

# Chemical Age

incorporating  
PETROCHEMICALS and POLYMERS

I.C.I. LICENSE NEW  
GAS PROCESS (P. 516)  
COMMONS DEBATE  
ON SULPHATE (P. 519)  
TRANSPORT CONTAINERS  
AND PACKAGING (P. 521)

31 March 1962. Vol. 87. No. 2229

THE WEEKLY NEWSPAPER OF THE CHEMICAL INDUSTRY

What they all have  
in common . . .

They use water and—which is more to the point—they all use water that has been correctly treated or purified by Neckar to meet individual requirements.

The advertisement features a central black oval with the word "NECKAR" in white, bold, sans-serif capital letters. Surrounding this central logo are several white fish-shaped icons, each containing a different company logo. The logos include: Gateway (a stylized 'G' with a castle tower), ICI (a blue circle with a red flame), Electrolux (the word "Electrolux" in a white oval), B.W.&CO. (a golden lion), ICI (a circle with wavy lines), International Harvester (a red 'H' with a harrow), a circular logo with a bird and the word "WATSHALL", STP (a green sun over an open book), C.E.G.B. (a blue circle with white text), TIMKEN (the word "TIMKEN" in red with "tapered roller bearings" below), DH (a stylized 'D' and 'H' with a propeller), HORLICKS (the word "HORLICKS" in yellow on a black background), a green shield with a sword and the words "TRADE MARK", OXO (the word "OXO" in white on a red background), REGENT (the word "REGENT" in white on a red and blue background), and A.E. (a green gear with "A.E." inside). The background is a blue, wavy pattern representing water. At the bottom, there is a fishing hook on the right side.

**NECKAR**

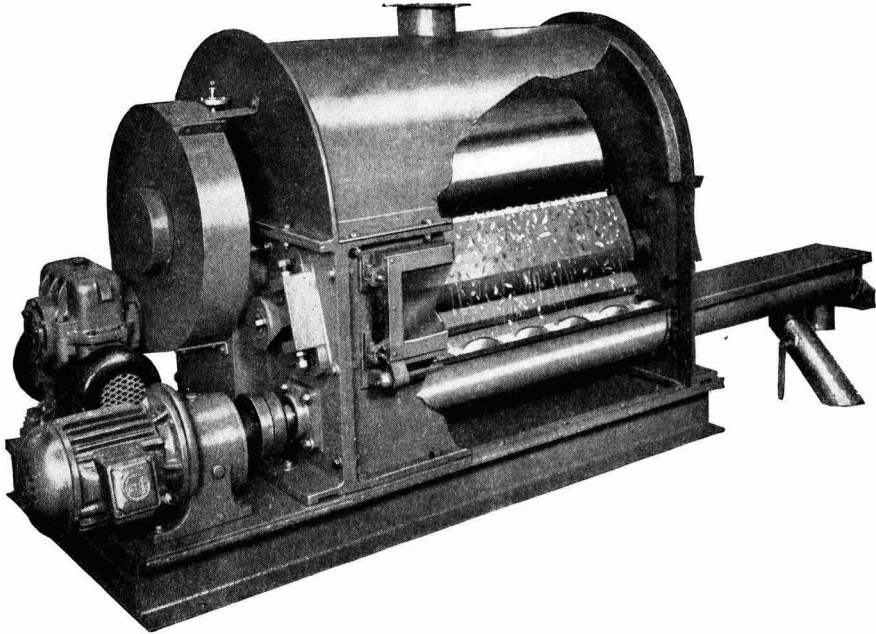
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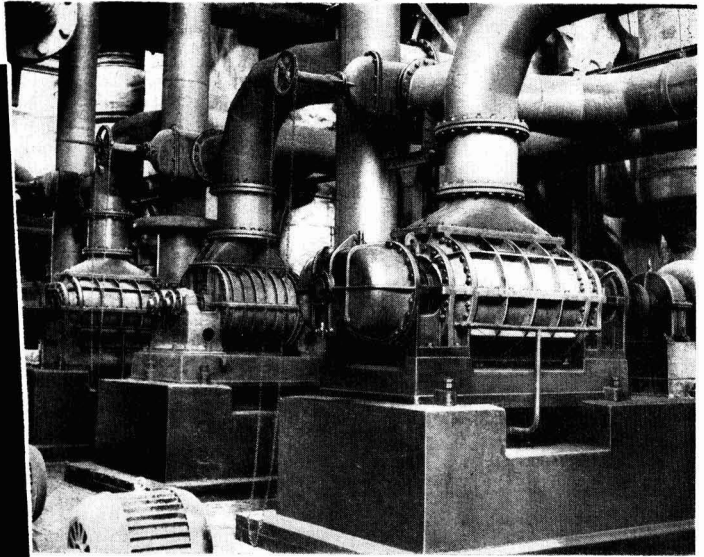
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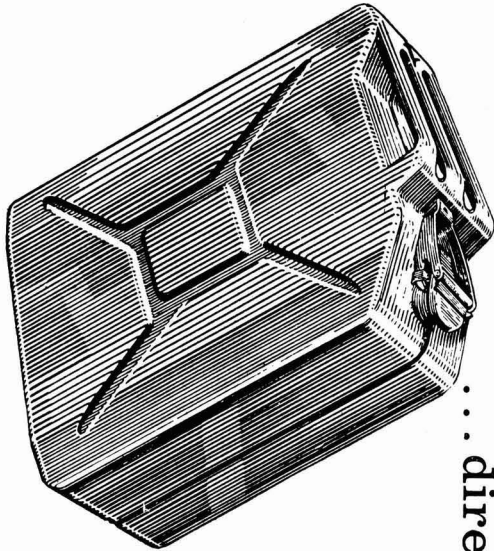
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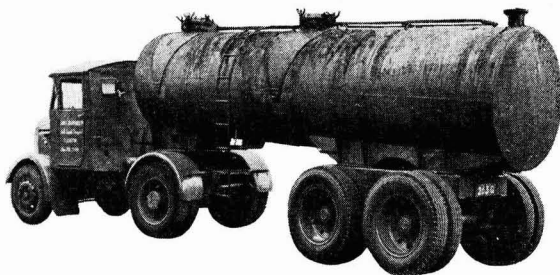
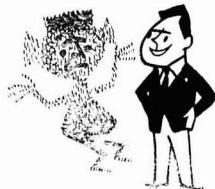


Illustration (by courtesy of James Hemphill Ltd.) shows 10-ton Road Tanker, lined with MAC-BOND Rubber to resist the action of phosphoric acid.

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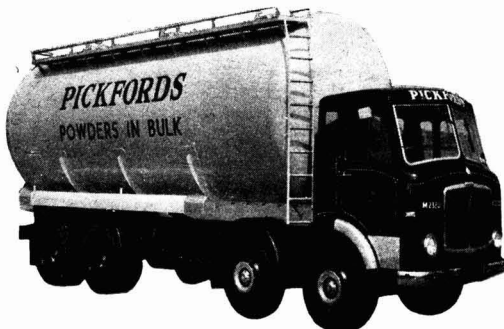
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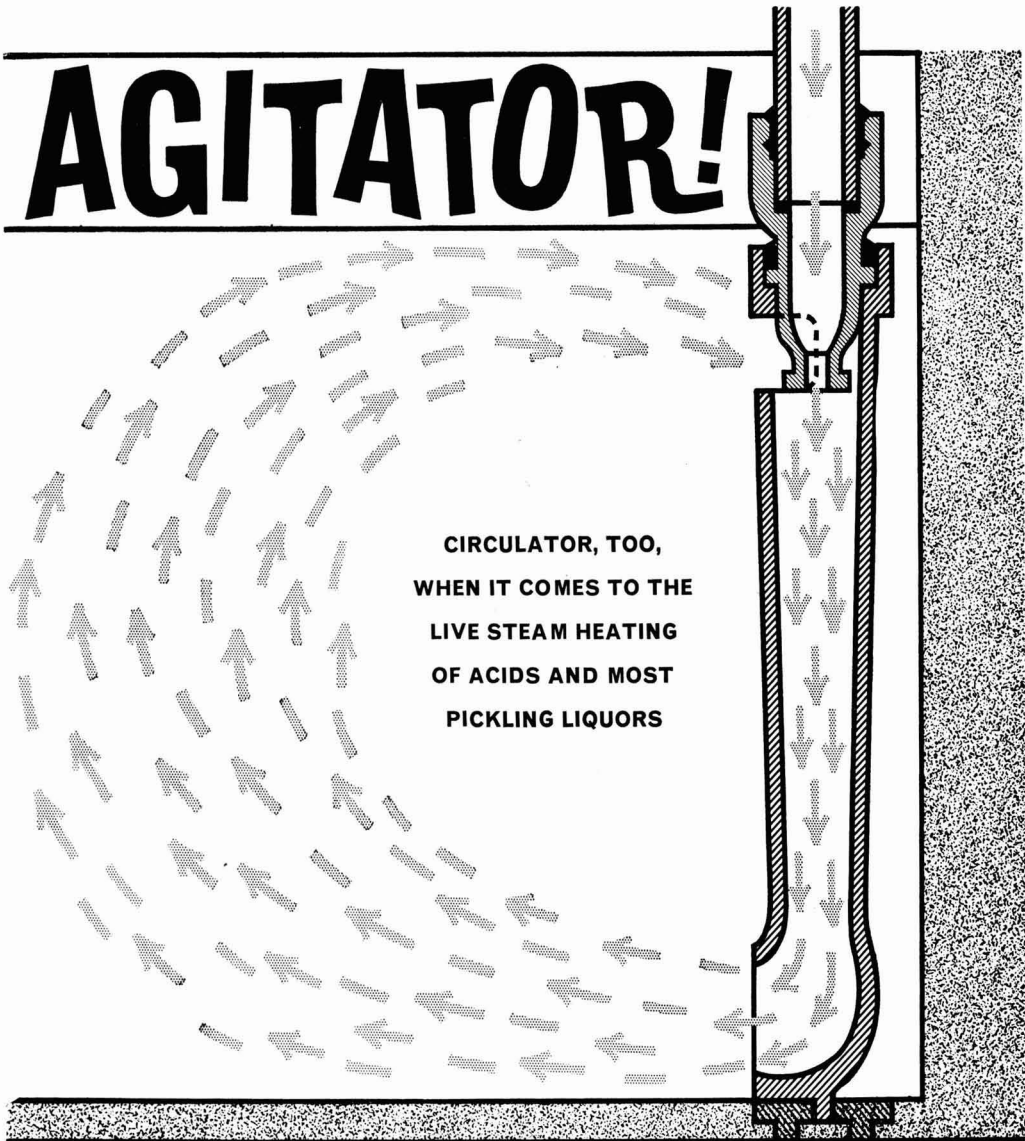
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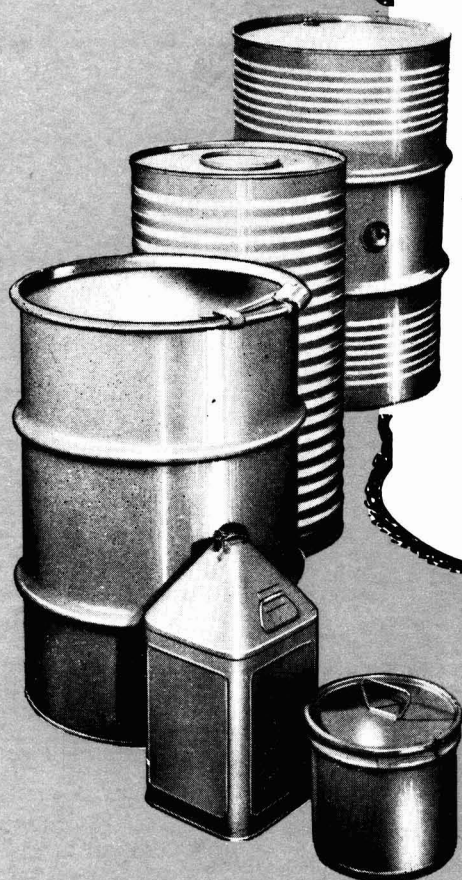
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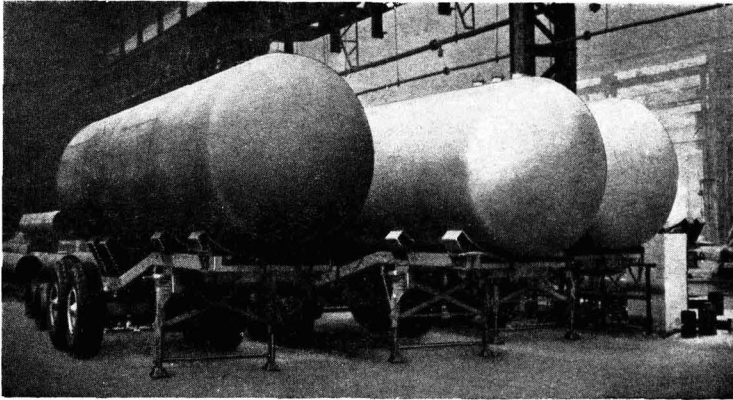
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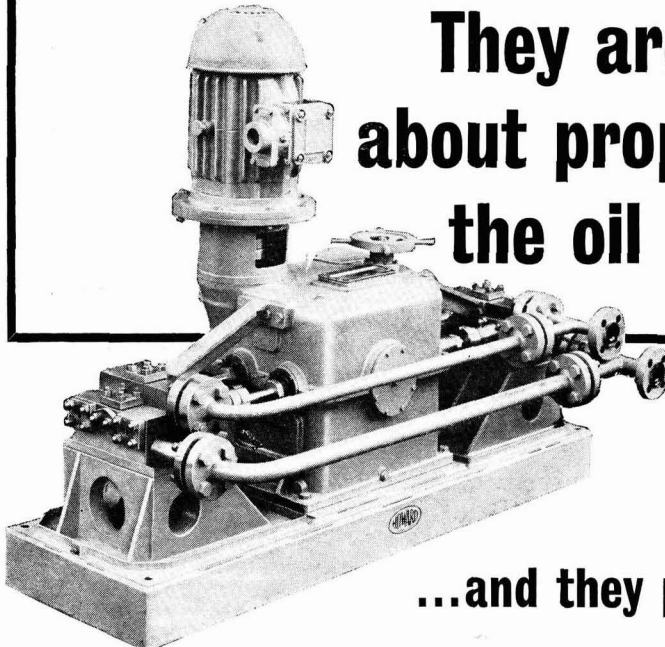


