sudden faith in the present board?

Mr. Chambers declared "If you read what I have said carefully, you will find I have said nothing whatever about representation. At the present time it is far better to allow a period of quiet reflection."

A woman stockholder—and there were many among the 600 stockholders present—thought that Mr. Chambers and I.C.I. had been clever—there was nothing worse than trying to be clever and she thought they deserved defeat. Mr. Chambers said that what had been done had been done unanimously by the directors. He would not like to be absolutely sure that they were right—perhaps they could have done something else. But he was certain that the board acted in what it deemed the best interests of stockholders.

No Government action. Asked in the House of Commons what action he now proposed to take, Mr. F. J. Erroll, *President, Board of Trade*, declared "The outcome of the I.C.I. bid for Courtaulds does not call for any action by me."

Mr. Erroll is to be asked in the Commons to obtain an assurance from I.C.I. that their 38.5% holding will not be used to interfere in the internal affairs of Courtaulds.

A question tabled by Mr. Peter Tapsell (C., Nottingham, W.) asks Mr. Erroll to require from I.C.I. a similar undertaking to that which he has already obtained from Imperial Tobacco in respect of its holding in Gallahers.

What 'The Observer' says . . .

M.P. discloses how I.C.I. became 'the thwarted giant'

AN account of what is purported to have taken place in board room discussions and during the fateful dinner at Mr. Chambers' home on 15 November when the question of a full merger first arose is included in the article on the untold story of "how I.C.I. became the thwarted giant" written by Mr. Roy Jenkins, M.P., in *The Observer* last Sunday. This is the first of a series.

Mr. Jenkins goes into the background of the bid and the pre-bid discussions in detail, even giving the trend of discussion at a lunch-time talk between Mr. F. Kearton, of Courtaulds, and Dr. R. Holroyd, of I.C.I., at "a Jermyn Street restaurant" on 25 October. Purpose of this meeting was to discuss "some outside scientific organisation" but Mr. Kearton, who had missed much of the earlier talks because of a visit to South Africa, is said to have told Dr. Holroyd that he knew little of the talks between Mr. Chambers and Sir Alan Wilson, but that he would inform himself.

Dividend meeting

Mr. Jenkins then refers to the Courtaulds' board meeting on 2 November when it was agreed to cut the interim dividend. Sir John Hanbury-Williams, chairman, is said to have been the chief advocate, supported by Sir Dallas Bernard, Mr. Aubrey Jones, M.P., Mr. G. Courtauld, Mr. W. P. Courtauld and Sir Alan Wilson. Mr. R. Mathys was reported to have opposed the cut "vehemently" and to have received some support from Mr. A. Knight, finance director, and one or two others. Mr. Kearton "voted with the majority."

The dinner at Mr. Chambers' house near Ken Wood on 15 November, was attended by Sir Alan, Mr. Kearton, Mr. Knight and Mr. Mathys from Courtaulds and by Mr. L. H. Williams, Mr. E. A. Bingen, Mr. P. T. Menzies and Mr. G. F. Whitby of I.C.I. It is said that Mr. Kearton was impressed by the charm and range of the I.C.I. chairman's conversation. After an unproductive exchange between Sir Alan and Mr. Chambers about Terylene and nylon—in the drawing room—Mr. Chambers is said to have pushed his chair back, at around 11.30 p.m., and said "Well as far as I am concerned, the whole thing could be solved by a complete merger."

Mr. Mathys immediately exploded into a "snort of opposition, but Wilson, Kearton and Knight remained silent." Some rather rough exchanges are said to have taken place between Mr. Williams and Mr. Mathys. Mr. Chambers eventually suggested that he should draw up a merger *pro-forma* and that he should continue discussions with Sir Alan, with whom he had the advantage of being on Christian-name terms. The party broke up at about 12.30 p.m.

Courtaulds' directors were unanimous in saying they did not want a merger on any terms, but Mr. Jenkins points out that Sir Alan did not "go to ground and become difficult to find." On the contrary he went to Imperial Chemical House five times between 15 November and 12 December. "Why did he do this and what did he discuss when he arrived?" asks Mr. Jenkins.

Mr. Jenkins paints a picture of an I.C.I. chairman strongly actuated by a desire to place his own imprint upon I.C.I. as Lord Fleck had done. He therefore opened talks with Sir John Hanbury-Williams in 1960, which were of an extremely general nature. At a private dinner party at the Savoy Hotel, London, at which other directors were present, discussion ranged over the future of the man-made fibres industry. Proposals for complete amalgamation were not excluded.

Next in the series of Mr. Jenkins' articles will be entitled 'Into the open.'

I.C.I. acquire fluorspar interest with big holding in Weardale Lead Co.

A COMPANY with fluorspar interests, Weardale Lead Co. Ltd., is to be acquired by I.C.I., whose bid was made at the same time as alternative proposals had been put by Laporte Industries Ltd. Laporte, whose plants are responsible for 75% of U.K. production of high-grade fluorspar, offered either to purchase the whole of Weardale's assets for £65,000 in Laporte ordinary, or to acquire the issued shares of Weardale on the basis of one Laporte for four Weardale.

Directors of Weardale have decided to accept the offer of I.C.I., who are to subscribe in cash for the company's unissued 10s shares at par, which would provide Weardale with slightly more than £51,000 of additional capital and give I.C.I. a holding of just over 51%.

I.C.I. will also purchase any shares of Weardale offered to them before 27 April at 6s/share; the directors do not intend to accept this offer in respect of their own holdings.

Weardale state that this additional capital should enable the company to recover from the "severe blow" occasioned by the recession in sales to the steel industry and help them weather the difficult times until the anticipated recovery takes place.

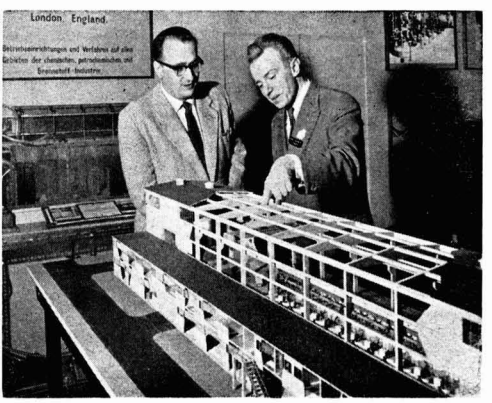
France-F.L.N. pact on Saharan oil

CURRENT concessions for oil and gas deposits in the Sahara are to be guaranteed, and French companies will be given priority in acquiring new concessions over a period of six years, according to the declaration of principle agreed by France and Algeria's F.L.N.

Gaz de France have agreed to buy 335,000 tons a year of Saharan natural gas in liquefied form starting in 1964, when Algeria and the Sahara are expected to be an independent State. The Camel liquefaction plant at Arzew, near Oran, which will supply liquefied gas for shipment to the U.K. under the Gas Council's methane import schemee, will be extended to meet this extra demand. Tests are now to be carried out on an experimental French methane tanker to transport the gas to France.

Humglas at Leipzig Spring Fair

On the stand of Humphreys and Glasgow at the Leipzig Fair, Count W. Hartig, H. & G. sales engineer resident in Vienna (right), talks to Dr. H. Haman, of V.V.B. Elektrochemie und Plaste. The scale model is of plant designed to produce 5,000 t.p.a. of metallic sodium—the process used is that developed by I.C.I. based on the 'Downs' process in which metallic sodium is produced by the electrolysis of brine



PIPELINES IN WEST EUROPE

Expanding network for oil, natural gas and chemicals

POST-WAR pipeline construction in Europe began with B.P.'s Finnart-Grangemouth 57-mile 12-in. pipeline in 1951. This is capable of carrying 3.5 million tons of crude per year. Another crude oil pipeline laid by B.P. runs from Milford Haven to Llandarcy. It is 60 miles long, has a diameter of 18 in. and a capacity of 5 million tons.

The latest completed pipeline in the U.K. is the Fawley to Severnside (Esso-I.C.I.). It is 75 miles long and 6 in. in diameter. When in operation, it will carry ethylene for I.C.I.'s ethylene oxide plant due on stream shortly. There are in Britain few other product lines, none longer than 25 miles, though another one, from Fawley to Feltham near London Airport, is being laid. Alongside it will be laid a line from Fawley to the Southall Gas Works, carrying $C_{3\text{-}4}$ fraction. Short gas-making stock pipelines run from Shellhaven, Isle of Grain, Stanlow and Grangemouth refineries to nearby gas works; the last one is incomplete.

Two product pipelines are awaiting the outcome of the Bill currently before the House of Lords, they are the Shellhaven to St. Albans (S.M.B.P.) and Canvey Island to Ellesmere Port (Trunk Pipelines Ltd.), which, running along canals, will feed the Midlands.

Italian pipelines

According to the report of the European Petroleum Industry's Surveys, in Italy, where two pipelines were built in 1952-3, work is in progress on the Genoa-Switzerland/Austria/Bavaria system. The two lines built earlier are Vado-Trecate 98 miles, 8 in., pipeline, likely to be duplicated to carry 5 million tonnes, and Genoa-Milan (Rho) 78 miles, 12 in. line. There is a short pipeline in Sicily.

The pipeline system at present being built comprises a main artery, from Genoa to Milan, with a branch to Cremona, and running north, through Switzerland and Austrian Vorarlberg, to Ulms. This would be first at 26 in., then at 22 in. for 78 and 265 miles respectively, with capacity of 20 and 12 million tonnes/year. From Ulms, two branches each 77 miles long and 18 in. in diameter, will each carry 2 million tonnes to Ingolstadt and Heilbronn.

A westerly 174 miles, 16-12 in. line will link Milan with Aigle. This will be ready in 1963, while the farther-reaching easterly sections will be ready in 1964, when E.N.I. propose to have two refineries in Bavaria. The 300-mile project for a Trieste-Vienna pipeline is far from certain.

Ruhr and Lower Rhine refineries, of total capacity of 15 million tonnes/year are already supplied by two pipelines, both linking ports capable of handling 100,000 ton tankers. These are the R.R.P. (Rotterdam-Rhineland Pipeline) and N.W.O. (Nord-West Oelleitung) from Wilhelmshaven. The former laid in 1960 is a 24 in. 157 miles pipeline, with a 15 miles long line connecting to the Fourth Petroleum Dock in Rotterdam, and a 28 mile branch from Venlo to Wesel. On the main route, lie Shell and Caltex refineries in Rotterdam, Shell plant at Godorf and UK. Werke at Wesseling; the branch feeds Gelsenberg Benzine AG at Gelsenkirchen. The pipeline capacity is 8.5 million tonnes, but it will rise to 29 million.

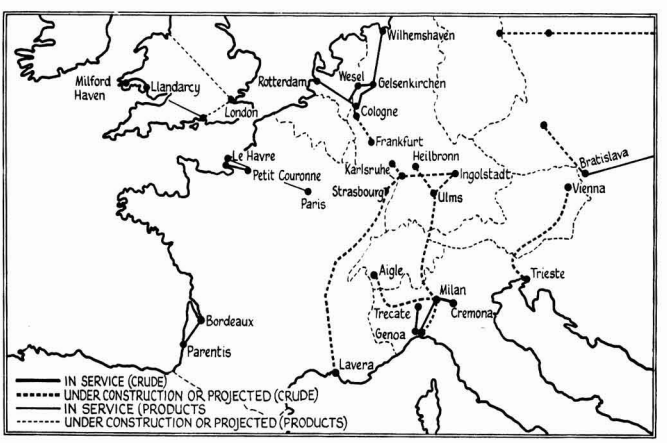
The Wilhelmshaven-Wesseling pipeline is 28 in. in diameter, 245 miles long and it was constructed in 1959. Its capacity is 14 million tonnes, to rise to 20 million tonnes. Seven refineries lie along its route, some being fed via branches. The longest of these runs for 28 miles joining Wesel with Gelsenkirchen (B.P. refinery and Sholven Chemie). It has a diameter of 16 in. Other refineries connected are Esso-Cologne, Purafina, Ruhrchemie and UK. Werke Wesseling. Product pipelines run from Esso-Cologne to various works and from Shell-Godorf to Rheinische Olefinwerke; others (from B.P. to Erdoel-Chemie at Dormagen) are planned for the future. The pipeline is to be extended to Frankfurt, where a Caltex refinery will be built and supply Hüls with petrochemical raw materials. A pipeline from UK. Werke Wesseling will also take cracked gases to another branch of Hüls.