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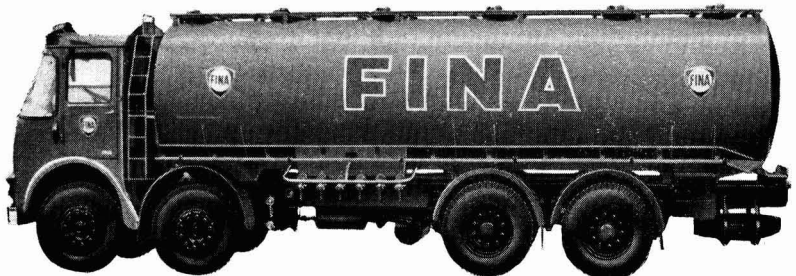
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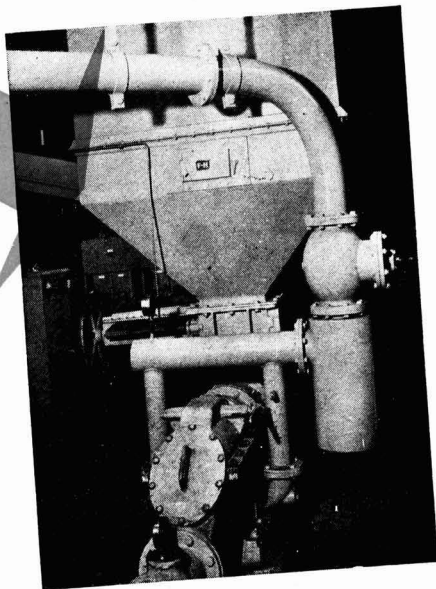
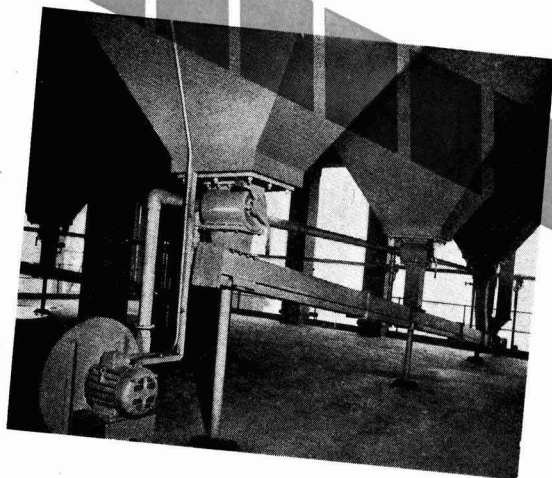


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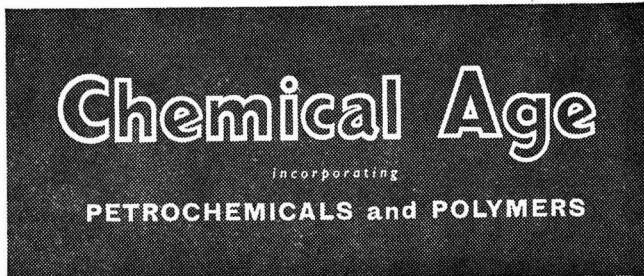
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**BOUVERIE HOUSE · 154 FLEET STREET · LONDON · EC4****AMMONIUM SULPHATE**

**P**OLITICIANS are notoriously ill-informed about British industry and the debate in the House of Commons last week on ammonium sulphate proved no exception (see p. 519).

It is certainly true that the Board of Trade's timing on the announcement of the decision to impose a £3/ton anti-dumping duty on ammonium sulphate originating in East Germany was singularly unfortunate. The statement could not have been issued at a more inopportune time, coinciding as it did with the Leipzig Spring Fair.

Thus it appeared that the B.o.T. were discouraging trade with East Germany at the very time when British industry was spending large sums in an endeavour to widen two-way trade between the two countries. It is difficult to see why the B.o.T. chose this precise moment to release details of an anti-dumping duty that had been under investigation for nine months.

But that does not alter the validity of the anti-dumping measure itself. The Board of Trade state that thorough study—and nine months should have given them ample time—has shown that imports of ammonium sulphate have been at a price which would materially injure the British industry. Had the situation gone unchallenged it would have provided an open invitation to other European producers to 'dump' their surpluses on the U.K. market.

It is nonsense for farming interests to appeal against this decision on the grounds that it would raise the cost of fertilisers to them while at the same time appealing for anti-dumping measures on agricultural produce. If the Government were to allow dumping to continue, the home producers' margins could be reduced to such a low level that they could no longer earn a reasonable return on capital invested. They could well be forced out of business as a result, and although it is difficult to imagine I.C.I. being placed in such a position, the principle, once applied, must hold good for all companies, large or small.

It would certainly not be in the national interest to allow an efficient industry to be jeopardised in that way. Obviously, the company's current programme of modernising their synthesis gas programme at a total cost of more than £20 million would be hit if dumping were to continue on any large scale.

In cases of dumping, the argument is frequently put forward that U.K. producers are themselves exporting at below their home market prices. This argument is fallacious. For most major chemical products, U.K. capacity exceeds home market needs. That spare capacity must be utilised to the full if prices to home users are to be kept down. The only way to utilise capacities to the full is by exporting.

The world's chemical industry is highly competitive and export prices must be keen if Britain is to gain any worthwhile share of overseas trade. In the case of ammonium sulphate, unlike the East Germans, Britain does not sell to countries which have their own production. There is no question therefore of harming local industries by selling to Eire or other countries at prices below the home market level.

Arguments of M.P.'s that the fertiliser subsidy is going to the chemical industry are blatantly false. The subsidy enables farmers to buy fertilisers at below the full economic price.

แผนกห้องสมุด กรมวิทยาศาสตร์

## Geigy's annual report

# GROUP TURNOVER UP 12%, MANY EXPANSION PROJECTS IN HAND

**A**NUAL report of J. H. Geigy AG, Basle, shows that over last year turnover of the parent company totalled some S.Fr.332 million (£27.2 million), or 6% higher than in 1960, while that of the world-wide Geigy group as a whole rose by about 12% to reach the equivalent of S.Fr.972 million (£89.9 million). Turnover increases above the world rate were recorded in the U.S., those within the Common Market area approximating the overall rate and E.F.T.A.-bloc turnover being below it.

Within Switzerland, the Rosental works, which produces mainly dyestuff and pharmaceuticals, is to have its operations transferred in a phased programme partly to the Swiss subsidiary Geigy-Werke Schweizerhalle AG and partly elsewhere, although in the meantime pigment dye production and processing facilities are to be expanded for the utilisation of long-term plant remaining on the Rosental site. The Geigy-Werke Schweizerhalle AG concern is itself being built up, work last year in the expansion programme being concentrated on herbicide, pharmaceutical and solvents units.

The Grenzach works, which, although on the German side of the Swiss-German border, is considered as part of the parent company, was extended in 1961 and installation started in a new intermediate products and chemicals unit there.

Geigy subsidiaries overseas have been engaged in expansion projects, those for the U.K. are referred to in 'Project News'.

Elsewhere in Europe, the construction of a new pharmaceutical plant at Huningue, France, has been started by Laboratoires Geigy S.A., of Paris, while the Geigy-Ciba-Sandoz plant at Seriate, Italy, undertook certain capacity expansions. Non-production facilities were built or are being built in France, Italy and Spain.

In the U.S. the Cranston plant of the Geigy Chemical Corporation, of New York, has opened a new fine chemicals plant and a laboratory on its Rhode Island site, while McIntosh, Ala., finished a new phosphoric acid-insecticide unit and increased herbicide capacities; this latter plant has now been linked to the local natural gas network—although the gas will initially be used as fuel, its use as chemical raw material is foreseen for the future.

Geigy de Brasil S.A. continued to expand their facilities, while Geigy (Australasia) Pty Ltd., of Sydney, completed the building of office facilities at the Melbourne branch. The Geigy-Ciba-

Sandoz-owned Resende plant in Brazil opened its new dyestuff facilities.

For use by the whole group, the parent company formed last year a Chemical Development Department for the systematic collection and processing of all relevant data, while two new planning departments—General Planning and Technical Planning—came into being.

## I.C.I. synthesis gas process licensed to P.G. and Humgals

**N**OW that the first commercial unit built by I.C.I.'s Billingham Division to operate the new synthesis gas process has been successfully commissioned, I.C.I. announce that the Power Gas Corporation Ltd., of the Davy-Ashmore Group, and Humphreys and Glasgow Ltd. have been appointed licensees for the U.K. A number of U.K. gas boards are known to be interested in the process for the production of town gas.

Thirty overseas enquiries have been received from contractors or manufacturers in France, the U.S., India, Japan, Sweden and Germany. No overseas licences have been granted as yet, but consideration is being given to some applications from U.S. companies.

The first commercial unit is at the Heysham, Lancs, works, where Nitro-Chalk 21 is made in substantial quantities. The new process will also be put to work at Severnside where a new £10 million complex to produce 100,000 tons of ammonia a year, plus associated fertilisers, is due on stream in 1963 and at Billingham where a £6 million programme is in hand to modernise and replace the coke-based gas plants. This work is also for completion next year. (New Power-Gas contract, see p. 520.)