The pipeline with the biggest potential throughput will be the Lavera-Strasbourg/Karlsruhe 34 in. 475 mile project, which at present stands at 180 miles welded and laid, 20 miles more prepared for laying and 20 miles more ready for excavation; river crossings are in hand in Provence and the Fos-sur-Mer depot is being linked with Lavera. This 30 million tonnes/year pipeline will be ready in 1963 and will feed at first four refineries owned by mixed interests; two in Karlsruhe and two in Strasbourg, with Esso and D.E.A. building in Germany, French companies in France, and Mobil-Caltex-Shell building the other refinery in France. A branch to the Mannheim area will carry crude for an Ohio-Winterschall refinery.

A 22 in. Rhine-Danube pipeline will start from Karlsruhe and run to Ingolstad. When ready in 1953, Shell, Esso and B.P. may have refineries there. Other French pipelines are from Le Havre to Petit Couronne (49 miles, 14 in. in diameter, 3.5 million tonnes/year) and from Parentis/Cazaux to Ambes (72 miles, 10-12 i. diameter, 3 million tonnes/year). There are now two parallel product pipelines from Le Havre to Paris. Another system worth mentioning is the gas pipeline from Lacq to the industrial north.

The French have constructed two crude oil and one gas pipelines in Algeria. They are interconnected to a certain extent to provide for gas occurring with oil and condensate found with gas to be taken to their respective pipelines. The Ohanet field, just north of Edjeleh, has been connected to Hassi Masseoud by O.T.P., and its crude flows to Bougie, while that from Edjeleh/Zarzaitine fields runs to the Tunisian port of La Skhirra. In Libya a pipeline has been built by Esso and one is nearing completion. This is owned by the Ohio company.

An East European pipeline system will run from Kuybisher to Poland, Germany, Hungary and will end at Bratislava, Czechoslovakia, where refinery and petrochemical plants will be sited.



Location of oil and product pipelines in Europe

Chemical expansion in Italy

NEW CAPACITY BOOSTS OUTPUT OF CHEMICAL RAW MATERIALS

THE Italian chemical industry increased its output for 1961 by 12.7% over the previous year. This compares with an increase of 14.4% for man-made textile fibres and an increase of 9.5% for all Italian industry taken together.

These figures are shown in a recent report on the Italian chemical industry submitted to the general assembly of the Italian Industrial Confederation (Confindustria), which took place recently in Rome. The improvements relate to production and sales of almost all chemicals, the trend being linked with expansion reported in other industries such as textiles, paper, glass, metallurgy, etc., which are all heavy consumers of chemicals.

New plant commenced during the year included the maleic anhydride and fumaric acid plants at Rho, a phenol and cyclohexanone plant at Mantua, a fluorochloromethane plant and a caprolactam plant at Porto Marghera, and a caustic soda and chlorine plant at Saline di Volterra (near Pisa). Work continued on the building of plants which will be ready in 1962 and 1963, and there was considerable expansion and modernisation of existing plants.

Heavy inorganics

Production of sulphuric acid continued to increase and so did that of ammonia. Output of this last was stimulated by increased output of chemical fertilisers, nitric acid and urea.

Output of calcium carbide remained at the 1960 level: a slight drop in the demand for acetylene for welding was offset by its increased chemical utilisation. Exports of carbide slightly increased.

Increased demand occurred for sodium carbonate, while production of caustic soda diminished owing to increasing preference for the electrolytic type. Exports remained at the same level as for 1960.

Despite the addition of the new plant at Saline di Volterra and the expansion of existing plant at Pieve Vergonte (near Novara), production of electrolytic sodium chloride remained much as before. Consumption of electrolytic caustic soda went up roughly 5%, but the consumption of chlorine is expanding at a greater rate owing to increasing demand from the manufacturers of vinyl resins. A surplus of caustic soda has not occurred as the balance has been exported.

Demand for hydrochloric acid has remained at the 1960 level and the sales of sodium hypochlorite have increased because of expanding demand from detergent manufacturers. Output of calcium chloride diminished owing to a slackening in demand from paper mills. Sales of trichlorethylene continued to increase slowly but steadily.

Production of methanol and formaldehyde increased and outputs of acetic anhydrite, acetic acid and acetic acid esters were satisfactory.

Ethylene oxide, propylene oxide and their derivatives (glycol, ethanolamine, etc.) recorded good sales and production figures.

Productive capacity of phthalic anhydride increased some 25-30%, and this extra capacity was utilised to the full. Demand from plastics manufacturers declined and so did exports, but this was more than compensated for by increased demand from manufacturers of resins.

Following the erection of a new plant, productive capacity for maleic anhydride increased. However, this extra potential was only partially utilised although during the latter half of the year improvement was reported in both home sales and exports.

Italian company results show drugs profitable and big losses in oil

LISTED below in order of sales are some of the major Italian chemical and allied companies, whose results for 1960/61 have been published. This list, based on an article in *24 Ore*, which quoted Assonime, clearly shows that the oil and petrochemicals fields proved unprofitable for many companies, while drug concerns generally made good profits.

In millions of Lire:	*Sales*	*Capital and reserves*	*Value of plants*	*Profit*	*Loss*
Montecatini	167,094	258,116	355,702	13,123	—
Edison	44,118	256,333	99,965	14,265	—
Sincat	13,325	10,000	77,514	—	53
Saffa	12,227	14,611	12,202	1,235	—
Cokitalia	11,025	4,382	8,420	242	—
Cofa	10,697	1,052	1,740	330	—
Rumianca	9,432	11,864	20,311	828	—
Colorificio Max Meyer	9,139	1,501	3,022	65	—
Annunziata	7,857	1,896	1,706	17	—
Squibb	7,776	6,046	7,819	476	—
Manetti H. Roberts	6,339	844	1,856	300	—
Industria Vernici Ital.	5,774	955	1,520	51	—
Appl. Processi Elettroc.	5,766	500	9,184	—	508
Cokapuania	5,682	3,226	5,550	182	—
Antibiotici Lepetit	5,500	3,083	5,111	431	—
Saponerie Italiane	5,085	356	696	36	—
Carbolio	5,026	267	170	14	—
Man-made fibres					
Rhodiatoce	51,295	9,483	31,619	2,294	—
Chatillon	24,240	15,118	34,500	1,250	—
Orsi Mangeli	5,820	4,162	9,010	96	—
Oils and petrochemicals					
Esso Standard Italiana	112,271	10,219	35,833	—	1,570
Purfina Italiana	33,156	7,105	19,698	—	840
Condor	25,734	13,033	25,338	515	—
Sarom	24,000	8,331	15,034	585	—
Soc. Ind. Ital. Petrolio	22,769	2,650	11,746	88	—
Aquila	18,506	6,182	16,329	—	777
IROM	16,609	7,537	17,786	477	—
Petroli Aquila	14,702	5,095	11,626	—	316
A.P.I.	14,181	3,141	12,041	—	49
Petrol-Caltex	13,445	3,105	11,251	—	435
RASIOM	11,834	8,487	26,492	541	—
A.B.C. Petrolifera Italiana	9,865	1,823	1,162	—	304
SARPOM	9,607	6,510	14,244	—	231
Ind. Chim. It. Petrolio	8,432	6,000	9,971	—	1,405

Plastics output shows continuing increase in Italy, but prices fall

PRODUCTION of plastics materials in Italy has been growing rapidly for some years and in 1960 reached 305,000 tonnes, 38% more than in 1959. Complete figures for 1961 are not yet available but something like 400,000 tonnes may be expected. Experts believe that the 1962 total will exceed 500,000 tonnes.

Expansion on this scale is expected to continue for some years to come, and so far it has been accompanied by a fall in prices which have diminished from 380 lire per kg. in 1958 to 300 lire in 1960.

A considerable increase is also reported in the export of Italian plastics, which has been accompanied by a rise in imports. Exports for 1960 amounted to 99,000 tonnes compared with 60,000 tonnes for the previous year, and imports for 1960 were 60,000 tonnes compared with a previous total of 43,000 tonnes. During the months of January to November 1961, Italian exports of plastics and synthetic resins amounted to 32,704 million lire, or 23.7% more than for the corresponding period of 1960.

Overseas News

LACQ STYRENE PLANT WILL USE ADVANCED S.D. PROCESS

DESIGN of a 66 million lb./year styrene monomer plant for Soc. Nationale des Petroles d'Aquitaine, Paris, is to be handled by Scientific Design Co., New York. The plant will be built at Lacq with construction, procurement and additional engineering contracted to Soc. Française des Services Techniques, a Paris-based member of the S.D. Group.

Scientific Design say the new plant will embody a self-developed process using advances in design and engineering which will make it the most modern and efficient of its kind. The process produces styrene via ethylation of benzene and subsequent dehydrogenation of ethylbenzene. Construction will begin late this year with completion scheduled for the last half of 1963.

S.N.P.A. plan to bring on stream in the third quarter of this year plants at Lacq to produce 25,000 tonnes/year of ethylene and 70,000 tonnes of benzene. The S.D. styrene monomer plant (25,000 tonnes/year) will be followed by a 10,000 tonnes polystyrene unit; styrene monomer not used for polystyrene will be sold mainly for use in SBR production.

A styrene monomer plant, using the Koppers process has been built for Ethyl-Synthèse at Lillebonne Seine-Maritime, by Soc. Belge de l'Azote et des Produits Chimiques du Marly (S.B.A.). With capacity for 25,000 to 30,000 tonnes/year, it is the second styrene plant built for the company by S.B.A. The other, at Mazingarbe, was recently extended.

Big ethylene plant completed in Australia

One of the biggest petrochemical plants in Australia was recently reported to be about to start commercial production in Sydney. Built at a cost of nearly £A6 million by the Shell Oil Co., the plant will produce ethylene for polythene manufacture at the works of I.C.I. at Botany.

Yugoslav works raises phthalic anhydride capacity

The Destilacija Drva chemical works in Tselic, Yugoslavia, has raised its phathalic anhydride capacity by some 900 annual tonnes with the bringing into operation of a new production unit installed by Chemiebau Dr. A. Zieren GmbH, Cologne and Yugoslav concerns.

Synthetic rubber production is not subsidised in C.M.

The Common Market Commission announces in Brussels that the synthetic rubber manufacturing industry within the Common Market area no longer receives State subsidies from the national Governments concerned. This statement is the result of a study into the subsidising of the synthetic rubber and other industries carried out by the Commission.

U.S. free man-made elements for export

The U.S. Atomic Energy Commission has announced that in future unlimited quantities of man-made elements, neptunium-273 and americium-241, can be exported. Initially 200-gm. quantities of each are being offered for sale from Oak Ridge National Laboratory, Ten. Americium is priced at $1,500 a gm. and neptunium at $500 a gm.

New chlorine caustic plant for Allied

Allied Chemical plan to build a new chlorine/caustic plant near Wilminton, N.C. The plant will be operated by the Solvay Process Division, and should be in production by mid-1963.

U.S. cuts duties on Israeli bromine products

An agreement between Israel and the U.S. negotiated under G.A.T.T., provides for cuts of 20% in U.S. duties on ethylene dibromide and potassium bromide.

Montecatini to take part in Indian polypropylene project

It is reported that Montecatini have agreed to take a 50% interest in an Indian project to manufacture polypropylene resins, films, staple and monofilament. The other major participants will be Tata and Maharaja of Baroda.

The new concern will be known as West Polymers Works, and it is proposed that they will have issued capital of Rs. 100 million (£7.5 million). The project will require a capital of Rs.80 million in the first stage and an equal amount in the second stage. The plant will be sited at Trombay and the raw material will be obtained from the proposed Stanvac naphtha cracker.

Anti-trust and Monopolies Subcommittee approves U.S. drug control bill

THE Kefauver Subcommittee on Anti-trust and Monopoly has approved the drug control Bill by three votes to two. Included in the Bill is the provision which would limit the exclusive rights of drug patents to three years. Because of the drastic changes in patent procedure involved in the Bill, the parent Senate Committee on Judiciary may send the Bill to its Subcommittee on Patents for further study.

Under the Bill, pharmaceutical manufacturers would have exclusive rights on the drug for three years after which time it would be compulsorily licensed. Patents on modifications would only be granted if the Secretary of Health, Education and Welfare is satisfied that the modified drug has a significantly greater therapeutic effect than the previously patented drug.

The committee version of the Bill permits the Secretary of H.E.W. to determine which antibiotics must be certified by the Food and Drug Administration. The original Bill required certification of all antibiotics.

Increased nitrogen output for Norsk Hydro

An increase in ammonia output to 282,000 tons of nitrogen compared with 257,000 tons in 1959-60 is noted in the annual report of Norsk Hydro, the Norwegian chemical and fertiliser concern. The urea plant was completed and nearly 100,000 tons were manufactured. Output of technical nitrogenous products, equivalent to 11,000 tons of nitrogen, was normal. Production of chlorine and caustic soda rose by approximately 3,000 and 3,500 tons respectively on account of minor improvements. Satisfactory outputs of calcium carbide, Norvinyl p.v.c., hydrochloric acid and numerous other products were recorded.