No cost or capacity figures are given for the new Heysham plant, but it is stated to involve the spending of several £ millions. The three schemes will cost a total of more than £20 millions. Both the Billingham and Severnside projects are said to be up to schedule.

As Mr. S. P. Chambers, I.C.I.'s chairman, recently told CHEMICAL AGE (17 February, p. 279), the process represents an important stage in I.C.I.'s efforts to keep down fertiliser costs and prices. It is with these cost reductions in mind that the company has already been able to cut prices to farmers and to expand its production.

The process is the first stage in the production of ammonia, methanol, fer-

## Shell-I.C.I. Spanish projects

NEGOTIATIONS are still taking place for the installation of plants by I.C.I. and Shell at Puertollano, Spain. In October of last year it was believed that Montecatini and Phillips may also be included in the talks.

It is reported that I.C.I. would participate with Union Espanola de Explosivos, S.A. Cros and the state-sponsored Instituto Nacional Industria in setting up a plant expected to produce 30,000 to 50,000 tons of high pressure polythene a year and that Shell would join with Union Espanola de Explosivos and Instituto Nacional de Industria in the construction of plant, costing \$6 million, for the production of ethylene oxide, isopropanol and derivatives. Neither company, however, confirm details of any agreements.

tilisers and other Billingham Division products. In the process, light oil fractions are continuously reacted with steam over a catalyst at an elevated pressure. The process is not limited to the use of light oil fractions as feedstock, since hydrocarbon gases can also be used.

It is understood that with very little modification, plants using the process at Heysham, Billingham and Severnside could be adapted to natural gas as feedstock. As stated in CHEMICAL AGE, 17 February, p. 275, the use of natural gas is likely to revolutionise the cost of producing ammonia, methanol and fertilisers. The recent discovery of very large gas fields in Holland could give the company a convenient source of feedstock not only for its U.K. operations, but also if it was decided to put the process to use at the Rotterdam site.

Humphreys and Glasgow and Power-Gas have both been licensed to provide the process throughout the world for the production of town gas and in most countries for chemical purposes.

The process reforms straight-run liquid distillate hydrocarbons with final boiling points above 200°C, state Power-Gas. Gaseous and more volatile liquid hydrocarbons of this type can also be reformed in the same plant. Efficiency when reforming liquid hydrocarbons is comparable with that of existing steam reforming processes that can treat gaseous hydrocarbons only.

The process can be operated at either normal pressure or at higher pressures, for instance more than 250 p.s.i. The ability to operate at pressure results in substantial economies when the process is used for the manufacture of gas for high pressure synthesis. Efficiency at elevated pressure is at least as good as at low pressure.

Gas produced contains very little sulphur and can be passed directly to a conventional water gas shift conversion plant in which the catalyst is maintained in the fully active, un sulphided state.

## Project News

# SHELL ETHYLENE UNIT COMPLETED 4 MONTHS AHEAD OF SCHEDULE

COMPLETED four months ahead of schedule, the modified No. 1 ethylene plant of **Petrochemicals Ltd.**—a Shell Chemical subsidiary—at Carrington will go on stream shortly. The work, which consisted of revamping the gas separation section, was carried out by the **Lummus Co. Ltd.**, with whom the fixed-price, lump-sum contract for engineering, procurement and construction was placed in 1960.

The project forms part of the second £25 million expansion at Carrington since Shell first acquired facilities there in 1955. The No. 1 ethylene fractionation unit utilised 'cold boxes' for insulation and the work has involved replacing these with vessels, columns, etc., individually insulated as required. It was previously reported (C.A., 29 Oct. 1960, p. 725) that with the completion of this project naphtha throughput would be boosted to 450,000 tons/year.

A second ethylene unit, built by Kellogg International Corporation, and with a design capacity of 55,000 tons/year of ethylene from straight-run naphtha, came on stream in the autumn of 1960.

## Simon-Carves build Britain's biggest acid plant

THE contact sulphuric acid plant now being built for **I.C.I. Billingham Division** at Severnside Works by **Simon-Carves Ltd.**, Cheadle Heath, Ches., will be Britain's biggest single stream acid plant. With capacity for 360 tons/day  $H_2SO_4$ , it will form part of I.C.I.'s £10 million fertiliser complex (see also 'Project News,' 10 March). Currently Simon-Carves/Monsanto acid plants are operating in 23 countries with capacity exceeding 3 million tons of acid a year.

At present, the largest U.K. acid unit is the 300 tons/day plant commissioned last year by Laporte Titanium Ltd., at Stallingborough. This was also built by Simon-Carves.

## C.J.B. awarded contract for Marbon ABS plant

MAIN contractors of the joint ABS venture of the **Marbon Chemical Division** of Borg Warner and **Anchor Chemical Co.** of Manchester are **Constructors John Brown Ltd.** C.J.B. have been instructed by Marbon to proceed with design engineering, procurement and construction of the plant which will produce Cyclocac brand polymer. The compound will be marketed in the U.K. as the finished product.

The plant will be erected at Grangemouth. Construction is due to start in May of this year and is scheduled for completion in 1963.

This plant was first announced last October (C.A., 14 October, page 584).

As stated in C.A., 24 February, page 311, the Distillers Plastics Group have facilities for the production of 1,000 tons/year of A.B.S. copolymer. At that time, **CHEMICAL AGE** learned that Distillers had made no arrangements for the supply of feedstock to Anchor/Marbon from their associated Grangemouth petrochemical facilities.

## B.N.S. accelerate Gloucester expansion plans

PRODUCTION and sales of British nylon yarns and staple fibre are now at record levels and current demand is said to be so high that further expansion is already scheduled by **British Nylon Spinners Ltd.** for their recently opened Gloucester plant has been accelerated. Now the second largest nylon producers in Europe, B.N.S. have outstanding commitments of about £1.65 million compared with £4.95 million a year ago.

## Indian sulphuric acid plant contract for Simon-Carves

CONTRACT worth about £500,000 from **Fertilisers and Chemicals, Travancore Ltd.**, has gone to **Simon-Carves Ltd.**, Cheadle Heath, Stockport, for detailed engineering design and supply of essential imported and specialised Indian components for a 450-ton daily sulphuric acid plant to be set up in Kerala.

## New Crosfield plant now completed

THIRD stage of **Joseph Crosfield and Sons Ltd.**'s rebuilding programme is now completed. This has involved moderni-

sation of existing buildings at Warrington plus the installation of new soap-making and glycerine recovery plant. By April all production should have been transferred to the new plant. Preliminary design work for subsequent stages of the programme is now in hand. Of the estimated £881,000 total cost of the project, some £800,000 has been spent.

## Second distillate tower order for Uddeholm

SECOND order of its kind within two months, for the fabrication and erection of a wax distillate vacuum flash tower, has been entrusted to **Uddeholm Ltd.**, London, by Kellogg International Corporation, this time for the new **Gulf Oil** refinery at Rotterdam. Value of the order is about £23,500.

## Phosphoric acid plant for Argentina

RECENTLY completed at Buenos Aires is a phosphoric acid plant—believed to be the first in South America to use the thermal process—for Villa Aufricht and Cia. Special equipment, engineering and technical services were provided by the **Albright and Wilson Group** of London (C.A., 17 June, 1961, page 985). The plant starts production this month with an initial capacity of 7,500 tons/year of high-purity acid. Raw material for the present will be imported phosphorus but it is planned in the future to use phosphorus produced in southern Argentina.

## £100,000 coal by-products plant contract

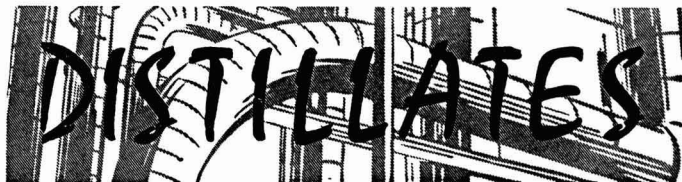
ORDER for a by-products plant to be erected at Norwood Colliery, Newcastle on Tyne, has been received by the Engineering Division of Newton Chambers and Co. from the North Eastern Division of the **National Coal Board**. Approximate value of the contract is £100,000. The installation will consist of a condensing plant, washing plant, and ammonia liquor concentration plant.

(Continued on p. 520)

## I.C.I. insecticide factory in Ghana



I.C.I.'s factory for the production of **Gammalin 20** insecticide at Tema, near Accra, which has been in continuous operation since it was opened in 1959. The factory was built to meet the urgent call for very large quantities of the insecticide to counteract damage from the capsid bug—a major factor limiting high cocoa yields in Ghana. A control scheme, initiated by the Government of Ghana, and involving the extensive spraying of cocoa trees with **Gammalin 20**, has proved highly effective in raising cocoa production.



★ SOME of the most interesting questions raised in the Commons debate on ammonium sulphate last week came from an M.P. more closely connected than most with trade with East Germany. Mr. G. B. Drayson is connected with the Sterling Group, of which Propane Fertilisers, importers of East German sulphate, are members. A visitor to the Leipzig Fair, Mr. Drayson alleged that agreement was reached there between representatives of I.C.I. and the Leuna Werke on the limitation of imports from East Germany.

Fertilisers were also in the news last week, with the *City Press* making fantastic allegations about the possibility of an I.C.I. bid for Fisons. That journal stated that Sir Clavering Fison would now like to see Fisons sold to the highest bidder and that Lord Netherthorpe would "doubtless also like to see the business sold, possibly to I.C.I."

Although I have no inside knowledge, I am sure that Fisons would fight as vigorously as Courtaulds to maintain their independence and also that I.C.I. would be the last chemical company at this stage to start another take-over bid of such magnitude.

★ TALKING of take-over bids brings me to the latest episode in the *Observer* saga on how I.C.I. "became a thwarted giant". This week Mr. Roy Jenkins, M.P., 'discloses' that at one stage Mr. Chambers was proposing a merger in which Courtaulds would take over Terylene and that Sir Alan Wilson and Mr. F. Kearton of Courtaulds would join the I.C.I. board.

As in the first instalment of Mr. Jenkins' revelations, most of the disclosures seem to concern Courtaulds, for it is stated that a proposal of Mr. Kearton that Courtaulds should pay a second interim dividend was supported by R. Mathys, George Courtauld, W. P. Courtauld, Arthur Knight and P. Koppel. Strenuously opposed, it is claimed, were Sir Alan and some outside directors.

An "extremely heated" meeting of Courtaulds board was held on 16 December—the following day—when Mr. Kearton's proposals met strong opposition and it was decided to adjourn until the following Tuesday. That decision, says Mr. Jenkins, meant that Courtaulds lost the initiative to Mr. Chambers. I.C.I. directors met at Mr. Chambers' house on Sunday, 17 December, to find the drive full of Pressmen and TV cameras, following the mystery telephone call that told Fleet Street that I.C.I. would hold a Press conference on the Common Market.

On the same day, the *Daily Mail* telephoned Mr. Chambers asking questions

about an alleged merger with Courtaulds and on the following morning the "cat was out of the bag".

★ ALTHOUGH an outline of the Snia Viscosa process for the production of caprolactam is well known, nothing has been published about the Emser/Inventa process which I.C.I. were to have used in the deferred plant. Certainly I.C.I. have revealed nothing, not even to the extent of saying which raw material will be used. However, my information is that the process developed by Inventa in conjunction with Emser Werke is a direct oxidation of cyclohexane to cyclohexanone obtained in a smooth reaction with a yield of 78%, 7% of which is  $\epsilon$ -hydrocaproic acid.

Emser were using this process three years ago, and at that time were already studying a further improved process, which they claimed to be the cheapest imaginable process for caprolactam. On a laboratory scale the yield contained 61%  $\epsilon$ -hydrocaproic acid, the other 39% being adipic and caproic acids. It was thought possible to change over to the new process without radical alterations to the existing installations.

I.C.I. are presumably contemplating the use of the 'cheapest imaginable process'.

★ RECENT appointment of Dr. A. J. Amos as a director of Procea Products Ltd., bread and flour processes, London, and as chairman of their technical committee to advise their relatively new subsidiary, Adhesives Development Co. Ltd., is not surprising in view of his eminence in food research, particularly cereals, milling and baking.

Dr. Amos told me this week the appointments would not be full time and thus would not affect his partnership with Dr. D. W. Kent-Jones in their consultant business at Willesden, London.

He said a big by-product of Procea was starch, widely used in adhesives, and his role as chairman of the technical committee would be largely concerned with that aspect.

Incidentally, Dr. Amos was in the news in our issue last week through his re-election as president of the Society for Analytical Chemistry.

★ Two recently announced developments in packaging for which big outlets are seen, are described in this issue. The first, Pakord industrial weftless tape made of rayon, laminated with British Resin Products' Epok p.v.a. resin into a tough flat flexible strapping, is

likely to make inroads into the market now held by steel strapping.

It is stronger, requiring more energy to break than steel of equal widths, is inert, will not lash back and is light and easy to handle. Fibre Tapes Ltd., the producers, are just getting into top gear for a big sales drive, with demonstrations being held all over the country.

In the other development, I.C.I. Plastics Division have come with a new series of rigid p.v.c. compounds developed for bottle blowing. Combining extreme clarity, with toughness, imperviousness to odour or flavour, chemical resistance and low cost, these should see new markets develop.

★ THE use of rubber for transporting chemicals is no new development, but I was interested to learn from Mr. D. F. Aitken, author of the article on p. 521, that as long ago as 1736 la Comandine reported that the Amazonian Indians used rubber bottles for "all sorts of liquids." Before the end of the eighteenth century, the Mexicans had developed special containers for carrying mercury.

It is far cry from those small and primitive flasks to the kind of equipment needed to transport modern chemicals in bulk. For even moderate-sized containers some means is required to add the necessary structural strength to the unique combination of flexibility, impermeability, ease of fabrication and high chemical resistance offered by rubber, both natural and synthetic.

So far two highly successful solutions of this problem have been found. One involves the bonding of rubber to metal and the other to man-made fibres.

★ BRITISH Oxygen's largest vehicle in their road tanker fleet of more than 1,200 vehicles (see p. 525) is a far cry from their first tankers also shown on the same page. The new 24-ton tanker carries the liquid equivalent of about 300,000 cu. ft. of gaseous oxygen—more than twice the U.K. annual production of oxygen 75 years ago. This vehicle is the biggest of its kind in Europe.

Other tankers in the B.O.C. fleet vary in capacities from 50,000 to 200,000 cu. ft., the most common being the well-known 105,000 cu. ft. vehicle with spherical tank. Total capacity of the fleet is 20.5 million cu. ft.

One of the company's most complex tasks is the movement of liquid gas through the network of B.O.C. distribution centres so that as demand rises in one area and stocks fall, extra supplies can be brought in from elsewhere. Transfers of this type follow no set pattern and it is not unusual for as much as 35 million cu. ft. of oxygen to be moved from depot to depot in one week, involving some 60,000 miles of driving.

*Alembic*

# AMMONIUM SULPHATE DUMPING IN U.K.

## M.P. quotes 'Chemical Age' in Commons debate on new Order

A COPY of CHEMICAL AGE dated 17 March was produced in the House of Commons last week by Mr. G. B. Drayson (Cons., Skipton) when the Order imposing an anti-dumping duty of £3/ton on East German ammonium sulphate was passed by a majority of 29, one of the smallest majorities the Government has had.

Mr. Drayson, who acknowledged his association with the company importing East German potash and ammonium sulphate, had with him a copy of CHEMICAL AGE of 17 March containing a photograph of I.C.I. staff at the Leipzig Fair shaking hands with Herr Weiss, the Deputy Minister of Foreign Trade. Dr. Drayson said: "I suppose it can be said that they are smiling. They might be described as adopting a sycophantic attitude to Herr Weiss. The magazine states: 'I.C.I. do £5 million worth of business a year in Eastern Europe.' I am not surprised that they are smiling."

### Enquiry called for

Mr. Drayson, who called for an enquiry into the cost of producing ammonium sulphate in the U.K., disclosed that while in Leipzig he had discussions with I.C.I. representatives and directors of the Leuna works and claimed that it was agreed that only 15,000 tons would be brought into the U.K. during 1962/63, compared with 19,000 this year before the order came into operation. That total of 15,000 tons represented about 3% of Britain's total needs yet, he declared, I.C.I. had asked for a sledgehammer to crack "this tiny nut of 3% which competition they say they cannot face."

It was agreed in Leipzig that the West German Government would not raise their exports beyond a figure acceptable to I.C.I. I.C.I. representatives asked at that point "What can we do to get this Order rescinded? We do not want it now."

Mr. Drayson felt the Order would cost I.C.I. a great deal more than the profit they hoped to make by selling an additional 15,000 tons out of their production of 800,000 tons on the home market.

Production at Leuna was rather similar to that in the U.K. about 800,000 tons and they had 200,000 tons available for export. Holland was offering ammonium sulphate at £10 7s/ton f.o.b. and I.C.I. he believed had tendered in India for 20,000 tons at £10 5s f.o.b. in bulk. The fact that they could charge "such a high price in this country" was undoubtedly due to the fertiliser subsidy that the farmer got. The figure for the United Kingdom's consumption of ammo-

nium sulphate was possibly 700,000 to 800,000 tons, on which I.C.I. were probably taking about £4 million; I.C.I. were taking £5/ton out of the £8 subsidy and leaving the farmers with £3 or much less.

The farmers were not getting the full benefit of that subsidy which was going into the pockets of I.C.I. and other fertiliser makers—probably £16 million of it.

The dumping duty had been introduced at a time of year when ammonium sulphate was most expensive. The compound mixers had been relying on getting supplies from East Germany at a competitive price. When £4 duty and freight charges had to be added, there was not a tremendous amount in it. Now, however, the mixers' supply had been suddenly cut off and they must go cap in hand to I.C.I., the agents for the British Sulphate of Ammonia Federation and ask for a few tons.

In March, the price of sulphate in bulk was £18 2s 6d; had the Order been introduced in September, the price would have been £17; in June and July, it was about £16 12s 6d.

Application for the duty was made in July 1961 and nothing more was heard on the subject until 2 March this year. The first intimation that interested firms had of the Order was when newspapers telephoned them for their comments, added Mr. Drayson.

There was strong opposition to the duty, both from Tory and Labour M.P.'s, writes our Parliamentary correspondent. Mr. Douglas Jay (Lab., Battersea N.) asked the Minister if it was true that I.C.I. were now charging about £18 2s 6d/ton in the U.K. and that East German imports were selling at £16/ton. I.C.I. alleged that this was gross under-pricing and yet were themselves selling in Eire at £12 10s/ton.

Sir Cyril Osborne (Cons., Louth) pointed out that with the £3/ton dumping duty, the total protection on East German ammonium sulphate would be £7/ton. Referring to allegations of Mr. A. Wormald, former managing director of Fisons, that negotiations were in hand to revive the nitrogen cartel (C.A., 24 February, p. 314), Sir Cyril declared that this was to be controlled by international legislation for the protection of producers without any consideration for the consumer.

Sir Cyril declared that in 1961 exports to Mauritius totalled 35,000 tons; to Ceylon, 46,000 tons; and to Indonesia, 54,000 tons. I.C.I. had offered a 10,000 ton contract to Pakistan at £12/ton but were beaten by the Americans. Therefore it was reasonable to suppose that

that vast quantity, over 100,000 tons, had been sold abroad at about £12/ton. If I.C.I. could afford to do it overseas, they could afford to do it at home.

The bulk of this chemical was produced at Billingham works, which was over 30 years old and which in terms of chemical engineering were well past being really efficient. It was not the duty of the House to support I.C.I. if their equipment was inefficient and if their cost of production were higher than in West Germany, in Belgium or in East Germany.

Quite recently, the West European ports price f.o.b. had been between £9 4s and £11 6s/ton, yet the farmer was being charged £20/ton. It was I.C.I., not the farmer, who were being "feather-bedded."

Mr. J. M. L. Prior (Cons., Lowestoft) did not agree that I.C.I. had a monopoly in fertilisers. Nitrogen fertilisers also came from Italy and Holland, the result of which in the last two or three years had been to force down the price considerably.

### Anti-dumping decision

Members had complained that the decision to impose an anti-dumping duty had been taken overnight. It had taken nine-months and if an Order was to be introduced it should have been done in about three weeks. One would have much more faith in anti-dumping legislation if that sort of action were taken.

Replying to the debate, Mr. N. Macpherson, Parliamentary Secretary to the Board of Trade, declared that proposals for such duties were not laid lightly before the House, but only when it was established after proper investigation that certain imports threatened material injury to a British industry.

There were two sides to the ammonium sulphate industry. One was the by-product output of the National Coal Board, Electricity Board, steel works, coke-ovens, etc.; the other was the I.C.I. synthesis process. It was uneconomic to operate the latter plant at less than full capacity. It was generally more economic to export any surplus over what was required in a home country than to run the plant at half cock. It was a fact that prices in European producing countries were very much on a level with each other, but when they came to dispose of their surpluses—outside their own countries, they entered into very keen competition with each other and that forced the prices down.

It was quite clear what would happen if the U.K. allowed its own production to be disrupted and major producers to be forced out of production. When there was surplus capacity and surplus world production, the U.K. would be able to obtain supplies at very low prices, but at other times, when there was a world shortage, the U.K. would have to pay very high prices indeed.



It was normally accepted by industrial countries which also had farming interests, that they should produce their own ammonium sulphate and that they should have a synthesis process capable of matching that need, taking the production of by-products of ammonium sulphate from the various plants into account.

I.C.I. not only acted as selling agents for the British Sulphate of Ammonia Federation, they also produced about 70% of the Federation's total output. The two together did not have an entire monopoly, but between them produced about 90%. Some 35 by-product producers were members of B.S.A.F.

Although I.C.I. had a virtual monopoly, the Monopolies Commission in its report of fertilisers declared "We would not consider ourselves justified in regarding the level of profits achieved in recent years as unduly high." Since then, added Mr. Macpherson, U.K. prices had twice been reduced. It was on home sales, that the commission found that I.C.I. were not making excessive profits.

It did not necessarily follow that I.C.I. were selling at a profit in highly competitive overseas markets. Dumping was not involved with sales to Eire, as there was no domestic production. It was to the advantage of Eire to import at low prices.

## Chemical sprayed on beach clears oil pollution in D.S.I.R. demonstration

**P**ROGRESS by the Warren Spring Laboratory of the D.S.I.R. in developing methods for cleaning oil-polluted beaches was demonstrated on Tuesday at Brighton, chosen because of its convenience. The Department's findings after some 18 months' research are, briefly, that treatment of liquid oil contamination with an emulsifier/solvent mixture followed by hosing will give effective cleaning in many cases, and that in respect of solid or semi-solid oil a mechanical device may be used, but hand picking is the only complete answer.

In the first test on Tuesday a mixture of one part Lissapol NX (from I.C.I.) in

The price of £10/ton quoted in respect of India was an f.o.b. price. Since there was enormous deficiency of fertilisers in that country, it was doing the Indians a great service to export to them at a low price.

The U.K. price was comparable with that in other producing countries.

On the question of subsidy, Mr. Macpherson declared "It simply is not true that I.C.I. receive a subsidy from the taxpayer. The fertiliser subsidy is paid to the farmers, who buy their fertilisers at no more than the economic price from I.C.I. and from the other manufacturers as well, but who get them at a cost to their own pocket of considerably less than economic price."

Sir Cyril had asked if an inefficient industry was being bolstered. At present I.C.I. were spending about £6 million on improving their Billingham plants. There was no question of I.C.I. not being forward-looking or progressive.