The report also reveals that a pilot plant has been built for a process to produce urea without an equivalent increase in production of nitrate of lime, and another pilot plant is for studying the utilisation of exhaust gas from the nitric acid production.

Common Market chemical industry expansion

By the third quarter of last year, the index of Common Market chemical industry production (1953 as 100) had reached 247, according to latest obtainable statistics. Indices for the individual countries were 288 for France, 266 for Italy, 226 for West Germany, 191 for Belgium, 165 (second quarter) for Holland and 135 for Luxembourg.

Gas fire on Freeport's sulphur island

Freeport Sulphur's large sulphur mine below the man-made Grand Isle, La., was in flames on Monday after a drilling rig hit an accumulation of gas. Part of the island structure which is built on piles above the water melted in the heat.

Overseas news

SBR will be first of series of rubbers to be made at Sasolburg

ANNOUNCING plans to spend £4.5 million to set up plant at Sasolburg to produce synthetic rubber, the Synthetic Rubber Corporation of South Africa adds that the first product will be SBR, to be followed by other types.

S.A. Coal, Oil and Gas Corporation (Sasol), whose chemical complex based on the Fischer-Tropsch synthesis of coal is sited at Sasolburg, already produce butylene, butane, pentene and pentane. Their product range will now be extended to include benzene and ethylene, plus styrene monomer and butadiene to service the new SBR plant.

Shareholders in the Synthetic Rubber Corporation are Dunlop, Firestone, Goodyear, General Tire, the South African Rubber Manufacturing Co., plus two finance houses. The Government intends to give the new industry tariff protection to assure its economic establishment.

The new SBR project has attracted a number of bids from main contracting companies, mostly from contractors based in London. Polymer Corporation's process will be used.

Duty free imports of rubber for Brazil

Quota for duty free imports of natural or synthetic rubber has been set at 37,000 tons (dry weight) by the Brazilian Customs Policy Council.

U.S. firms fear further cutting in benzene prices

The price of benzene in the U.S. continues to fall in the face of competition. The present price is 28 cents a gall., 3 cents down on the price quoted a few weeks ago (see CHEMICAL AGE, 3 February, page 205). Fears are widespread that lower prices still are in the offing.

French imports of divinylbenzene

The customs duty on imports of divinylbenzene into France for the production of synthetic rubber is to be suspended provided importers comply with certain regulations. One is that divinylbenzene will be used without delay.

Continuing rise in French phosphate fertiliser usage

Consumption of phosphatic fertilisers in France has continuously increased in recent years and in the 1950-61 period, 4.5 million tonnes, mainly in the form of compounds, were used, representing 970,000 tonnes of P_2O_5. In the last three years, consumption of phosphoric acid has risen by 21.1%.

'Made in Canada' ruling covers PEG and other chemicals

Effective 26 March, the following chemicals will be covered by a new 'Made in Canada' ruling for Customs purposes:

Adiponitrile; dibasic lead phosphite; dibutyl fumarate; dichlorotetrafluoroethane; diisohexyl phthalate; ditridecyl phthalate; 2-ethyl 3-propyl acrolein; hexamethylene diamine; hexamethylene-diammonium adipate; magnesium sulphate dried pure powder; menadione sodium bisulphite; polyethylene glycols; sodium acetate; trichlorotrifluoroethane.

Phenyl oleate has now been ruled as a chemical not made in Canada.

New high purity fatty acid developed by Humko

The chemical division of Humko Products have what is claimed to be an entirely new fatty acid in the C_{20}—C_{22} range of 90% purity on stream at their new fractionating column at Memphis. Previously fatty acids have been available in quantity only at 70% purity. The new acid, designated Hystrene 9022, is expected to attract particular interest from the textile and other fields for speciality paper coatings, speciality emulsions and plasticisers.

Uhde develop nitric process self-sufficient in energy

Friedrich Uhde GmbH, a subsidiary of Farbwerke Hoechst AG, have developed a process for the production of nitric acid which is said to be self-sufficient in energy requirements.

Heat of reaction from the ammonia combustion is used to generate superheated high pressure steam in a forced circulation boiler. About 79% of the steam produced is used in the steam turbines driving the air compressors, while 11% is used for heating tail gas and superheating gaseous ammonia. The remainder would be sufficient for driving pumps required for absorption and for the waste heat boiler, but because of the small size of these pumps electric motors are used.

Polymer budget $2 m. for European expansion

The 1962 capital expenditure budget of the Polymer Corp. of Canada amounts to $19.8 million, about $2 million of which is for the balance of the equity investment being provided in 1962 for European operations.

Specialised chemicals for Australia

Officially opened at Springvale, near Melbourne, Australia, recently was a new plant to produce rosin-based emulsifiers for use in the manufacture of synthetic rubber, and special chemicals for paper manufacture. The plant is operated by Hercules Powder Co. (Australia) Pty. Ltd.—jointly owned by Hercules Powder Co. of the U.S. and A. C. Hatrick Pty. Ltd., Australian distributors of chemical products.

Freeport plan to move more sulphur as liquid

PLANS to move three-quarters of their sulphur shipments in 1962 in the liquid rather than the more traditional solid form are being made by the Freeport Sulphur Co. of the U.S. Seven new liquid terminals were completed during 1961. An eighth, now under construction in West Virginia, will bring the company's total storage capacity to more than 150,000 tons.

Net earnings of Freeport Sulphur in 1961 were $12,855,766, compared with $13,193,537 for 1960.

Demand for sulphur in its various forms has been increasing at the average rate of 4½% a year, and Freeport expect this growth rate to continue. They also believe that the demand for elemental sulphur will grow even more rapidly because of its favourable price, its convenience in use and the relative low cost of conversion to sulphuric acid. North America is the largest present and potential consuming area, but consumption in Western Europe has doubled in the last 10 years and could well double again by 1970.

World production of elemental sulphur has increased from 6,100,000 tons to 9,400,000 tons over the last 10 years. Sulphur form Canadian natural gas is the newest source of supply which will compete for expanding world markets. Freeport believe that Canadian sulphur can be absorbed in due course without serious disruption of the markets, provided sound marketing policies are followed (see CHEMICAL AGE, 3 March, page 361).

Big rise in U.S. imports of naphthalene

Last year, the U.S. imported 101.7 million lb. of naphthalene (less than 79°C melting point) compared with 40.4 million lb. in 1960, underlining that country's drastic shortage. Imports of benzene in 1951, at 20.4 million gal., were down by some 18 million gal.

Exports of benzene were doubled at 46 million gal., while exports of phenol, at 21.5 million lb. were up by some 4.6 million lb., exports of phthalic anhydride showed little change at 16 million lb., but toluene exports, at 42 million gal., were down 10 million gal. U.S. shipments of styrene monomer totalled 136 million lb. in 1951, 22 million lb. under the 1960 total.

U.K. PLASTICS SALES SHOWED 8% INCREASE IN 1961

INCREASED sales and production but consumption maintained at about the same level as the previous year is the picture presented by the U.K. plastics industry in 1961. Net sales were 610,000 tons, an increase of 46,800 tons or 8% on 1960. Almost the whole of the increase occurred in thermoplastic materials, net sales of which were 395,900, more than 13% up, while net sales of thermosetting materials were virtually unchanged at 214,100 tons. For plastics materials as a whole the resumption of growth in sales that started in the second quarter of 1961 was well maintained in the fourth quarter.

Manufacturers' stocks of plastics materials fell by some 2,500 tons, a fall of 3,300 tons in thermoplastic materials being offset by a rise of 800 tons in thermosetting materials.

Production was about 1% up on a year earlier, although for the fourth quarter of the year the increase over the corresponding period of 1960 was 3%. Production of thermoplastic materials were 2% higher, but thermosetting materials showed a decrease of rather more than 1%.

Direct exports increased by 17% over 1960 to 190,100 tons. They were at a record level in the fourth quarter of the year showing an increase of nearly 30% on the previous year. Imports in 1961 at 79,000 tons were 16% less than in 1960.

Consumption is estimated to have been only slightly higher than in 1960, but in the fourth quarter it is estimated to have been some 3% higher than a year earlier.

Sales figures for the fourth quarter of 1961 showed increases of 4% for thermosetting materials and 30% for thermoplastic materials compared with the corresponding period in 1960. The main contribution to the increase in thermoplastic materials again came from polyolefins, mainly polythene, which were 46% higher than a year earlier, though polystyrene and p.v.c. resins also show sizeable increases.

In the analysis shown, the figures of net sales and stocks were compiled from returns from nearly 170 firms known to have been manufacturing plastics materials whether for sale or for use in the production of plastics goods or other goods (e.g. paints) containing plastics materials. Synthetic resins for use as textiles are excluded.

No change in U.K. wholesale price index

WHOLESALE price index of the Board of Trade shows no change for the chemicals and allied industries in February. The index (provisional) for total sales gives a figure of 103.2, compared with 103.2 for January and 103.6 for February 1961. For home market sales the February index stood at 105.2, the same as in January and 0.1 below February 1961.

The following is an extract from the index, which is based on a 1954 average of 100:

	Feb. 1961	Jan. 1962	Feb. 1962
Lube oils and greases ...	116.0	123.0	124.2*
General chemicals ...	103.9	102.9*	102.9*
Pharmaceutical chemicals	83.3	75.6	75.5
Pharmaceutical preparations	97.9	99.1*	99.0*
Toileteries	117.9	121.0	121.1*
Paint	109.1	112.9*	112.9*
Soap	129.6	133.4	133.4*
Soapless detergents ...	103.6	98.4	98.4*
Syn. resins and plastics ...	83.5	78.3*	78.2*
Commodities wholly or partly imported			
Pyrites, c.i.f. U.K. ...	61.5	62.8	61.5
Sulphur, crude (for acid) c.i.f.	71.7	74.8	74.8

*Provisional

Geigy cut prices of Reomol plasticisers

PRICES of the higher alkyl group of the Reomol range of plasticisers have been reduced by the Geigy Co. Ltd., Rhodes, Middleton, Manchester. Sebacates, adipates, and azelates are down by £12 a ton; phthalates by £14 a ton; the specialities Reomol MD and Reomol MI by £15 a ton, and Reomol MN by £12 a ton.

These prices were effective for all orders dispatched on and after 12 March.

B. o. T. analysis of net sales and stocks

	1960 '000 tons	Oct./Dec. 1960 '000 tons	1961 '000 tons	Oct./Dec. 1961 '000 tons
Thermosetting materials				
Alkyds	51.6	11.8	52.6	12.3
Aminoplastics	59.9	15.1	60.0	16.6
Phenolics and cresylics	78.3	20.1	75.3	19.4
Others (a)	23.8	6.1	16.1	7.0
Total thermosetting	213.6	53.1	214.1	55.3
Thermoplastic materials				
Polyvinyl chloride (b)	103.3	27.8	109.7	28.2
Polystyrene	42.8	10.9	51.1	12.4
Polyolefins (c)	106.7	26.0	134.2	38.0
Others (c)	96.7	24.2	101.0	28.4
Total thermoplastic	349.5	88.8	395.9	107.0
Total, all plastics materials	563.2	141.9	610.0	162.3
Stocks at end of priod				
Thermosetting materials	21.2		22.0	
Thermoplastic materials	81.7		3.4	

(a) Including casein plastics, epoxide resins, unsaturated polyesters and polyurethanes.
(b) Excluding sales of resins (i.e. polymers sold as such).
(c) Including acrylics, cellulose plastics, polyvinyl acetate, polyamides, polytetrafluorethylene, polyvinyl chloride resins (i.e. polymers sold as such).

Midsil to form new Dutch sales company

A WHOLLY-OWNED subsidiary sales company in Holland is to be set up by Midland Silicones Ltd. The new company, which is being formed with the co-operation of Midland Silicones' Dutch agents, Nederlandsch Verkoopkantoor voor Chemische Producten N.V., and which will be staffed by Dutch nationals, will start operations early in 1963.

The formation of the new company, it is said, marks a decisive step forward in Midland Silicones' plans to extend their export sales and service—particularly with a view to possible Common Market developments.

A high proportion of the company's sales is made in export markets, and exports to Holland have been particularly successful. For the past nine years Midsil have been represented on an agency basis by N.V.C.P. The decision to establish a subsidiary company, has, however, been taken in view of the highly specialised nature of silicones and the belief that, as sales continue to increase, better sales and technical service can be provided in this way.

S.A.C. membership tops 2,000 level

MEMBERSHIP of the Society for Analytical Chemistry passed the 2,000 mark last year and now stands at 2,053, the net increase being 55 since March 1961. This is disclosed in the annual report, which was presented at the 88th annual meeting held recently in the Midland Hotel, Manchester. Dr. A. J. Amos, C.B.E., president, was in the chair.

The council reported continuing increases in the activities of the society and its sections and groups. Sections and groups held a total of 49 meetings, many jointly with other organisations. The circulations of *The Analyst* and *Analytical Abstracts* again rose, each by nearly 200; 7,000 copies of the former and 7,500 of the latter are now printed each month.

After the annual general meeting, at which Dr. Amos was re-elected president (see 'People in the News'), Dr. D. W. Hill, director of the Cotton, Silk and Man-made Fibres Research Association, gave the seventh Bernard Dyer Memorial Lecture under the title 'Research and the national economy.'

Marchon trim construction force

Sixty men employed in the constructional department of Marchon Products Ltd., at Whitehaven, Cumberland, have been paid off. Marchon have completed most of their immediate building programme, and this necessitates steps to restore the constructional department to its former permanent establishment.

Explosions at I.C.I.'s Ardeer works

Four separate explosions in the black powder department of the I.C.I.'s Ardeer Works, at Stevenston, Ayrshire, recently, damaged two process buildings and two storage magazines.

PEOPLE in the news

● **Sir Leonard Owen,** member of production of the Atomic Energy Authority and executive head of the Production Group at Risley, is to be made an hon. D.Sc. of Manchester University for his services to engineering. Among honorary degrees to be conferred on the occasion of the British Association's meeting in Manchester this summer, is the award of a D.Sc. to **Professor Dame Kathleen Lonsdale,** Professor of Chemistry, University College, London, a general secretary of the B.A.

● **Mr. W. H. Bellamy,** sales director of Bowmans Chemicals Ltd., Moss Bank, Widnes, Lancs, has resigned from the board of directors.

● **Professor Sir Alexander Todd, F.R.S.,** Professor of Organic Chemistry at Cambridge University, is to receive an hon. LL.D. of Edinburgh University on 5 July.

● **Mr. N. T. Villa** has been appointed director of procurement of Kellogg International Corporation, Chiltern Street, London W.1. He is responsible for all purchasing, inspection and expediting activities for the Kellogg Group in the

N. T. Villa

U.K. and Western Europe. Mr. Villa has been with Kellogg for 20 years, in the engineering, purchasing and construction departments and holds an engineering degree from Rutgers University.

● **Mr. D. K. Winslow,** who has been appointed public relations consultant for the Lummus Co. Ltd., 58-64 City Road, London E.C.1, was for three years secretary of the British Valve Manufacturers' Association and assistant secretary of the British Engineers' Association.

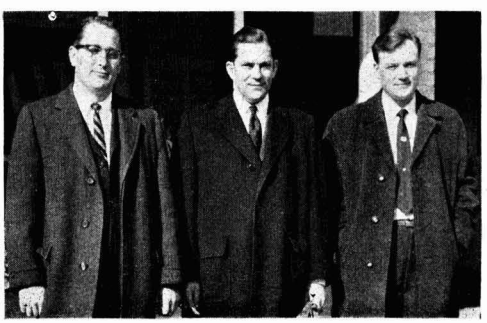
● **Mr. N. Brooks,** president of Brooks Instrument Co. Inc., Hatfield, Pennsylvania, manufacturers of industrial control instruments, flew from the U.S. last week to attend the first annual meeting of the organisation's U.K. company, Brooks Instruments Ltd., Cross Lane, Marple, Ches.

● **Mr. W. B. Death,** of Tudor Close, Chessington, has retired after 42 years' service with Glaxo Laboratories Ltd., 38 years being spent as the company's registrar. Major tasks in which he took part included the capital reorganisation that took place as a result of the world financial crisis in 1926, the absorption by Glaxo Laboratories of its parent company, Joseph Nathan and Co. Ltd., in 1947 and the merging of Glaxo with Allen and Hanburys in 1958 and Evans Medical Ltd. last year.

● **Mr. W. Cooper** and **Mr. C. Beard** have been appointed to the newly created product development department of Evode Ltd., Stafford (see 'Trade Notes', page 492).

● **Dr. John G. Fleetwood** has been appointed by Quickfit and Quartz Ltd., manufacturers of interchangeable laboratory glassware, as research chemist at their instruments division, Ock Mill, Abingdon, Berkshire. He was formerly at London University, where he held a research fellowship.

● **Dr. A. J. Amos, C.B.E.** (Drs. D. W. Kent-Jones and A. J. Amos) was re-elected president at the recent annual meeting of the Society for Analytical Chemistry. Other officers elected were: past presidents, **R. C. Chirnside** (G.E.C.), **Dr. J. H. Hamence** (Dr. Bernard Dyer and Partners), **Dr. D. W. Kent-Jones** (Drs. Kent-Jones and Amos), **K. A. Williams** (E. R. Bolton), vice-presidents. **A. L. Bacharach, J. R. Edisbury, F. C. J. Poulton;** hon treasurer, **Dr. D. T. Lewis** (Government Chemist); hon. secretary, **Dr. R. E. Stuckey** (British Drug Houses Ltd.); hon. assistant secretaries, **C. A. Johnson** (programmes) and **S. A. Price.** Other members of council: **H. E. Brookes, S. G. Burgess, P. F. S. Cartwright, R. A. Chalmers, B. S. Cooper, D. C. Garratt, J. F. Herringshaw, S. H. Jenkins, C. A. Parker, R. M. Pearson, A. A. Smales** and **D. W. Wilson.** Chairmen of sections and groups serve as ex-officio members.



N. Brooks (centre) arrives at Ringway Airport Manchester with Austin F. Platt (left) European managing director and David Y. Smith (right) managing director of the U.K. company

● **Mr. J. J. Yorwerth,** marketing controller, has been appointed a director of Berger Laboratories Ltd., one of the Fisons Group.

Dr. Walter Ripper who has resigned as managing director of Dow Agrochemicals Ltd. to start work on a new project, founded Pest Control Ltd. in 1939 before that company joined the Fisons Group. (See also 'Distillates')

● **Mr. T. L. Kinton** and **Mr. B. Kilpatrick** have been appointed to the board of Burt, Boulton and Haywood Ltd. with effect from 1 April.

● **Mr. J. P. V. Woollam,** chairman and joint managing director of Simon-Carves Ltd., Cheadle Heath, Stockport, Ches., has been appointed a director of Henry Simon (Holdings) Ltd. He succeeded **Mr. R. B. Potter** as chairman of Simon-Carves early in January.

A.E.A. pays £4,000 to employee's widow

THE Atomic Energy Authority announced on Monday it had agreed in a settlement out of Court to pay without prejudice to future claims £4,000 to the widow of Mr. Bernard Clarke who developed myeloid leukaemia while employed as a fitter's mate at the Windscale establishment, including a period at the chemical separation plant. It was alleged the disease was due to exposure to ionising radiations in the course of his work and that cataracts in both eyes had also resulted from the alleged exposure. The executors will also receive £500 and legal costs.

Mr. Clarke had been working at Windscale for three years when leukaemia was diagnosed in 1956 and he died in December 1960. The Authority denied that his leukaemia or the cataracts were due to radiation.

New fertiliser from Fisons

An organic-base compound fertiliser has been introduced by Fisons Horticulture Ltd.—part of the Fisons fertiliser group—under the trade name Flourish. Its analysis includes nitrogen, 6%; phosphoric acid, soluble, 4.8%; insoluble, 2.2%; potash 7.25%.

Commercial News

- **Record profit for A.P.V. in 1961 at £900,300**
- **A.K.U. to raise capital by new issue**
- **Record profit for Canadian Chemical**
- **Merck to spend $23 m. on research in 1962**

A.P.V.

Group profit of the A.P.V. Company Ltd. for 1961 was a record at £9JJ,300 (£750,235). Tax took £447,677 (£385,538 and net profit attributable to A.P.V. was £451,167 (£350,151). Final dividend of 8¼%, making 12½% (11¼%) is proposed, plus a one-for-five scrip issue. In proposing the increased dividend, the directors said they took into account the request for restraint, although profits would have justified a higher payment. The figures do not include results of the subsidiary in Brazil.

Referring to current trading, the directors state that there has been a decrease in the value of orders received over the past few months, but that there are indications that there will be an improvement over the remainder of the year.

Aspro Nicholas

Third interim dividend of Aspro-Nicholas Ltd., for the quarter to 31 December, makes 10½% (same). Following a referendum, shareholders are six to one in favour of dividends being paid in two instalments a year, instead of quarterly.

Horace Cory

Net profit for Horace Cory and Co. Ltd. for 1961 was £26,647 (£25,193). U.K. tax took £25,930 (£25,107). A dividend of 33⅓% (30%) is proposed on ordinary.

Dunlop Rubber

Dunlop Rubber Co. are to raise further capital through the issue of £12 million 6¼% debenture stock. The issue is in the form of an offer for sale at 98½% by Lazard Brothers and Morgan Grenfell.

Royal Dutch/Shell

Sales and operating income of the Royal Dutch/Shell Group in 1961 totalled £2,790 million (£2.674 million). Net balance was £2.007 million (£1,957 million). Capital and exploration expenditure accounted for £374 million (£419 million). Net income of 'Shell' Transport and Trading for the year was £29 million (£25 million); net income of Royal/Dutch Petroleum was Fl427 million (Fl388 million). 'Shell' final dividend is 9d, making 1s 3d tax free per 5s share (equivalent of 1s 0½d). Royal Dutch final is Fl3, making Fl5.25 per Fl20 share (equivalent of Fl477).

American Hoechst

American Hoechst Corporation is the new name for the Intercontinental Chemical Corporation, main U.S. subsidiary of Farbwerke Hoechst AG, Frankfurt-on-Main.

A.K.U.

Algemene Kunstzijde Unie are to raise 70,306,000 guilders (£6.9 million) by an issue of 4½% convertible debenture at par. The loan will have a life of 18½ years and will be redeemable in annual instalments from 1958-1980. It will be convertible into common shares from the date of issue to end of 1957 at a conversion price of 438% per share.

Courtaulds have a small direct holding in A.K.U.

Asturonia

Asturonia is the name of a recently formed French company with capital of Fr18 million. Participants are Cie. Royal Asturienne des Mines, producers of zinc, lead, sulphuric acid, liquid SO_2, sulphur, superphosphates, and compound fertilisers, and O.N.I.A. (Office National Industriel de l'Azote), the State-controlled company who are the main French producers of nitrogen, and nitrogenous fertilisers. The new company is expected to begin production of phosphoric acid at Tonnay-Charente early next year.

Canadian Chemical

Record sales and operating profit are reported by Canadian Chemical Co. Ltd. for the year ended 31 December 1961. Consolidated net 1961 sales are $29,549,942 ($27,684,468). Consolidated profit, before depreciation, was $9,002,931 ($8,303,239). After income taxes the net profit was $2,030,148 or 40 cents/share ($2,674,264 or 53 cents/share). The gain in sales occurred during the second half of the year, those of petrochemicals increasing by 14% and yarn and fibres by 30% over 1960.

Cindu Chemische

Cindu Chemische Industrie Uithoorn, are to pay a dividend for the past financial year of 9 (8¼%).

Cities Service

Sales and other income of Cities Service of the U.S. in 1961 totalled $821,885,084 ($805,109,787). Net income was equal to $4.29/share ($3.98).

J. R. Geigy

J. R. Geigy, A.G., whose net profit for 1961 was S.Fr.12.98 million (S.Fr.11.76 million), are maintaining their dividend at S.Fr.120/share.

Engrais de Roubaix

In spite of price control on fertilisers, turnover of Engrais de Roubaix in 1961 was valued at Fr21.51 million (Fr15.78 million), due mainly to a reorganisation and an 8% rise in sales. Engrais de Roubaix, who also produce sulphuric acid and superphosphates, have interests in the following companies: Produits Chimiques de la Roche Molière (64%); Et. Linet (51%); Phospho-Guano (32%); Produit Chimiques de l'Ouest (20%); Engrais de Louvain; and Calciphos (50%).

Calciphos in turn hold 23% of Linet; 30% of Phospho-Guano; 34% of Colles du Nord; 21% of Produits Chimiques de l'Ouest; and 9% of Produits Chimiques de la Roche-Molière.