### "Buy Italian calcium ammonium nitrate"

Mr. R. Lamb, chairman of the Smallholders' Association, last week urged farmers to buy calcium ammonium nitrate from Italy, said to be sold by merchants at £2 to £3 a ton less than U.K.-produced nitrogen, despite the £4/ton duty.

nine parts of coal tar naphtha was sprayed on the beach and left for about 30 minutes, after which, to facilitate agitation, the beach strip was hosed into the rising tide. In the second test a tractor-pulled D.S.I.R.-designed toothed roller was used to pick up lumps of oil placed on another part of the beach.

Dr. D. Gall, in charge of the solvent/emulsifier programme, told **CHEMICAL AGE** that as a service to local authorities his department supplied the demonstrated mixture, which, of course, was not new and which was one of several on the market. Sandy beaches presented greater difficulty than stony ones.

## Project News

(Continued from page 517)

### I.C.I. contract for Power-Gas

● **THE Power-Gas Corporation Ltd.**, of the Davy-Ashmore Group, has an order from I.C.I. in connection with their synthesis gas plant replacement at Billingham (see also p. 516). The work includes fabrication, erection, welding and testing of mild steel pipelines from  $\frac{1}{2}$  to 30 in. nominal bore, as well as the erection and welding of over 30,000 ft. of stainless steel pipework up to 10 in. bore. At the 10 in. size this stainless piping will have a wall thickness of 1 in. A special workshop is now being built and equipped on the site and the work will be carried out in phases to conform with I.C.I.'s own production requirements.

### Leicester Lovell's new formaldehyde plant

● **BORDEN Chemical's** sixth overseas plant to use their formaldehyde process is currently undergoing commissioning trials by their U.K. associates, **Leicester Lovell and Co. Ltd.**, at Southampton. This new plant follows expansion of the thermosetting resin capacity from 14 million to 27 million lb./year, as previously announced. Borden are at present constructing a formaldehyde and urea formaldehyde concentrates plant at Fremont, Cal. It will have capacity for 60 million lb./year.

U.K. formaldehyde capacity is estimated at some 190,000 tons/year with the main producers, listed in order of magnitude: Synthite, CIBA (A.R.L.) Ltd., B.I.P. Chemicals, I.C.I., Walker Chemical Co., and Chemical Supply Co.

### Midlands latices plant in production

● **THE Bromsgrove, Wores, synthetic latices plant of Sto-Chem Ltd.**, built by **Matthew Hall and Co. Ltd.**, at a cost of some £1 million, is now on stream. The plant will produce some 8 million lb./year of butadiene styrene, high styrene, nitrile and acrylic types of latices. Sto-Chem are a joint venture between Witco Chemical, U.S. and United States Rubber, whose Naugatuck Chemical Division designed the new plant in co-operation with Crawford and Russell Inc.

Synthetics are making a strong bid to capture a much larger share of the U.K. latex market, now estimated at upwards of 30,000 tons/year, of which probably 5,000 tons are synthetic.

Using a special process International Synthetic Rubber Co. Ltd. are producing 7,000 tons/year high solids SBR latex at Hythe, while last year Revertex Ltd. announced the appointment of Blaw Knox Chemical Engineering Ltd. as contractors for their synthetic latices plant at Stallingborough, Lincs. Du Pont produce neoprene latex at Maydown, N.I., while the Dunlop synthetic latex plant at Erdington is controlled by the company's Chemical Products Division.

## Shell's new London centre nears completion

'**B**REATHTAKING' seems a fitting description for the new central office block of the Royal Dutch/Shell Group on the South Bank in London, of which the Press people were allowed a preview on Tuesday. Nearly completed and already substantially occupied, the new centre comprises two buildings, connected by subways, which will eventually house some 5,000 staff previously accommodated in more than 30 buildings.

Rising 350 ft. above ground level the 26-storey tower block commands a fine panoramic view of London from the public viewing gallery near the top, while, wandering through the maze of corridors below, one gapes in awe at the commodious, air-conditioned offices, the

tasteful decor, the electronic gadgetry (data processing covering a range of activities; heating, water services, etc., controlled from an illuminated central control panel), not to mention the restaurants, swimming pool (international size), theatre-cinema, recreation facilities and other staff amenities.

As might be expected from one of the world's leading suppliers of petrochemicals, generous use is made of plastics throughout the offices, not only for decorative building materials (including 70,000 sq. ft. of p.v.c. floor tiles) but also for such essential purposes as the cold water services, carried through 22½ miles of plastics piping.

# Modern uses of rubber in the transport of chemicals

**R**OAD and rail tankers of mild steel lined with rubber have been in use for many years. The earliest were of hard rubber or ebonite, which bonds direct to steel during vulcanisation without the need of a special bonding agent. After the 1914-18 war, however, a number of systems were developed for bonding soft rubber as well as ebonite, and these have since been extended to deal with the various synthetic rubbers, and to bond to other metals (notably aluminium) as well as to steel.

In all cases the rubber is applied in the form of unvulcanised sheet, pressed close to the metal surface, and then vulcanised under heat and pressure. During the vulcanisation a true chemical bond develops between the rubber and the metal, so that the usual term 'lining' is in a sense misleading; in fact, rubber and metal become fused into a composite material which combines the structural strength of the metal with the corrosion and abrasion resistance of the rubber.

## Vulcanised natural rubber

Most linings are of natural rubber, vulcanised either as soft rubber or as ebonite. Of these, ebonite has a somewhat higher chemical resistance. It can be used satisfactorily, for instance, with sulphurous acid, glacial acetic acid, 50% oxalic acid, copper chloride, calcium bisulphite, silver nitrite, formaldehyde, furfural, and a number of vegetable oils, for which soft rubber would not be recommended. It can also, if necessary, be given a smooth surface, which makes it easier to clean. It is consequently valuable in the food industry, or when dealing with sticky or oily liquids.

On the other hand, ebonite has less abrasion resistance than soft rubber and is more subject to impact damage and to cracking under thermal expansion and contraction. New grades of flexible ebonite, however, made from blends of natural and synthetic rubbers, are much less liable to crack than the traditional compounds. In fact, the old hard-and-fast distinction between soft rubber and ebonite has largely disappeared, and lining compounds can be—and are—designed to any degree of hardness required.

*Natural and synthetic rubbers.* Natural rubber has a remarkably wide range of chemical resistance, which includes all the alkalis and most of the acids, salt solutions, dyes and bleaches, which are all commonly employed in industry. Its main limitations lie in the direction of mineral oils and the more highly oxidising acids, and these are now largely

covered by one or other of the special-purpose synthetics.

For oils, neoprene and nitrile rubber are both used. Nitrile rubber has a slightly higher resistance to oils than neoprene—particularly to aromatic oils—but it is more difficult to process and

sulphuric acid and with nitric acid up to 40%.

*Flexible containers.* Tankers, whether for road or rail transport, involve a considerable capital outlay, especially as they will usually have to return empty. For occasional use, or indeed for any form of bulk shipment which falls short of a full-time regular service, the new flexibles have many advantages.

There are two main kinds of these. One has an aluminium framework supporting the flexible container itself, so that, when full, the tanks can be stacked and handled like packing cases and forwarded in the usual manner by road, rail or sea. For the return journey they can be collapsed to something like a third of their extended height. At present two sizes are on the market: an 850-gall. tank for road and rail use, and a marine version containing 2,900 gall.

The other kind of flexible tank is simply a strong, pillow-shaped bag which can be strapped on an ordinary lorry, when full, and rolled up and roped to the cab when empty, leaving the vehicle free to carry other cargo. They are usually fitted with an adaptor for a hose fitting, which incorporates a non-return valve through which the container is filled and emptied. A small manually-operated release valve allows for the escape of any air introduced during filling. Standard sizes contain 250, 500, 800, 1,000 and 2,000 gall; but special sizes can be tailored to fit particular vehicle bodies or aircraft fuselages. Larger sizes up to 50,000 gall. capacity can be made for static storage of petrol, water or other liquids on construction sites.

The secret of these collapsible tanks lies in combining the impermeability, flexibility and chemical resistance of rubber with the tensile strength of modern fibres—chiefly nylon and Terylene. The production of successful con-

*(Continued on next page)*

By  
**D. F. AITKEN**  
Federation of British Rubber  
and Allied Manufacturers

therefore apt to be more expensive. Neoprene is available only as a soft lining; but nitrile rubber makes a true ebonite, which can be used with turpentine and light petroleum oils.

Butyl rubber has a very low permeability to vapours and gases—a property which can be important in reaction vessels and other static equipment. Its relatively high temperature resistance is sometimes valuable in tankers, for example, when caustic soda is transported in concentrations which require heating for loading and unloading. Its chief role in transport vessels, however, is for carrying oxidising agents. It can be used with nitric acid up to a 30% concentration, with sulphuric acid up to 70% and with phosphoric acid up to 80%. It can be useful also with animal and vegetable oils, to which it has a higher resistance than either neoprene or nitrile rubber.

For still more highly oxidising acids the modern material is Hypalon, which is chemically a chlorosulphonated polyethylene. Hypalon is the only rubber which can be used with chromium-plating solution. It gives fairly good service even with 50% chromic acid, and is perfectly satisfactory with concentrated

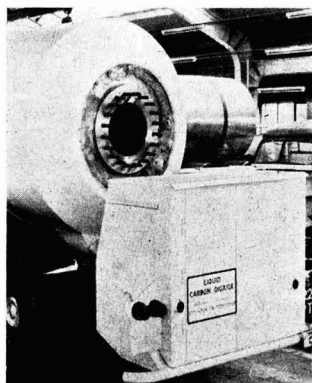


In this rubber-lined road tanker used by Godfrey Woodhead and Son for acid transport, the lining has been carried down the outside to catch any drips that may fall from the hose connection

## ISOCYANATE INSULATED ROAD TANKERS CARRY SOLID CO<sub>2</sub>, LIQUID ETHYLENE, ETC.

**S**UCCESSFUL insulation of road tankers designed to transport solid carbon dioxide, liquid refrigerants and chemicals such as liquid ethylene and ethylene oxide has been accomplished for over three years by the I.C.I. Dyestuffs Division using Suprasec isocyanates and associated Daltolac polyether and polyester reactants.

The polyurethane rigid foams based on the I.C.I. materials have been particularly suitable for the purpose since the greatly improved Daltolac 41/Suprasec



End view of an I.C.I. liquid CO<sub>2</sub> road tanker insulated with Suprasec isocyanates

D/Arcton 11 foam system was introduced. Well-established techniques for applying the foam are available.

The polyurethane foam insulation costs no more—and under the best application conditions may cost up to 20% less—than older methods. In addition, installation is quicker, the insulation is more efficient, and the foam is much lighter in weight than cork and most of the other insulating materials used for such work.

The recommended foam formulation is that described as formulation "A" in I.C.I. Dyestuffs Division's Urethane Technical Information Note PC/U.32. This uses Daltolac 41 (100 parts) with Suprasec D (185 parts) and Arcton 11 (20 parts). Daltolac 41, a polyether, gives foams superior in texture and insulating power to the earlier Daltolacs 22 and 24, which are polyesters. The Arcton 11 (trichloromonofluoromethane) supplements the blowing action of the generated carbon dioxide, ensuring a low K value, an even texture and low density (2 lb. per cu. ft. average, compared with 6 lb. per cu. ft. for cork).

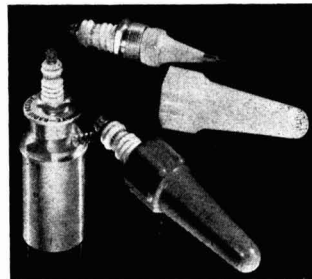
The method of installation recommended by I.C.I. is, first, to fit pre-formed rigid foam spacer rings round the tank, at intervals along its length, then

apply metal cladding. Next, a vertical row of holes is drilled in the latter for each 'compartment' of the insulation jacket, and into these the nozzle of the dispensing gun can be inserted for injecting the series of 'lifts' whereby the foam insulation is built up. The lowermost sections of the compartments are filled first, then the next lowest, and so on. The holes are afterwards blanked off with self-tapping grommets.