W. R. Grace

Consolidated net income of W. R. Grace and Co. for 1951 was $18,830,000 compared with $16,220,000 for 1960. Total sales and operating revenue, however, were lower, $534,699,000 compared with $552,871,000. Cash dividend paid was $1.6 per share ($1.57).

Gulf Oil

Gulf Oil Corporation's operations in 1961 marked its 60th year of sustained growth, net earnings of Gulf and consolidated subsidiaries in 1951 totalling $338.5 million—an increase of 2.5% over the previous year. This amounted to $3.21 ($3.13)/share. Total cash distribution for the year was $1.10 ($1.00)/share. In addition, 2% stock dividend was distributed in December and on 23 January 1962 the directors again increased the cash dividend by 5 cents/share/quarter, thus raising cash dividends to an annual rate of $1.40/share.

Sales of refined products reached a record 860,206 bbl./day, a 2.1% rise over 1950, while petrochemicals sales reached 748,210 tons, a rise of 28,195 tons.

Merck

Merck and Co., Inc., have announced they will spend $23 million this year on their scientific research programme—a new record. The firm said competitive pressure may be expected to persist this year and "we will place particular emphasis on improving marketing techniques to take fullest advantage of new opportunities".

Monsanto Belgium

Monsanto Chemical Co., St. Louis, have acquired from Union Chimique Belge the 25% U.C.B. holding in Monsanto Belgium S.A. U.S. Monsanto held an option on the 25% interest that was originally vested in Sidac, the company which merged with U.C.B. last year. U.C.B. state that the change will not affect the present collaboration between the two groups.

Norsk Hydro

Annual report of Norsk Hydro shows group gross profits of Kr.144 million

(Kr.106 million). Total sales increased from Kr.652 million to Kr.606 million, of which Kr.187 million were sold in Norway and the rest exported. Sales of nitrogen-based products amounted to 291,000 tons (270,000 tons), of which 82% were sold in Scandinavia.

For chemical and fertiliser output figures see 'Overseas News'.

Petroles D'Aquitaine

Pétroles d'Aquitaine, who export natural gas deposits at Lacq will probably increase the 1961 dividend to NF1.85 from NF1.25 in the previous year. The company also propose a one-for-three scrip issue.

Somos

Somos is the title of a company formed in France with capital of Fr.2 million to exploit the new petrochemical development of Arzew, which will be the site of a refinery to handle Saharan crude as well as the terminal of a natural gas pipeline and the site of a gas liquefying plant. The board of the new company is controlled by Soc. Nationales des Pétroles d'Aquitaine.

Van der Grinten

Chemische Fabriek L. van der Grinten, Venlo, whose recommendation of a 24% (20%) dividend for the year ended 30 November was reported in CHEMICAL AGE, 17 February, have now stated that turnover was 23.6% higher and gross profits of 12% higher than for the 1959/69 financial year.

NEW COMPANIES

CLAYTON DYESTUFFS CO. LTD. Cap. £100. Manufacturers of and dealers in coal and coal-tar products, dyestuffs and chemicals, etc. Directors: Sir Arthur V. Harvey, C.B.E., M.P. (director of Clayton Aniline Co. Ltd., Mullard Ltd., etc.), and D. G. C. Astley. Reg. office: 96 Piccadilly, London W.1.

N. V. LUNDIE LTD. Cap. £100. Manufacturers of and dealers in chemicals and chemical products, etc. Directors: N. V. Lundie and Mary Lundie. Reg. office: 3 Liverpool Road, Birkdale, Southport.

PROTECTIVE POLYMERS LTD. Cap. £100. Manufacturers of and dealers in chemicals, plastic materials, etc. Directors: Mrs. Greta M. Molton, Thomas Molton. Reg. office: 8a Bridge Street, Cambridge.

TRANSATLANTIC CHEMICAL CO. LTD. Cap. £100. Importers, exporters, manufacturers of and dealers in chemicals, plastics, metal goods, etc. Directors: D. H. Robinson, L. Haber. Reg. office: 14a Cleeve Road, London N.W.6.

INCREASES IN CAPITAL

ANIC-GELA, a subsidiary of E.N.I.. An increase of capital from 500 million to 12,000 million Lire has been authorised.

CLODOL INDUSTRIES LTD., manufacturers of chemicals, etc., 7 Eldon Square, Newcastle upon Tyne 1. Increased by £30,000 beyond the registered capital of £20,000.

ROBERT STEWART AND SONS LTD., gum and chemical importers and exporters, etc., 64 Mark Lane, London E.C.3. Increased by £10,000 beyond the registered capital of £10,000.

Thomas Vale establish new effluent treatment division

NEW plant developed by Thomas Vale and Sons provides, the company believe, a great advance in the treatment of industrial effluents, especially for organisations who wish to recover valuable products.

The plant has been developed and tested within the coal industry but considerable research has been undertaken on various samples from other fields. The general principles of the plant are based on change of direction and of velocity of incoming waste. The solids contained in the waste are fed into a tank with a conical bottom where they separate out into layers and are automatically pumped away. The clarified effluent is taken from the top of the tank by a series of weirs and pipes, and can either be re-used or discharged. The plant has no mechanically operated scraper mechanism.

The company has formed a new effluent treatment division at Stourport Road, Kidderminster, Worcs., which offers an advisory service. Arrangement can be made to accept trade effluents for testing in the plant, the results being returned for examination.

Thomas Vale are exhibiting on stand No. 33 at the Harrogate coal preparation and plant exhibition, where enquiries from other industrial organisations will be welcome.

Hedley to become Procter and Gamble

IN the summer of this year, the name of Thomas Hedley and Co. Ltd., synthetic detergent manufacturers, will be changed to Procter and Gamble Ltd. There will be no change in the company's U.K. operations, but it was felt that with continuing growth of the P. and G. International Organisation in West Europe, the change would help the part played by the British company and would also help avoid confusion among export customers.

The change is seen as an important step prior to the further development of the company's exports, which averaged more than £3 million/year over the last three years. From 1 May, a new export division will take over responsibility for all Procter and Gamble business in Sweden, Finland, Denmark and Norway.

Thomas Hedley have been members of the Procter and Gamble International Group since 1930. The change in name will be made by about 1 July.

Anti-trust ruling. A 1960 ruling that Procter and Gamble of the U.S. must divest their holding of Clorox Chemical on the ground that it is likely to lessen competition and create a monopoly in household bleaches, has been upheld.

Burnett and Rolfe to move

Burnett and Rolfe Ltd., stainless steel process plant manufacturers, Rochester, Kent. are with effect from 26 March moving to entirely new works and offices off Commissioners Road, Strood, Rochester.

Market Reports

STEADY DEMAND FOR INDUSTRIAL CHEMICALS

LONDON A quietly steady demand characterises the conditions in most sections of the industrial chemicals market. Contract deliveries are being called for with good regularity, and the flow of new enquiry both from home sources and overseas has been on a fair scale. Prices here and there have moved within narrow limits, but in the main quotations are unchanged and the undertone continues steady.

With buying interest expanding in the fertiliser materials some pressure on deliveries can be expected, but the supply position is reported to be satisfactory. There has been a moderate flow of new enquiry for the coal tar products and the overall position is unchanged.

MANCHESTER New business in chemicals and allied products has been fair but mainly for spot and near delivery positions. The leading industrial outlets, on the whole, are maintaining a reasonably good call for supplies against current contracts, and the majority of them are now well covered for requirements over the second quarter. The shipping movement, also, is said to be fairly active in spite of moderate setbacks in several sections. The demand for the compounds and leading nitrogenous fertilisers is seasonally active and there is a steady flow to the consuming end.

SCOTLAND The general trading position was again reasonably active with a good volume of business for the home market. The bulk of demands were again mostly against immediate requirements although some forward bookings were placed. The off-take against contracts have also been maintained at steady quantity levels. There is still quite an interest being shown in demands for agricultural chemicals for seasonal requirements.

For the overseas market a fair volume of enquiries were again received.

Equipment news and trends

MANUFACTURED in this country under licence from J. H. Day and Co., Cincinnati, Ohio, is a new range of **pony mixers** suitable for mixing of tablet granulations, paints, inks, plastics, pharmaceutical drugs, cosmetics, adhesives, etc. Available sizes range from 2½-100 gall. capacity.

Design is such that both the agitator blades and can revolve during the mixing operation. The can is removable. With no bearing or stuffing box in the mixing

Jenkins pony mixers

zone, the possibility of product contamination is eliminated.

The "change-can" principle of operation can readily be employed, and with the larger sizes a hydraulic lift truck is available to facilitate the speedy handling of cans, so that near continuous operation may be set up.

W. J. Jenkins and Co. Ltd., P.O. Box No. 3, Retford, Notts.

* * *

Suitable for pumping acid is a new **self priming regenerative turbine pump** operating on the liquid ring principle. It is able to handle air, vapour or liquid, either together or separately, and will positively prime liquids to dynamic suction lift in excess of 28 ft. and will evacuate a suction line up to 300 ft. long. The new pump—type C in the P.E.P. Arco range—is available in five standard materials, three grades of stainless steel and two grades of Hastelloy, enabling the handling of a wide variety of corrosive liquids. The standard design will handle liquids up to 110°C. For liquids from 110-140°C, water cooled stuffing boxes are fitted and for liquids from 140-200°C stuffing boxes and bearings are provided.

Precision Electrical Products (Stockport) Ltd., Progress Works, Lytham Street, Cale Green, Stockport.

* * *

Flexible and resistant to both high pressures and vacuum is Safe-T-Line, a new range of **p.t.f.e. lined neoprene hose**, claimed to be suitable for the safe conveyance of all concentrations of acids, alkalis, solvents and oils—in fact all known liquids and gases except molten sodium and a few fluorine compounds at elevated temperatures. Safe-T-Line is jacketed to withstand pressures up to 125 p.s.i. and temperatures up to 300°F, yet it can be cut with a knife and requires no special fitting. Inside and outside dimensions enable it to be applied to standard fittings both in the laboratory and on the production line.

The Watson-Marlow Air Pump Co., Marlow, Bucks.

* * *

Improvements recently made to the Carl Zeiss **immersion refractometer** are claimed to considerably increase its value.

Changes have been made to the temperature control device, which has been greatly simplified in that the sample changer is inserted directly into the thermostat. The new device can be used in conjunction with the earlier refractometer.

A flow-through cell has been developed for continuous measurement and control of flowing liquids. The cell can quickly and easily replace the illuminating prism in the temperature controlled model or sample changer in the standard immersion refractometer. Like the temperature controlled model it ensures constant temperature of the sample and avoids evaporation. As a result the border line is claimed to be extremely sharp. 5-10 ml. of sample are sufficient for each measurement including rinsings.

Degenhardt and Co. Ltd., 6 Cavendish Square, London, W.1.

* * *

Production of a variety of **plastics pipe fittings** in various shapes by blow moulding has been achieved by a U.K. manufacturer of big blow-moulding tools, who state that the blow moulding of thermoplastic articles is extremely economical and very quick. By the use of inserts, accurate inside dimensions at the ends of the fittings are obtainable, although there will be slight inside wall thickness variations elsewhere. This technique gives remarkably smooth inside walls, thus providing no key for the accumulation of suspended matter and no possibility of blockages.

Many different types of sample piping have been made using high density polythene and polypropylene with very satisfactory results. For instance, it was found that a 4 in. dia. 'Y' junction of ⅛ in. wall, made of high density polythene, when undergoing a hydrostatic bursting test failed at 80 p.s.i. By using thicker walled materials, as shown in other tests, working pressures of at least 200 p.s.i. can be safely used.

Emerson Walker Ltd., c/o E. N. Mackley & Co., Dunster House, Mark Lane, London E.C.3.

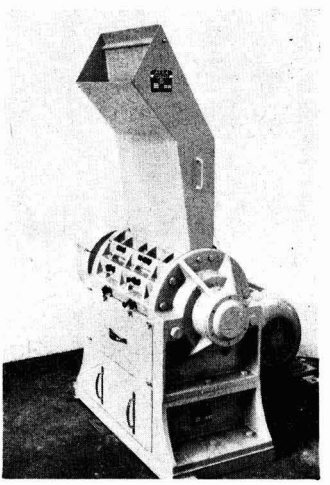
* * *

Accurate to within plus or minus 0.1°C is a **thermostatic refrigerator** type TK 1, suitable for controlling the temperature of liquids within the temperature range +15° to −40°C. A bottle shaped radiator, which is normally made from corrosion-proof aluminium but which is also available in stainless steel, is immersed in the liquid to be cooled and the controls of the instrument are conveniently sited for ease of checking. The apparatus is portable, simple to operate, robust, and provides a continuous service. At 0°C, cooling potential is approximately equal to the consumption of 8 kg. of ice per hour at a load of 0.25 kW.

Applications already found for the equipment are the cooling of brine baths for lypophilic reactions, micromanipulation, viscosity investigations and the cooling of gases and condensates for gas chromatography.

Camlab (Glass) Ltd., Cambridge.

* * *



Manufactured by Apex Construction Ltd., 15 Soho Square, London W.1, is the range of Apex cutter mills to which new models, such as type 116C shown here, have been added. These mills are used for the granulation and grinding of fibrous materials including plastics and pharmaceutical drugs, size reduction being achieved by shearing action and not by impact. This, it is claimed, results in a particularly uniform product and no change in the material due to loss of moisture, such as can occur with crushing and abrasive methods


DOW

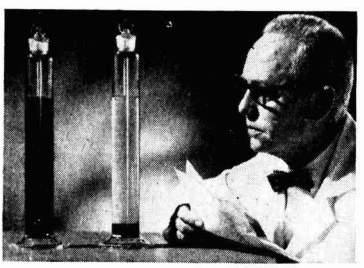
DOW EMULSIFIERS

higher viscosity • smaller particles • greater stability

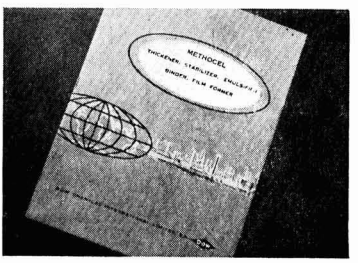
It's an easy matter to obtain almost any wanted emulsion characteristic. Simply formulate with Dow alkanolamines. The soaps of monoethanolamine (MEA), diethanolamine (DEA) and triethanolamine (TEA) produce stable, neutral, non-corrosive emulsions. By varying the alkanolamine-fatty acid ratio, component types, and emulsifying techniques, you can easily produce the exact degree of viscosity and other properties wanted.

Emulsions which formerly required several different materials can often be made with a single Dow alkanolamine. This means a considerable saving in production time and costs. In addition, because they produce emulsions with fine particles and maximum stability, they help to make your product more saleable. And they help to keep it that way for maximum shelf life.

Whether you make polishing compounds, pharmaceuticals, cosmetics, or any of countless other products based on emulsions, you'll find the Dow alkanolamines can be profitable time- and trouble-savers for your operation.



Wetting and coupling agents. Both Benax*2A1 (anionic) and Dowfax 9N9 (nonionic) surfactants offer high solubility, surface activity and stability, in strong aqueous solutions of any pH. Use them for making cleaners of all kinds, sanitizers, emulsifiers, penetrants. Write for data and information on their use.



Unique thickener, surfactant. Methocel*—Dow methylcellulose—is an unusual thickening agent with surface active properties. Cold water-soluble Methocel is an effective thickener, emulsifier, emulsion stabilizer, suspending agent and binder. Ask for a copy of the Dow booklet on Methocel products.

* *Trademark of The Dow Chemical Company.*

For information on any of Dow's products and services contact: Dow Products Division, R. W. Greeff & Co. Ltd., Garrard House, 31/45 Gresham Street, London, E.C.2. Telephone: MONarch 1066.

DOW CHEMICALS basic to chemical processing: Alkylene Oxides, Glycols Industrial Preservatives · Glycol Ethers · Polyalkylene Glycols · Brominated and Chlorinated Aliphatic Compounds · Heat Transfer Media Organic Acids and Esters · Inorganic Chlorides, Bromides and Bromates · Salicylates Phenyl Phosphates · Chelating Agents · Ion Exchange Resins · Methyl Cellulose · Ethanolamines

DOW CHEMICAL COMPANY (U.K.) LTD.

48 Charles St., London, W.1
Telephone: GROsvenor 3601

DOW

TRADE NOTES

Benzoic acid

The wide applications of benzoic acid in alkyd resins are discussed in a technical service bulletin from Monsanto Chemicals Ltd., Monsanto House, 10-18 Victoria Street, London S.W.1. Another bulletin deals with Montorate TU, a new accelerator for non-sulphur modified polychloroprene (neoprene type) rubbers.

Low melt viscosity resin

Bakelite Ltd., 12-18 Grosvenor Gardens, London S.W.1, announce a new low melt viscosity epoxide resin, DR.19120/1, specially designed for casting electrical insulation. It is possible with this development to increase the amount of filler used to 225 phr and still have the same pouring viscosity as standard resins using 180 phr filler.

Versatile catalysts

Details of the recently developed versatile hydrodesulphurisation and hydrogenation catalysts Ketjenfine are contained in the latest folders issued by Nederlandsch Verkoopkantoor voor Chemische Producten N.V., P.O. Box 4038, Amsterdam.

Bulk storage booklet

A revised edition by Price's (Bromborough) Ltd., Bromborough Pool, Bebington, Wirral, Ches, of their bulk storage booklet includes a new section on the pneumatic handling of stearine beads, together with information on the carriage of beads by bulk tanker. The company supplies copies on request.

Moisture inhibitors

Known as CRC, a new American range of one-step moisture and corrosion inhibitors for marine, boating and automotive industries is being marketed here by Woodson Marine Ltd., 291 Aberdeen Avenue, Slough, Bucks. The inhibitor is sprayed from an aerosol pack and, it is stated, will not harm rubber, plastics, paint, varnish or enamel.

Lightnin Mixers in Sweden

Lightnin Mixers Ltd., London Road South, Poynton, near Stockport, announce they have appointed Ulf Christierson of Stockholm as their Swedish technical representative, to have general responsibility for promoting the sales of Lightnin mixers in Sweden, particularly in the paper and plastics industries.

B.D.H. Chemicals

New additions to the B.D.H. range of laboratory chemicals include: 2-dimethylamino-ethyl cyanide; ethylene sulphite; *m*-fluoro-benzoic acid; *o*-fluoro-benzoyl chloride; and 4-(2-pyridyl-azo)-resorcinol disodium salt.

Pluronic surfactants

The Pluronic range, Wyandotte Chemical Corporation's series of 100% active nonionic surfactants, has been increased by the addition of higher molecular weight grades. The new series offer some novel uses, for instance Pluronic F108 in combination with 10% L61, forms a solid block rinse aid. U.K. agents are Jacobson van den Berk and Co. (U.K.) Ltd., 3-5 Crutched Friars, London E.C.3, from whom samples, data and prices are available.

Evode product development

Evode Ltd., Common Road, Stafford, have created a new department, the product development department, that will be staffed by technicians and chemists working in close liaison with the technical representatives visiting customers daily. The new service will provide the means not only of introducing new products and methods of application direct to users but also pave the way for the production of new adhesives based on the requirements of individual customers.

Bentonite

Made available from Chemicals and Feeds Ltd., Adelaide House, King William Street, London E.C.4, is a series of illustrated booklets on products by Dr. Settimio Cinicola, Milan, Italy. These include the characteristics and uses of Bentonite 7C, and Tissolit 88 and 88B.

Kestner equipment

Leaflet No. 299/6 published by the Kestner Evaporator and Engineering Co. Ltd., 5 Grosvenor Gardens, Westminster, London S.W.1, describes a new single effect stainless steel evaporator and a triple effect stainless steel and glass unit, both designed for university and industrial research laboratories. Another leaflet No. 314 deals with a new automatic gas washer suitable, among other applications, for chemical and allied processes.

High boiling tar acids

New grades of high boiling tar acids, manufactured by P.R. Chemicals Ltd. at their Silvertown Works, are available from the sole selling agents Victor Blagden and Co. Ltd., Plantation House, Mincing Lane, London E.C.3. These are now available in development quantities with boiling ranges of 240° to over 300°C.

Acrylic filler

Acrylic primer filler is now being produced at their Chadwell Heath factory by Lewis Berger (Great Britain), who manufacture vehicle paints for the Ford, B.M.C., Rover and Rootes groups. After a series of field trials, it is claimed that acrylic primer has several advantages over conventional fillers in speeding up spraying. The company says it dries quickly, can be wet-flatted more easily, is better for spraying techniques, and has greater filling properties.

New Norton molecular sieve

A NEWCOMER in the U.S. field of molecular sieves is the Norton Co. who are offering development quantities of a new synthetic mordenite called Zeolon in both a hydrogen ion exchanged form and a sodium form.

The major property of the new mordenite is its stability to heat and chemicals. It is stable over the entire pH range so that it can be used for purposes previously barred to molecular sieves. The reasons for Zeolon's stability are its high silicon to aluminium ratio and its crystal structure. Typically the sodium form contains 71.45% silica, 12.05% aluminium oxide, 7.14% sodium oxide and 9.15% water, as well as small quantities of ferric oxide, calcium oxide and magnesium oxide. The high silicon: aluminium ratio makes Zeolon acid stable; thermal stability springs from both the high ratio and the crystal structure.

The immediate use for Zeolon is absorption. Typical uses are for drying and gas purification. Because Zeolon can withstand acid fumes, it might be used for drying chlorine and hydrochloric acid, removal of nitric oxide from nitric acid plant tail gas and drying and cleaning chlorinated hydrocarbons.

Zeolon also shows promise as an ion exchanger. Norton have exchanged a number of cations in addition to hydrogen ions.

The largest potential use for Zeolon, the manufacturers believe, however, is as a catalyst. The hydrogen form is an effective 'solid' acid, where reactions are carried out on the highly active internal surface. Norton have accumulated data on the use of Zeolon in cracking, dehydrating, alkylation and isomerisation. It has been found that the unusual catalyst activity exists at relatively low temperatures (350°C and below) and also when the compound has been partially deactivated by coke.

Zeolon is produced with water-filled pores, and is activated by heating to about 600°F. The H form is offered in ⅛ in. pellets and the Na form as a powder. Other forms of both are planned.

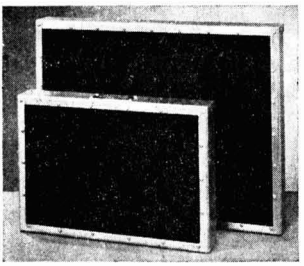
Duty changes sought for lanolin and fish oils

The Board of Trade is considering an application for duty drawback on imported unrefined wool grease when used in the production of lanolin for export.

An application for removal of import duties from imported fish oils is being opposed by the United Africa Co. Ltd., on the grounds that it might lead to a falling off in demand for vegetable oils, which could seriously effect Commonwealth countries.

Small rise in supplies of petrochemical feedstock

Supplies of feedstock to U.K. petrochemical producers in 1961 totalled 1,567,200 tons, compared with 1,562,400 tons in 1960, 1,066,800 tons in 1959 and 831,600 tons in 1958. U.K. deliveries of LPG in 1961 reached a record of 260,400 tons, compared with 153,600 tons in 1960.



Standard all-metal catalyst elements for fume oxidation

Fume Oxidation
Power and Heat Recovery
Process Gas Purification

Holmes catalytic process

Economical conversion of organic gases and vapours to harmless carbon dioxide, water vapour and useful heat energy is being successfully accomplished by low temperature, flameless, catalytic oxidation.
In the Chemical Industry exhaust fumes released in the production of phthalic and maleic anhydride, formaldehyde, phenols, synthetic fibres, resins, nitric acid and many other processes are being effectively and completely oxidized by means of the Holmes Catalytic Process. The all-metal catalyst element is lightweight, unbreakable, resistant to thermal shock and has an extremely long operational life.

APPLICATIONS

IMPURITY	CONVERTED TO:	GAS STREAM
oxygen	water vapour	nitrogen, carbon dioxide,
hydrogen	water vapour	argon, neon, helium
carbon monoxide	carbon dioxide	or other inerts
hydrocarbons	water vapour and carbon dioxide	process gases
oxygen	water vapour	hydrogen
hydrogen	water vapour	oxygen
nitrogen oxides	nitrogen	process gases
radioactive hydrogen & oxygen	water vapour	nuclear plant off-gases

Full details will be supplied on request.

W. C. HOLMES & CO. LTD.

CHEMICAL ENGINEERING DIVISION, TURNBRIDGE, HUDDERSFIELD

A Member of the B.H.D. Engineers Limited Group of Companies.

C726

NEW PATENTS

By permission of the Controller, H.M. Stationery Office, the following extracts are reproduced from the 'Official Journal (Patents)', which is available from the Patent Office (Sales Branch), 25 Southampton Buildings, Chancery Lane, London W.C.2, price 5s including postage; annual subscription £12 10s.