The rigid polyurethane foam adheres strongly to the metal, preventing not only corrosion but also ingress of water or water vapour and its transmission through the insulating layer. In this way the high efficiency of the insulation is preserved.

The equipment used is the Mark V dispensing gun, used in conjunction with the Mark II (or equivalent) metering unit as described and illustrated in I.C.I. Dyestuffs Division's urethane literature.

### Pye use Rigidex covered electrodes



Rigid plastic covers moulded in Rigidex high density polyethylene supplied by British Resin Products Ltd. are used by W. G. Pye and Co. Ltd., Cambridge, to protect delicate electrodes for the high-sensitivity radioactive detector of their argon chromatograph. The electrode resembles a sparking plug externally and has a long metal probe terminating in a small sphere. The Rigidex cap guards against damage to the probe when not in actual use and ensures that it is not contaminated by any impurity. The caps are moulded to exacting dimensions by Trendon Ltd., Malton, Yorks

## Modern uses of rubber in the transport of chemicals

(Continued from previous page 521)

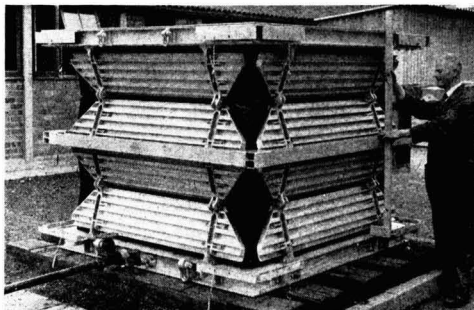
tainers, however, had to await not only the development of the appropriate fibres, but the discovery of a means to bond the rubber firmly to them. Such means are now available for both natural and synthetic rubbers and the resultant containers have proved astonishingly strong and durable.

Commonly the outside of the container is coated with neoprene because of its high resistance to sunlight, ozone and weathering generally; while the lining may be of different compounds according to the liquid to be transported, e.g. nitrile rubber for oil, or a 'sweet' compound of natural rubber for drinking water, beer or wine.

Already flexible tanks have found a wide variety of uses. After prolonged and vigorous testing, British Road Services have given their approval to a 2,000-gall. tank which can be strapped

to a 24 ft. semi-trailer. I.C.I. have been using a similar container for the transport of *isooctanol*. The Yorkshire Electricity Board has found a 1,000-gall. tank invaluable for the temporary storage of transformer oil while transformers are being serviced. A 500-gall. container has proved effective at Staines for distributing drinking water to householders during an emergency.

Finally, there are the most spectacular of all the flexible tanks—the now famous Dracones. The largest of these to date are 230 ft. long with a capacity of over 100,000 gall. They are used for carrying fresh water to supplement local supplies among the Greek islands. Smaller versions, 100 ft. and 200 ft. long, are in use for the transport of petroleum products in areas as widely scattered as Canada, Australia, the West Indies, Borneo, Indonesia, and the Maldives.



Collapsible tank for liquid transport in extended position

## Chemical packaging bill is £50-£70 million

OUT of a total U.K. packaging bill of £600 million/year, the total value of packages used in the chemical industry is of the order of £50-£70 million/year. This was stated by Mr. E. O. Rounsefell, chemical director of Laporte Chemicals Ltd. at the third packaging conference of the Association of British Chemical Manufacturers held at Harrogate this week.

Speaking on Tuesday on 'Packaging problems in the export of chemicals', Mr. Rounsefell said that a number of



E. O. Rounsefell

A.B.C.M. members had indicated to him that their purchases of packages represented between 5 and 17% of their total purchases, the average being around 10%.

Mr. G. H. Edwards, Unilever packaging advisor and chairman of the A.B.C.M. packaging committee, presided at the conference, which will be reported in CHEMICAL AGE next week.

## Systemic insecticide in granular form

A NEW type of systemic insecticide, which is applied in granular form either direct to the soil or as a top dressing on young plants, will be marketed this year by Baywood Chemicals Ltd. The new material, which is claimed to give outstanding aphid control, is called Disyston. Its active ingredient is 5% disulfon.

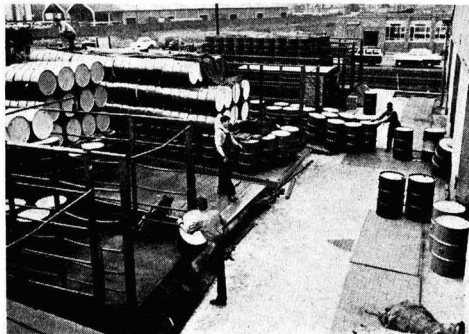
Disyston will be available later this month initially on a limited scale. It is recommended for use in the control of aphids on sugar beet and potatoes. It has also shown promising results from trials carried out on brussels sprouts and hops.

## Guide to European chemicals

Significant events and new developments in the European chemical industry, as well as production, capacity and other figures that appeared in print during 1961, are included in 'European Chemical Industry, 1961 Summary,' a new publication by Noyes Development Corporation, 38 East 57th Street, New York 22, N.Y., U.S. Compiled in co-operation with the staff of Foster D. Snell Inc., New York, who regularly abstract chemical periodicals, it gives a country-by-country summary of recent chemical production figures, with news of producers and their projects, a literature reference being appended to each item.

The 158-page publication is available from Noyes Development Corporation at \$15.

Reconditioned drums restored to shape and first-class appearance at the Victor Blagden works. (Photo by I.C.I. Paints Division)



## Blagden's handle 20,000 drums a week for reconditioning

ONE of the leading firms handling reconditioned drums for the chemical industry, Victor Blagden (Manchester) Ltd., one of the Blagden and Noakes Group, receive more than 20,000 drums for reconditioning each week at Trafford Park. These come from all over the country, and the fact that each customer gets his own drums back after full reconditioning calls for a considerable degree of organisation.

Reconditioning calls for specialised techniques and Victor Blagden's long association with the chemical industry has enabled them to design and develop special high-capacity plant for cleaning, stripping, re-shaping and general refurbishing. Special importance is attached to internal and external examination of each drum before despatch.

A 3,000 ft. conveyor brings the drums into the factory from outside storage where they are first degreased and cleaned inside and out by high-pressure washing equipment. The drums are later re-shaped, all traces of rust and old paint removed from external surfaces. When clean, each drum is pressure tested and dried out; unsound drums are diverted to a welding bay. All bungs and closures are examined, cleaned and, if necessary, replaced.

Victor Blagden pioneered in the U.K. the shot blasting method of paint and rust removal, a process that provides an excellent key for the paint film. From

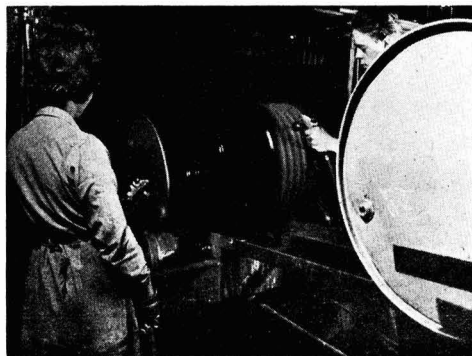
their factories and those of associates in the south of England and in Scotland, a world-wide service of new and reconditioned drums is offered for returnable use. Whether new or reconditioned, the drums leave the works with a coat of durable I.C.I. paint, either in a single colour or different colours chosen by customers.

The paints used have to be extremely resistant to abrasion and corrosion due to rough handling and open air storage; they also have to resist the contents of the drum.

New 40- and 45-gall. drums are made from steel sheet, varying from 14 to 20 gauge according to the products to be carried.

## Refrigeration convention

Three papers concerned with refrigeration in the chemical industry will be included in the convention that is being held at Olympia, London (16-18 April) in conjunction with the first International Refrigeration Fair (13-19 April). These three papers are: 'Refrigeration as applied to the chemical industry', by E. J. Perry (U.D. Engineering Co. Ltd.); 'The use of refrigeration in unit processes', by G. H. Hill, The Distillers Co. Ltd., Engineering Division (South); and 'The selection of refrigeration systems in the chemical industry', by D. M. Elliott, I.C.I. General Chemicals.



While the drum revolves each operator sprays an end and half the body. (Photograph by I.C.I. Paints Division)

# Jute marries with plastics to serve modern chemical needs

## Polythene-lined sacks give added protection

**J**UTE has long associations with the chemical industry as a packaging medium. While new types of packaging material and methods of handling have had some effect on that association, the jute bag is still widely favoured for specific requirements.

An interesting feature of the present stage is the increasing technical liaison between jute bag suppliers and chemical producers to develop packages which can give satisfactory performance under a great variety of conditions of handling, storage and de-storage.

The basis of this liaison is the exploitation of the recognised properties of jute fabric—its strength, robustness and high degree of tear-resistance.

Most developments of late have been to marry these intrinsic properties to

able, other water-resistance adhesives may be used, including p.v.a. Linings of plastics-coated paper are also successfully used and give a high degree of impermeability.

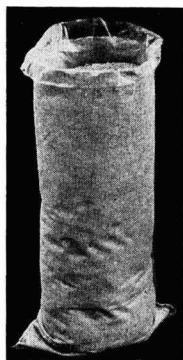
Technical advances have also been made in polythene liners for jute hessian bags.

Probably the most popular is the polythene loose-liner. It is made slightly larger than the outer container so that, when filled, maximum support is given by the jute hessian. Loose-liners have sufficient free length so that, prior to the stitch closure of the outer hessian bag, they may be folded down at the top, twisted and fixed with a tie, or formed and closed by heat-sealing to give the maximum of impermeability.

One advantage of loose-liners is that they can be easily removed from the outer container after the first journey leaving the jute hessian bag available for re-use or re-sale in the secondhand market.

Some chemical producers, however, prefer the liner to be anchored in the outer bag. To avoid puncture, the liner is made with a 2 in. skirt of extra polythene at the bottom so that it can be safely stitched in when the bottom seam of the outer jute container is sewn.

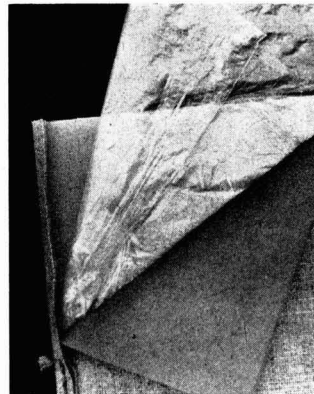
Polythene sheet may also be bonded to a jute bag although the process of lamination must be done with a good deal of care. This also applies to the



**Strong moisture-proof bag for chemicals—**a 19 in. by 34 in. jute hessian bag bonded to crepe paper by bitumen. The loose polythene liner (21 in. by 41 in.) is of 150 gauge and has a 2 in. skirt at the bottom. It is stitched in with the bottom seam of the outer bag. (Photograph by Low and Bonar Ltd.)

plastics or paper, particularly for transporting powder and granular substances and moisture-sensitive products. In these composite structures, the jute confers strength and resistance to puncture and abrasion. At the same time the package with this barrier protection remains a flexible one with a very substantial breaking load. It also retains the advantage of being collapsible when emptied, thus occupying the minimum of space in store or on the return journey.

Paper-lined jute hessian bags are made in large quantities and have been on the market for some years. With experience, much knowledge has grown up on the most suitable qualities of paper, whether plain or crêpe kraft, and on bonding agents for particular uses. In most cases, bitumen is the adhesive. If this is unsuit-



**Corner of the jute hessian bag with a corner unsewn and turned back to show the constituent parts—jute hessian, paper and polythene.** (Photograph by Low and Bonar Ltd.)

coating of jute with polythene by the extrusion method. Several bag-makers find p.v.c.-coated bags more successful although the cost is higher.