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

ACCEPTANCES

Open to public inspection 18 April

Antibacterial agents. Beecham Research Laboratories Ltd. **894 247**

Steroids and the manufacture thereof. Upjohn Co. [Divided out of 893 921.] **893 922, 893 923**

3-(3¹-indolyl) pyrrolidines. Bristol-Myers Co. [Divided out of 893 898.] **893 899**

Open to public inspection 25 April

Continuous fermentation process for the production of a chemical product. National Research Development Corporation. **894 899**

Treatment and use of iron oxide catalysts. National Research Development Corporation. **894 625**

Removal of hydrogen sulphide from industrial gases. United Steel Co.'s Ltd. [Addition to 719 056.] **894 901**

Bistriazinylamino-stilbene derivatives. Farbenfabriken Bayer AG. **894 744**

Mica polyhaloethylene compositions. Polymer Corporation. **894 707**

Manufacture of cyclopentadienyl manganese carbonyl compounds. Ethyl Corporation. **894 959**

Dyestuffs of the anthraquinone series and process for their manufacture. Farbwerk Hoechst AG. **894 960**

Pyrollidine-diones and process for preparing them. Cilag-Chemie Ltd. **894 630**

Process for preparing 1-ethynylcyclohexanol and homologues. Rohm & Haas Co. **894 907**

Process for the recovery of tungstic acid catalyst. Columbia-Southern Chemical Corporation. **894 592**

Water-soluble dystuffs containing reactive groups. Sandoz Ltd. **894 788**

Modified polyethylene. Ruhrchemie AG. **894 632**

Fertilisers. Fisons Fertilizers Ltd. **894 910**

Phosphorous ester derivatives of hydroxy esters of acrylic or methacrylic acid and polymers thereof. Rohm & Haas Co. **894 719**

Cycloheptatrienyl metallocarbonyl compounds. Wilkinson, G. **894 852**

Preparation of vinyl chloride graft co-polymers. Montecatini **894 853**

Substituted 2,5-dien-4-one steroid derivatives. Julian Laboratories Inc. **874 636**

Polyfluorocyclobutanones and their production. Du Pont de Nemours & Co., E. I. **894 892**

Process for the manufacture of polyvinyl acetal dispersions. Farbwerke Hoechst AG. **894 855**

Process of preparing stable melamine-formaldehyde resin dispersions. American Cyanamid Co. **894 833**

Process for the preparation of dihydrojasmone. Council of Scientific & Industrial Research. **894 638**

Substituted aralkyl phenothiazinylalkyl piperazines. Smith Kline & French Laboratories. **894 913**

Steroids and the manufacture therefore. Upjohn Co. **894 710**

Preparation of esters. British Petroleum Co. Ltd., and Birch, H. M. [Representative of Birch, S. F.] and Ashford, J. S. **894 639**

Derivatives of N-alkoxy-N-alkyl-dithcarbamic acid and pest control compositions thereof. Farbwerke Hoechst AG. **894 792**

Disazo pigments derived from hydroxynaphthoic arylides. Imperial Chemical Industrial Ltd. **894 602**

Vaccines. Allen & Hanburys Ltd. **894 603**

Steroids and the manufacture thereof. Upjohn Co. **894 604, 894 642**

Process for the manufacture of acylsulphanilylguanidines. Farbenfabrik Wolfen Veb. **895 009**

Process for removing catalysts from reaction solutions of copolymers of α-olefins. Farbwerke Hoechst AG. **894 643**

Separation of polyolefins. Du Pont de Nemours & Co., E. I. **894 862**

Fertilisers. Fisons Fertilizers Ltd. **894 911**

Tannates of morphine alkaloids. Irwin, Neisler & Co. **894 609**

Manufacture of pigments and dyestuffs of the quinacridone series and intermediates therefor. Imperial Chemical Industries Ltd. **894 610**

Catalysts and catalytic processes. Weitzel, D. H. and Loebenstein, W. **894 819**

Method for the preparation of N.N¹,N¹¹ triethylenethiophosphoramide. Simes S.p.A. **894 820**

Inhalant anaesthetic compositions. Imperial Chemical Industries Ltd. **894 823**

Chemotherapeutic compositions for controlling plant rusts. Spencer Chemical Co. **894 614**

Treatment and use of desulpurisation catalysts. Shell Internationale Research Maatschappij NV. **894 844**

Production and use of catalysts for the desulphurisation of hydrocarbon oils. Shell Internationale Research Maatschappij NV. **894 843**

Curable polyurethane compositions. Du Pont de Nemours & Co., E. I. **894 866**

Method of polymerising olefin hydrocarbons, and catalyst therefor. Bergwerksgesellschaft Hibernia AG. **894 804**

Process for the production of cyclohexanol and cyclohexanone. Chemstrand Corporation **894 735**

Preparation of aliphatic tertiary amines. General Mills Inc. **894 758**

Polymerisation of ethylenically unsaturated compounds. Du Pont de Nemours & Co., E. I. **894 649**

Metal salts of phenols and low molecular weight acids. Esso Research & Engineering Co. **894 650**

Hydrogenation of nitrogenous carbon compounds. Badische Anilin-& Soda-Fabrik AG. **894 751**

Citric acid derivatives. Reheis Co. Inc. **894 752**

Process for making graft copolymers. Centre Nationale de la Recherche Scientifique and Dow Chemical Co. **894 805**

Process for the production of thixotropic ester binding agents. Farbenfabriken Bayer AG. **894 805**

Bis azo dyes. Aziende Colori Nazionali Affini Acna S.p.A. **894 661**

Vaccine process Pfizer & Co. Inc., Chas. **894 615**

Therapeutic tetracycline compositions. Bristol-Myers Co. **895 027**

Preparations of halofluorocarbons. Dow Chemical Co. **894 885**

Thiophosphonic acid esters. Farbenfabriken Bayer AG. **894 740**

Dyeing nitrogenous fibres. Ciba Ltd. [Addition to 893 466.] **894 616**

Hydrazones, intermediates for their manufacture and process for preparing them. Ciba Ltd. **894 809**

Dyestuffs of the phthalocyanine series containing methylol groups and their production. Badische Anilin-& Soda-Fabrik AG. [Addition to 842 802.] **895 029**

Method of manufacturing polyvinyl acetate and alcohol. Kurashiki Rayon Kabushiki Kaisha. **894 889**

Process of polymerisation of aliphatic or aryl-aliphatic diolefins with conjugated linkage. Compagnie Francaise de Raffinage. **894 756**

Basic dyestuffs of the perylene series and their production. Badische Anilin-& Soda-Fabrik AG. **894 859**

Process for the preparation of polymeric phosphonitrilic chloride. Du Pont de Nemours & Co., E. I. **894 617**

Stabilised liquid preparations comprising tetracycline antibiotics. Pfizer & Co. Inc., Chas. **894 619**

Synthetic latexes comprising ar-mono-vinyl aromatic sulphonic acid salt copolymers. Dow Chemical Co. **895 033**

Room temperature vulcanisable organopolysiloxane compositions. Dow Corning Corporation. **894 758**

Preparation and use of polynuclear polyphenols and the resulting polyphenols and materials for example polymer compositions containing such polyphenols. Shell Internationale Research Maatschappij NV. **894 620**

Thiophosphoric esters of tertiary acetylenic alcohols. Montecatini **894 759**

Compositions for tropical use comprising hydrocortisone and cinchophen. Gillette Co. **894 621**

N-substituted-4-aryl-4-acloxy piperidines. Boehringer, E., Liebrecht, I., Liebrecht, J., Mayer-List, W., Boehringer, W., and Boehringer, H. A. [trading as Boehringer Sohn, C. H.] **895 049**

Basic ethers. Boehringer & Soehne GmbH, C. F. **895 050**

Polychloroprene. Du Pont de Nemours & Co., E. I. **894 701**

Organic polymers and production thereof. Du Pont de Nemours & Co., E. I. **894 702**

Organic polymeric structures. Du Pont de Nemours & Co., E. I. **894 703**

Polymerisation process. Solvic S. A. [Addition to 852 010.] **894 767**

Steroids and the manufacture thereof. Upjohn Co. [Divided out of 894 604.] **894 605**

DIARY DATES

MONDAY 26 MARCH

I.R.I.—Manchester: Engineers' Club, Albert Sq., 6.45 p.m. Papers by Prof. G. Gee.

S.C.I.—London: Middlesex Hospital Medical School, 2 day symposium on 'Relations between chemotherapeutic drugs, infecting organisms and hosts.'

TUESDAY 27 MARCH

S.C.I.—London: 14, Belgrave Sq., S.W.1, 6.30 p.m. 'Organised polymers' by Prof. Charles Sadron.

S.Instr. Tech.—London: Manson House, 26, Portland Pl., W.1, 6.30 p.m., 'Organisation of an instrument maintenance department,' by G. Williams.

WEDNESDAY 28 MARCH

Polarographic Soc.—London: Phy. Dept., Imperial Col., Prince Consort Rd., S.W.7, 2.30 p.m., A.g.m.

S.A.C.—London: The Feathers, Tudor St., E.C.4, 6.30 p.m. Discussion.

S.C.I.—London: 14, Belgrave Sq., S.W.1, 10 a.m. 2 day symposium on 'Uses and limitations of potential-pH diagrams and polarisation measurements in corrosion science.'

S.C.I.—London: R.S.M. (Barnes Hall) 1, Wimpole St., W.1, 10.30 p.m. 'Radioactive fall-out and food supplies.'

THURSDAY 29 MARCH

F.S.—London: Geological Soc., Burlington Hs., Piccadilly, W.1, 2.30 p.m. 'The accumulation and loss of soil potassium in long-term experiments, Rothamsted and Woburn,' by R. G. Warrent and A. E. Johnston and 'The potassium status of some English soils considered as a problem of energy relationships,' by P. W. Arnold.

S.A.C.—Nottingham: Tech. Col., 7 p.m. 'Applications of radio-isotopes in analysis,' by Dr. D. Gibbons.

S.C.I.—Wirral: Carlett Park Col. of Further Education, Eastham, 7 p.m. 'Steric hindrance in analytical chemistry,' by Prof. H. M. N. H. Irving.

S.Instr. Tech.—Chester: Stanley Place, Watergate St., 7 p.m., 'Moisture measurement.'

FRIDAY 30 MARCH

S.C.I.—Manchester: Lit. & Philo. S., 36, George St., 6 p.m. A.g.m. and 'Chemicals used in modern pulping processes,' by Dr. J. Grant.

S.Instr. Tech.—Glasgow: Scottish Bld. Centre, Sauchiehall St., 7.15 p.m. A.g.m. and 'Load cells for tank weighing,' by Dr. J. Scott, T. Gibson and A. Stewart.

Du Pont spending in N. Ireland

Operation of the Du Pont neoprene plant at Maydown, near Londonderry, put more than £3 million into Ulster's economy last year through payrolls and purchases of goods and services, the company has announced. Payroll of the Maydown Works operated by the Du Pont Co. (United Kingdom) Ltd., totalled £500,000 last year, while purchase of goods and services from 130 firms in Northern Ireland amounted to £2.5 million.

CLASSIFIED ADVERTISEMENTS

CLASSIFIED RATES: All sections 5d. per word. Minimum 8/-. Three or more insertions 4d. per word. Box Number 2/- extra.

SEMI-DISPLAY: 30/- per inch. Three or more insertions 25/- per inch.

EDUCATIONAL

CHEMICAL ENGINEERING. Guaranteed Home Study Courses for A.M.I.Chem.E. exam. The highest percentage of successful candidates—up to one third in consecutive years—have been trained by T.I.G.B. Everyone seeking promotion in the Chemical and Allied Industries should send for the T.I.G.B. "Guide to Success". 100 pages of expert advice and details of wide range of guaranteed (Exam and Diploma) Courses, including A.M.I.Mech.E., A.M.I.Prod.E., B.Sc.(Eng.). Courses in individual subjects also available. Send for your copy today—FREE. T.I.G.B. (Dept. 84), 29 Wright's Lane, London, W.8.

FOR SALE

FOR SALE

STORAGE VESSELS — PRESSURE VESSELS

IF YOUR PROBLEM IS DELIVERY

TRY MADEN & McKEE LTD.

6/36′×8′ diam. DE Welded $\frac{3}{8}$″
6/35′×9′ diam. F.E. Welded $\frac{3}{8}$″
3/23′×12′ diam. DE Welded $\frac{3}{8}$″
1/29′×10′ diam. DE Welded $\frac{9}{16}$″
1/28′×8′ diam. DE Welded $\frac{5}{16}$″
6/14′×8′ diam. DE Welded $\frac{1}{2}$″. (75 lbs. W.P.).
1/18′×6′ diam. DE Welded $\frac{5}{8}$″. (200 lbs. W.P.).
2/27′×6′ diam. DE Riveted $1\frac{1}{8}$″. (365 lbs. W.P.).
1/25′×5′ 6″ diam. DE Riveted $\frac{7}{8}$″. (365 lbs. W.P.).
4/24′×6′ diam. DE Riveted $\frac{5}{8}$″. (135 lbs. W.P.).

ALSO LANCASHIRE BOILER TANKS

Maden & McKee Ltd.,
317, Prescot Road, Liverpool, 13.

Advertisers have for sale **regular quantities** of a mixture of Hydrofluoric, Nitric and Acetic Acid, and of Hydrogen Peroxide. What offers please. Bird's Works, Duxford, Cambs.

R.S. Joists—4″×3″ to 18″×7″ in lengths up to 45′.
R.S. Stanchions—6″×5″ to 15′ 8″.
R.S. Channel—4″×2″ to 10″ × 3″ Random lengths.
M.S. Angle—100 tons, 2″×2″×$\frac{1}{4}$″×12′ and 15′ 6″ lengths. 40 tons $2\frac{1}{2}$″×$2\frac{1}{2}$″ to 6″×6″ long random lengths.
M.S. Plate $\frac{3}{16}$″ to $1\frac{3}{4}$″.
Chequer Plate—$\frac{7}{16}$″ o.p. 2′/3′ wide×4′/10′ long.

Maden & McKee Ltd.,
317, Prescot Road, Liverpool, 13.

BOX NUMBERS: *Reply c/o "Chemical Age" Bouverie House Fleet Street EC4.*

FOR SALE: continued

"NINE 36" Square, 33 Chamber, S. H. Johnson 'MJC' Type Cast Iron Filter Presses, 15 ft. 9 in. o/all open, 14 ft. 10 in. o/all closed: complete with plates, frames and Hand Hydraulic Tightening Gear: 220 lbs. p.s.i. Filter Pressure, 2,240 lbs. p.s.i. Hydraulic Pressure. All new—perfect condition. Disposal due to cancellation of project. Further particulars apply to Courtaulds Ltd., Disposal Office, Foleshill Road, Coventry. Tel.: COV. 88771 Extn. 456.

PLANT AND MACHINERY FOR SALE

Baker-Perkins Class BB "Double Naben" Bladed Steam Jacketed Mixers. Four—size 12 and Three—size 11, of 20 and 8 gallons respectively.

Oil Jacketed Double Trough Mixer 48 in. by 36 in. by 29 in. deep. Paddle Blades. Bottom Outlets.

Barron 'U' Sifter Mixer 96 in. by 33 in. by 33 in. with 10 H.P. A.C. Motor.

Gardner 'U' Sifter-Mixers 66 in. by 24 in. by 24 in. with 5 H.P. A.C. Motors. Four available, of modern streamlined design.

Horizontal 'U' Trough Mixers 48 in. by 18 in. by 22 in. Three—Tilting type, Paddle Blades. Glanded.

Over-Arm Twin-Blade, Tilting, 30 gallon Mixers with 3 H.P. Geared Motors. Five available.

Lying at our No. 2 Depot, Willow Tree Works, Swallowfield, Berkshire.

Apply: Winkworth Machinery Limited, 65 High Street, Staines, Middlesex. Telephone 55951.

UNUSED STAINLESS STEEL VALVES

Ex stock at attractive prices, flanges to B.S.T. and A.S.A. Sizes $\frac{1}{4}$ in.-8 in. bore.

Send for Comprehensive List.

G. E. SIMM (MACHINERY) LIMITED,
27, Broomgrove Road, Sheffield, 10.
Tel.: 64436.

Classified Advertisements can be accepted up to 10 a.m. Tuesday for insertion the same week.

SITUATIONS VACANT

A Senior Scientific Assistant
is required by the
ATOMIC ENERGY AUTHORITY
Winfrith, Dorset

to assist in the operation of chemical plant and supervise staff engaged in Laboratory investigations associated with the operation of new reactors and other nuclear experiments.

Applicants should be at least 27 years of age and possess G.C.E. at 'O' level in four subjects including English Language and either Chemistry or Physics.

Preference will be given to applicants with experience in high temperature technology or chemical instrumentation techniques.

Salary in the range £870-£1,160 per annum.

Housing, House Purchase Assistance, Superannuation and Assisted Travel Schemes.

Please send POSTCARD for application form to Personnel Manager (W.467/38), U.K.A.E.A., A.E.E., Winfrith, Dorchester, Dorset, not later than April 13th, 1962.

CHEMISTS, age group 26-32, with at least 1st or 2nd class Honours Degree or equivalent and preferably, but not necessarily, some experience in either (*a*) preparation of high purity compounds (*b*) trace analysis or (*c*) solid state chemistry, required for research team. Capacity for hard work, original thought and enthusiasm for basic research essential.

Salary £950 to £1,350. Five-day week and pension scheme.

Apply, with full details of career and present salary, in confidence, to J. A. Radley Research Institute, 220/222 Elgar Road, Reading.

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY
PRINCE CONSORT ROAD, LONDON, S.W.7.

Applications are invited for the post of Lecturer in the Department of Metallurgy. Applicants, who should have a degree in Chemical Engineering, Mechanical Engineering or Metallurgy, will be required to teach Process Engineering Metallurgy, particular attention being given to the effects of heat and mass transfer and flow on the design and operation of metallurgical processes. Salary in the range £1,050 to £1,850 per annum (bar at £1,550), depending on qualifications and experience, plus £60 p.a. London Allowance, F.S.S.U. and Family Allowances if applicable. Applications, with full curriculum vitae, to Professor F. D. Richardson, Department of Metallurgy.

DEVELOPMENT CHEMIST
JEYES SANITARY COMPOUNDS CO. LTD.

Manufacturers of a wide range of disinfectants and household products have a vacancy for a DEVELOPMENT CHEMIST.

Applicants must have a good degree or A.R.I.C. Some industrial experience and a working knowledge of emulsion technology would be useful.

The successful candidate will work with a minimum of supervision and eventually control a section of the R. & O. Laboratories.

The position carries a good and progressive salary with pension and other benefits.

Apply Personnel Manager, 31, River Road, BARKING, Essex.

RESEARCH CHEMIST

An old established manufacturer of dyestuffs requires a young graduate for expanding Research Department. The position involves research and development of dyestuffs and intermediates. Appropriate experience is not essential; students graduating this summer will be considered. Replies giving full details of age, qualifications and experience to James Robinson & Co. Ltd., Hillhouse Lane, Huddersfield.

PATENTS & TRADE MARKS

The Proprietors of Patent No. 806653 for "Improvements in or Relating to Separation of Elements of Refractory Chemical Compounds" desires to secure commercial exploitation by Licence or otherwise in the United Kingdom. Replies to **Box No. 3784.**

WANTED

WANTED FOR CASH: Surplus DIESEL GENERATING SETS, DIESEL ENGINES and MARINE ENGINES. Up to 5,000 h.p. Top price paid. We dismantle and remove. Send details to Messrs. Arnold, Feltham Road, Ashford, Middlesex. 'Phone Ashford, Middx. 3349.

WORK WANTED & OFFERED

CRUSHING, GRINDING, MIXING and DRYING for the trade
THE CRACK PULVERISING MILLS LTD.
Plantation House,
Mincing Lane,
London, E.C.2.

PULVERISING of every description of chemical and other materials. Collections, storage, deliveries. **THOMAS HILL-JONES, LIMITED, INVICTA WORKS, BOW COMMON LANE, LONDON, E.3. (TELEPHONE: EAST 3285.)**

? From whom can we hire a fleet of tankers

Who is the Director of D.S.I.R. National Chemical Laboratory ?

? Who can we consult about polymers

What is Dr. B's latest appointment and present address ?

? Who makes methyl ethyl ketone

Who possess the 'know-how' to build a synthesis ammonia plant ?

The answers to the above questions and thousands of others will be found in the

1962

Chemical Age

DIRECTORY

and WHO'S WHO

A few copies are still available to Chemical Age subscribers at 25/- (packing and postage 3/6 extra). Orders should be addressed to

154 Fleet Street, London, E.C.4

Telephone : Fleet Street 3212

Chemical Age Enquiry Service

For fuller details of equipment, apparatus, chemicals etc., in the advertisement or editorial pages of Chemical Age, fill in the coupons below, ONE PER ENQUIRY, and return to us.

Please send further details about.....
.....
.....
mentioned on page.....*of this issue.*
Name..... *Position*.....
Firm.....
Address .....
.....
Chemical Age Enquiry Service.

Please send further details about.....
.....
.....
mentioned on page.....*of this issue.*
Name..... *Position*.....
Firm.....
Address .....
.....
Chemical Age Enquiry Service.

Please send further details about.....
.....
.....
mentioned on page.....*of this issue.*
Name..... *Position*.....
Firm.....
Address .....
.....
Chemical Age Enquiry Service.

★ *Detach this page complete then fold as marked overleaf to use the post-paid reply folder*

2nd FOLD

Postage will be paid by the Licensee

No Postage Stamp necessary if posted in Great Britain or Northern Ireland

BUSINESS REPLY FOLDER
Licence No. 2501

CHEMICAL AGE
154-160 FLEET STREET
LONDON, E.C.4

1st FOLD

3rd FOLD

Chemical Age

ENQUIRY SERVICE

★

This is a special service for readers of

CHEMICAL AGE

It is designed to give fuller information on equipment, apparatus, chemicals etc., mentioned in this issue—whether in the editorial text or in an advertisement

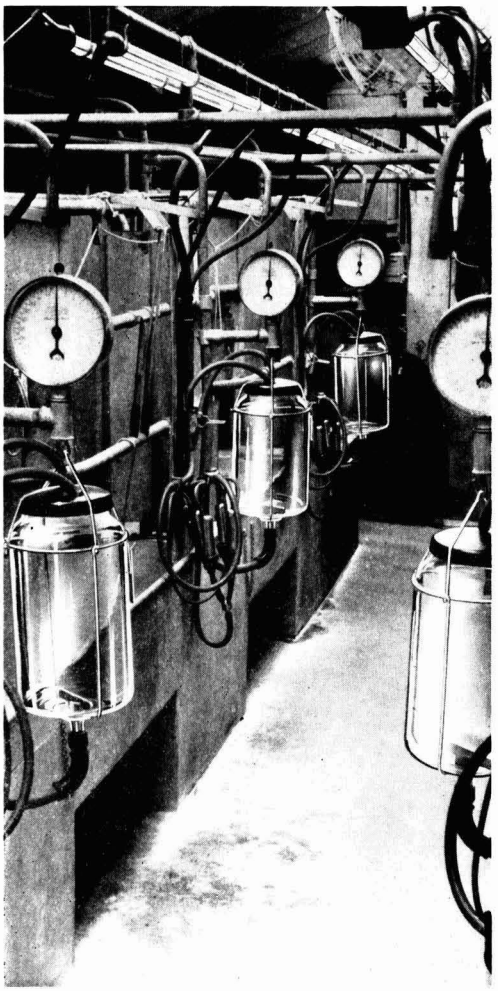
Cut out the whole of this page, fold as instructed with post-paid address on the outside

★

Chemical Age
154 Fleet Street, London, E.C.4
Tel.: Fleet Street 3212

CUT ALONG THIS DOTTED LINE

Milk Recording Jars are now made of 'PYREX' INDUSTRIAL GLASS



Yet another example of the surprising way ***'PYREX'*** is being used for all types of applications hitherto considered as only a proposition for conventional materials.

'PYREX' is **durable; easy to clean; corrosion and abrasion resistant; transparent;** has **low thermal conductivity; versatility of design** and **predictable performance.**

Have YOU considered the possibilities of a liquid collecting and transporting system in glass? If not, then consider ***'PYREX'*** NOW—our Development Dept. can give you the answer to what may be a vital question.

To Technical Sales Dept., James A. Jobling & Co. Ltd., Wear Glass Works, Sunderland, England: 4(I)3

Name (& Dept.) .....

Company .....

Address .....

.....

Please add my name to your list for receipt of your *NEW 'PYREX' INDUSTRIAL GLASS CATALOGUE* and Quarterly issues of your Bulletin *'PYREX' INDUSTRIAL GLASS.*

consider

'PYREX' INDUSTRIAL GLASS

Regd. Trade Mark

now!

JAJ PYREX

James A. Jobling & Co. Ltd. · Wear Glass Works · Sunderland · England

Printed in Great Britain by THE PRESS AT COOMBELANDS LTD., Addlestone, Surrey, and published by BENN BROTHERS LTD., at Bouverie House, 154 Fleet Street, E.C.4. Registered at the General Post Office. Entered as Second Class Matter at the New York U.S.A., Post Office.