With the many combinations between jute and other materials, it is clear that the final choice of package is a matter of technical decision between chemical producers and suppliers of jute bags who have behind them the advice of the British Jute Trade Research Association.

In many cases recently the results of this mutual approach have been fruitful. Cheaper packages, for instance, have been achieved by the use of a lighter weight of jute fabric or a thinner gauge of polythene liner. In other cases chemical producers have found it more economical to use jute-polythene or jute-polythene-paper bags instead of steel drums for carrying their product.

## New rigid p.v.c. compounds may open fresh markets for blown bottle producers

**R**IGID p.v.c. compounds that produce blown bottles with 'crystal clarity', plus strength and low cost will, believe I.C.I. **Plastics Division**, Welwyn Garden City, Herts, remove one of the last obstacles in the way of general acceptance of plastics packages.

These new Welvic compounds, developed specifically by I.C.I. as a bottle-blowing material enable 'difficult' materials such as motor oil, lubricating greases, disinfectants, fruit juices and coffee to be packaged in eye-catching, faster selling, plastics containers. Materials such as these whose odour or flavour is transmitted or absorbed by other plastics materials leave rigid p.v.c. unharmed "even after prolonged contact."

Careful selection of polymer types, stabilisers and lubricants enabled perfectly clear bottles to be blown from rigid p.v.c. without impairing the polymer's intrinsic properties.

When properly handled the 'high crys-

tal' version, Welvic Compound 68/26, gives perfect water-white clarity. The special tough grade Welvic 68/83 will make a bottle with walls as thin as 0.015 in. which when full will withstand a 5 ft. drop to concrete. Welvic 68/80 contains only ingredients for which the raw materials manufacturers claim freedom from toxic hazards. Foodstuffs packaging is therefore a distinct possibility.

## Goodlass/Italian venture for zirconium silicates

**I**NITIAL production for a new Italian joint venture of Goodlass Wall and Lead Industries Ltd. and Beghe and Chiapetta of Milan will be zirconium silicates. These have previously been exported to Italy by Associated Lead Manufacturers Ltd. The new company, known as Almitalia S.p.A., will have plant at Carasco near Genoa.



# TRANSPORT, CONTAINERS AND PACKAGING



## 'Chemical Age' round-up of new developments for the chemical industry



### *The old and the new in oxygen transport*

Below: the earliest liquid oxygen tankers in the U.K. seen at their Rotherham depot in the early thirties



Above: a Scammell tanker, the largest vehicle in British Oxygen's fleet and the largest of its kind in Europe today, carries 300,000 cu. ft. of gaseous oxygen

#### Reinforced plastics tanks

Manufactured by Resteel Udine and available in this country from Florentia, **Anglo-European Development Co. Ltd.**, 62 Blandford Street, London W.1, are glassfibre reinforced polyester tanks, with capacities from 800-6,000 litres for portable containers and up to 1,200 litres for static tanks. The containers are almost indestructible, and resistant to impact and transport stresses. They are inert to most inorganic chemicals and many organic ones.

The containers are physically stable and will secure on any vehicle or chassis; they are free from odour and taste. No maintenance is necessary and repairs can be carried out with no machinery and very little lost time. They are non-flammable, light in weight and will support service temperatures up to 100°C maximum or higher for short periods.

#### Helically-wound vessels

Development and manufacture of glassfibre reinforced plastics cylindrical vessels using a mechanical process of reinforced helically wound resin bonded glassfibre filaments is being carried out by the plastics vessel division of **W. B. Bawn and Co. Ltd.**, Byron Works, Blackhorse Lane, London E.17. The glassfibres are continuously wound under even tension and automatically impregnated in polyester or other resins. Curing is by heat treatment at controlled temperatures.

The vessels manufactured by this process have a high mechanical strength coupled with low weight, and since the entire structure of the vessel is corrosion resisting it is suitable for use in the chemical industry.

Horizontal and vertical storage vessels are available with capacities ranging up to 4,000 gall. The horizontal vessels can be fitted with manholes and covers, vents and outlet pipes. The vertical vessels can be supplied with removable or fixed lid and fitted with manholes, vents and outlets as required.

#### New Polycrate features

Two new Polycrate features are announced by the Fibre Drum Division, **Bowater Packaging Ltd.**, Harlequin Avenue, Brentford, Middx. Firstly the



**Polycrate overprinted with customer's name**

Polycrate can now be printed indelibly in black, green or blue to customers' requirements. Secondly, both the wire and the strip crate can be supplied with 'feet' for greater stability in the horizontal racking position. Printed Polycrates offer two advantages—that of advertising the supplier's name in use and in transit and, if desired, of describing contents either directly or by colour coding.

The Polycrate is a sturdy and economic carboy comprising a 0.060 in. even gauge bottle in a p.v.c. coated wire or stoved mild steel strip crate. The Polycrate is available in 5, 6, 10 and 12 gall. capacities (with 10% ullage allowance).

When the Polycrate is required for dispensing small quantities of liquid from a horizontal position it is supplied with a  $\frac{1}{2}$  in. diameter vent hole close to the outside edge opposite the neck of the bottle. A special cap with built-in top and flush-fitting vent hole plugs are supplied separately. A pressure release valve in the form of a rubber grommet which fits the vent hole can also be supplied for handling such gaseous liquids as sodium hypochlorite, strong ammonia and hydrogen peroxide.

### New Cascelloid containers

Now making a wide range of polythene containers are the **Cascelloid Division of British Xylonite Co. Ltd.**, Abbey Lane, Leicester. Their latest developments include the addition of 1-pint and 2-pint sizes to their range of blow-moulded polythene square bottles, a 5-gall. blow-moulded polythene jerrican and a new style 10 gall. rectangular blown bottle available in either high or low density polythene.

### Poly-Canpac drums

Most interesting recent development in the packaging field according to **E. A. Brough and Co. Ltd.**, Upper Parliament Street, Liverpool 8, is the increasing use of polythene-lined drums. Brough drums of this type are now available in 5, 10, 12 and 45 gall. sizes and the blow-moulded liner can be made from either high or low density polythene including a special thin walled pattern for non-returnable duty. The protective outer drum can be offered in either fixed head or fully removable lid types in a wide range of gauges.

A special feature has been the development of a 5 gall. Poly-Canpac drum for the conveyance of chemicals, where provision has been made for a special vent-

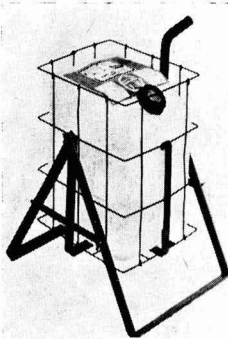
ing device in the screw cap closure for use with materials which are likely to build up pressure. Where the product is of an inflammable nature a specially designed flame trap can be incorporated.

This drum is in a new square-sided pattern which enables bulk storage to be achieved with a considerable saving of space. The shape is also better suited than the conventional cylindrical containers for the application of labels, transfers, etc.

Brough also manufacture lacquer-lined packages, the demand for which is growing, and taper top drums, which are now available with a deeply recessed bottom to facilitate stacking.

### Dohm drum dispenser

A new drum and carboy stand and dispenser which has wide applications wherever liquid chemicals are in use has been produced by **Dohm Ltd.**, 167 Victoria Street, London S.W.1. The



**Dohm drum and carboy dispenser**

stand is a light but rigid construction which cradles the liquid container so that it can be accurately tilted with one hand. Thus small quantities of liquid can be transferred from bulk store without wastage and without the risk of contamination to clothing and shoes which can result from old methods.

The Dohm dispenser—which can be erected or collapsed in seconds without the use of tools—is available in four stand types and sizes. These are: Type A for a 5 gall. drum; Type B, 5 gall. round carboy; Type C, 5 gall. rectangular carboy; and a type for standard 10 gall. carboy.

### Flexible containers

'Dunlop Collapsible Containers' is the title of a brochure available from the **Dunlop Rubber Co. Ltd.**, 10-12 King Street, London S.W.1, describing their range of products in this field. Such containers provide a quick and convenient method of transporting and storing liquids, without recourse to specially designed tanker vehicles or to permanent metal storage tanks. Described in detail in the catalogue, they are available from Dunlop in a standard range of sizes from 10-30,000 gall. capacity.

### Pakord laminated strapping

Pakord, manufactured and marketed by **Fibre Tapes Ltd.**, Reading, is a new

wetless tape made of strands of rayon heat-laminated with an Epok p.v.a. bonding emulsion into tough, flexible strapping. A special formulation of Epok p.v.a. emulsion was developed for this purpose by **British Resin Products Ltd.**

The tape is inert and cannot rust; it can be cut with scissors or a knife and will not lash back. Light in weight, it is supplied on easily crumbled spools which can be used with ease by female or unskilled labour. Unlike conventional steel strapping, Pakord is easily disposable. Joins are made with a crimped metal seal.

There are seven types of Pakord, ranging from  $\frac{1}{4}$  to  $\frac{3}{4}$  in. wide. Because it has an elongation factor of 12% under strain and this absorbs energy, the laminated tape out-performs steel strapping. Laminated tape can grip without cutting and can, therefore, advantageously be used to strap irregular shaped packages.

A full range of pneumatic and manual tensioners and sealers is available to suit all applications. There is also a range of machines which will apply the strapping automatically.

### Staklok interlocking drum

The tin box department of **F. Francis and Sons Ltd.**, John Penn Street, London S.E.13, covers a range of rectangular tins in capacities from 1 pint to 1 gall., and round lever lid tins in capacities from  $\frac{1}{4}$  to 1 gall., and also round



**Staklok interlocking 5 gall. drum by F. Francis**

drawn taper top cans from  $\frac{1}{4}$  to 1 gall., and a wide range of other tins for use in the chemical industry.

The drum department covers containers made in black steel and tinsplate in capacities from 5 to 45 gall. A special feature is the 5 gall. Staklok interlocking tinsplate drum with reduced head to facilitate stacking, and having a projection welded handle. A riveted strip handle can alternatively be fitted if desired. These drums are manufactured in either 28 or 27 gauge tinsplate and can also be supplied internally lacquered.

### New drum transporter

Solved by means of a new drum palletiser truck is the problem of manually moving drums and barrels from different levels. The truck has the further advantage of being easily manoeuvred in con-

lined spaces and gangways; it is manufactured by **Industrial Trucks Ltd.**, 44 Uxbridge Road, Ealing, London W.8. The truck was designed in co-operation with one of the largest U.K. chemical manufacturers and is now being used by them as standard equipment.

Essentially, it is a modified version of the Industrial Trucks drum and barrel transporter. Important modifications are the re-designing of the chassis, the angle

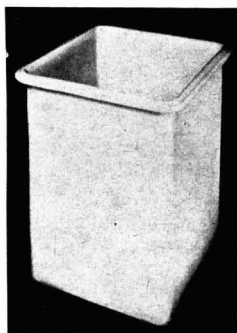


Leedex newly developed truck

of the lifting feet and the fitting of two small wheels at the rear which help to maintain balance and take the load at the critical moment when the drum is being placed or collected from the floor on to the pallet and vice versa.

Another important feature is the dual position handle which enables greater leverage to be applied and generally allows for easier movement. The truck is claimed to be the only one of its type for loading and lifting drums and barrels on and off pallets and makes this difficult and cumbersome job a simple one for a man to handle.

### Halex storage tank



50 gall. storage tank in rigid polythene is resistant to most acids, alkalis and aqueous solutions. Makers are **Halex Division of British Xylonite Co. Ltd.**, Highams Park, London E.4

### Self-priming siphon

Polythene tanks, bottles and carboys are manufactured by **Kabi (Electrical and Plastics) Ltd.**, Cranborne Road, Potters Bar, Middx. Suitable for containing most chemicals including acids, alkalis and

salts, tanks range from 5½ to 300 gall. capacity. Moulded from translucent polythene, with extra weight at the corners and shoulders, polythene bottles and carboys are available from 5 to 15 gall. capacity with steel baskets, handles and caps fitted with aspirator tubes as extras.

A self-priming siphon entirely in polythene is also available, complete with a plug at the feed end and an all polythene tap. In use the tap is turned to the closed position and the open end is inserted in the liquid to be siphoned. The bellows is then compressed and when the tap is opened the liquid flows freely through the siphon action. Two models are available with rates of flow of 1 gall. in 40 and 80 seconds respectively.

### New Metal Box products

New products produced by **The Metal Box Co. Ltd.**, 37 Baker Street, London W.1, in the chemicals packaging field include a wide selection of paper and metal composite drums, moisture-proof heavy gauge polythene film sacks, and new gallon and half gallon Poly-Tainers in high density polythene for bulk liquids.

Composite drums of 8 in. diameter, marketed by the Paper Group of the company, have tinplate ends and the bodies may be made of waterproof cartilage paper, American kraft liner or high quality chipboard. They are available in three styles in lengths ranging from 2 to 20 in.

Diosack polythene sacks, made by the Plastics Group, are manufactured in 1,000 gauge polythene and are available in various sizes. They are moisture-proof, tough and unaffected by extremes of temperature, and are generally transparent although they can be supplied opaque. They can be printed on one side in up to two colours by the flexographic process. Closure is normally by sewing or heat sealing.

Poly-Tainer bottles in Rigidex are suitable for a very wide range of liquids. The new sizes, of a modified square shape to save space in transit, are almost unbreakable and their weight is negligible compared to that of the contents. For transporting, elaborate outers are unnecessary, and special arrangements have been made with Hygrade Corrugated Cases Ltd. for the provision of individual board carton in 30 lb. or 10 lb. board.

### New fibre drums

The Fibre Division of **Metal Containers Ltd.**, 17 Waterloo Place, Pall Mall, London S.W.1, offer many new packs to assist chemical manufacturers and make economies in transport and storage.

Powerfully constructed of convolutely wound kraft bonded by special waterproof resin glue, these drums can be fitted with a variety of laminates and liners according to the material packed. Drum base can be steel or chipboard, and in both cases the method of fixing the walls to the base is peculiar to Metal Containers. Walls and base are joined by a specially crimped base band which



Produced by the Delaware process from low-density polythene, the **Valethene** bulk storage tank is being used for a variety of duties including dyestuffs, acetic acid, hydrogen peroxide, detergents and many corrosive acids. The walls are self-supporting and the polythene-lined lid is fitted with a bolt type closing ring

grips even tighter if the drum is exposed to impact. This base band is extended up the wall of the drum to give greater protection against damp.

Closure can be effected by a variety of closing rings or by simple pill box metal lid. For carriage of chemicals requiring a small filling aperture, the head may be anchored to the walls and fitted with a standard filling hole.

The latch and lever type closing rings on fibre drums are now fitted with a digital pressure platform on the top of the latch hasp which enables closing and opening to be effected simply by pressure of the thumb. This platform is an integral part of the construction and cannot break off. The closure is tamper-proof.

A Metal Containers leaflet on fibre drums incorporates a capacity chart.

### Glassfibre Bulkbin

Specially designed to carry materials which must be protected from contamination, is a new glassfibre reinforced



**Microcell reinforced glass plastic Bulkbin** in use at the **Ellesmere Port plant** of **Cabot Carbon**

plastics container developed by **Microcell Ltd.**, a BTR subsidiary, Herga House, Vincent Square, London S.W.1. It will be shown for the first time at the Mechanical Handling Exhibition at Earls Court on 10 May.

Of interest to those concerned with the handling of corrosive materials in powder and granular form, this new airtight container would, it is claimed, show a net annual saving of over 60% or about £4,000 on a scheme involving a stockholding of 116 tons, if compared with standard packaging methods. Said to be a successor to multi-wall paper or polythene bags, this container, the Bulkbin, has a minimum capacity of 60 cu. ft., measures 6 ft. 6 in. high and 3 ft. 8½ in. by 4 in. It weighs a maximum of 300 lb. empty. For carrying materials with a low packing density the overall height can be increased to 7 ft. 6 in. with a capacity of 76 cu. ft.

The Bulkbin can be transported by road, rail or sea, is claimed to have low handling expenses and no conventional warehousing costs, permits automatic distribution, uninterrupted operation of processing machines, and is especially suitable where a high degree of flexibility and the use of medium-sized quantities are required. It has the added advantages of a smooth internal surface, non-flaking and non-cracking characteristics, and is emptied by a gravity method—if necessary directly into a processing line, where it would act as a feed hopper.

Weatherproof and corrosion resistant, the Bulkbin can be stacked three high and apart from a forklift truck or pallet truck no special handling equipment is required.

### Fibre drums for corrosives

New fibre containers specially designed for carrying corrosives are Mervi drums manufactured by **New Merton Board Mills Ltd.**, 1 Merton High Street, London S.W.19. They incorporate chemical resistant laminated p.v.c. liners secured firmly to the top and bottom of the drums. There are a variety of available sizes in both drums and liners and they can be supplied with a neck and polythene stopper or tap and where necessary an additional neck, incorporating a vent.

Fibre drums can also be supplied with polythene coated interiors and for addi-



Mervi fibre drum with laminated p.v.c. liner

tional protection, a polythene frill can be securely fixed near the top of the drum for bunch drying. Aluminium foil interiors are also available where this type of protection is required for the safe packing of certain chemicals. A further alternative comprises a blown polythene drum or liner placed securely in position inside a fibreboard drum.

### Osma tank

The second in a series of reinforced plastics storage tanks designed for use as corrosive liquid containers is now being produced by **Osma Plastics Ltd.**,



Osma 10 gall. glassfibre tank

Grove House, 551 London Road, Isleworth, Middx. It has a 10 gall. capacity and carries a 10 year guarantee. Moulded entirely in polyester/glassfibre, it cannot corrode or support fungus growth, and is unaffected by hard, soft or high acid content water. With excellent resistance to oils, solutions and solvents, it is unaffected by most organic and inorganic acids.

### Easy-to-open Palfsacks

Claiming to be among the largest manufacturers of paper sacks for bulk chemical packaging are **William Palfrey Ltd.**, The Esplanade, Rochester, Kent, who manufacture Palfsacks multiwall paper sacks. These are now fitted with a new easy open stitching which is simple to operate. The crepe tape is taken in one hand and the end of the stitching in the other, and the stitching rips open without spoiling the mouth of the bag. The opening method is quick, but the seal is thorough and the bag cannot normally be inadvertently opened.

An advantage for chemical bags is the fact that just one corner of the bag can be opened, some of the contents poured out and the mouth of the bag closed again by folding over, a preferable procedure to cutting the bag or tearing it as is necessary with some other types of seals.

Palfsacks are now used in a wide variety of constructions and sizes. Palfrey claim to have been the first company to introduce the polythene-coated ply for use in chemical and fertiliser sacks some 10 years ago.

### Polythene barrel

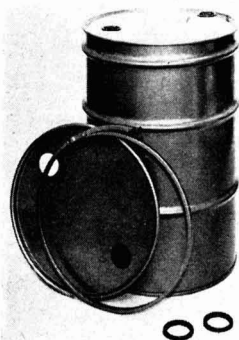
Provisionally accepted by British Railways for the conveyance of corrosive liquids is the barrel manufactured by **Plastic Constructions Ltd.**, Tyseley Industrial Estate, Greet, Birmingham 11. With two strong handles, the barrel has

three screw caps for inlet and outlet. It is constructed for ease of stacking and has four reinforcing bands.

### New polythene/steel drums

A range of polythene and steel composite drums in 10, 12 and 45 gall. sizes, which are claimed to be lower priced than similar containers currently available in this country, are produced by **Reed Plastic Packaging Ltd.**, Reed House, Kew Bridge, Brentford, Middx. A low melt index polythene with high resistance to environmental stress cracking is now being used and the minimum wall thickness has been increased to 0.030 in.

The strength of these units is illustrated by the results of a recent series of drop tests on a full 10 gall. drum. It was dropped 16 times in various positions from a height of 4 ft. 6 in., and this was followed by three further drops



Reed Plastic Packaging's new 45 gall. polythene and steel composite drum showing the twin neck apertures on top of the polythene unit

from a height of 20 ft. The polythene drum was found to be completely undamaged.

The 10 and 12-gall. steel drums normally have a seamed-on lid and are manufactured with 24-gauge top and 26-gauge body and base with double-seamed ends. High density, power-threaded polythene caps and locking rings are included at the price of the container and integral pouring spouts are available as optional extras.

The 45-gall. composite drum, with 10% ullage, has two neck apertures of 2½-in. internal diameter which are integrally moulded into the top of the polythene unit, each aperture having both internal and external power threads.

The steel drums are manufactured from 18-gauge steel throughout and have a loose lid secured by a locking ring. Drums manufactured in other gauges will be available in the near future.

### Reconditioned jerricans

Reconditioned jerricans cost a fraction of the price of new jerricans, and can be used many times. Their net weight is approximately 10 lb., and they have a quick action claw type non-spill filler

cap with high necks and a breather tube for easy pouring. Whether empty or full they stack to almost any height and so are economical on storage space.

**Recontainers Ltd.**, Hounslow, Middx., of the JEL Group, claim to be the largest jerrican reconditioners in the U.K., selling to over a hundred countries. Jerricans are provided suitable for containing such liquids as petrol, oils, fats, insecticides, certain chemicals and drinking water.

The jerricans go through a lengthy process of reconditioning which includes being re-shaped where necessary by air pressure, and chemical treatment of the interior and exterior to remove paint and other foreign matter. The can is then shot-blasted and tested for faults by compressed air under water. The interiors are relined according to what they will contain; for example, those for petrol and oil are sprayed with a special paint resistant to these liquids and stoved infra-red. As a final operation in the reconditioning process new rubber washers are fitted.

### Polythene tubs

'WCB News' is the title of a newsletter, the first issue of which has just been produced by **WCB Containers Ltd.**, Shepley Works, Audenshaw, nr. Manchester. It is intended to keep customers



**WCB Containers 100 gall. tank, shown here in a typical support stand arrangement, is suitable for the bulk storage of a wide range of liquids. Taps, valves, drain holes and unions can be fitted to extend the applications of the standard tank. Other tanks of this style are available in 35, 50 and 200 gall. capacities**

and other interested parties up to date with the activities of the company in the industrial containers field more efficiently than has been possible by other means.

Among products described is a new compact polythene tub 20 in. in diameter and 18 in. deep.

### Polythene-lined Tandrum

Claimed to be the first polythene-lined drum of its shape, the Tandrum, recently introduced by **Tanks and Drums Ltd.**, Bowling Ironworks, Bradford, has been

**The 40 Tandrums shown are said to contain the same volume of chemicals as the carboys**



developed to handle a wide range of chemicals.

With outside dimensions of 19 in. by 12½ in. (allowing 10% ullage), the Tandrum can be formed into compact one-ton loads of 40 drums arranged in two tiers on 40 in. by 48 in. pallets. On 18 ft. long rail or road vehicles, and whether loaded 'loose' or on pallets, payloads of 8 to 8½ tons can be achieved.

Capacity is 5 gall, and there is adequate room on the drum for the printing of promotional material.

### Non-caking product

Agglomeration or 'caking' of powdered products in storage is a major problem for powder manufacturers, but **Armour Hess Chemicals Ltd.** claim to provide an answer in their Technical Bulletin L29 entitled "Armofofos as conditioning agents for salts and fertilisers."

The Armofofos are a group of cationic surface active chemicals which, when

added to fertilisers and other powders at a concentration of the order of 1 lb. per ton, prevent caking in storage and maintain a free flowing product. It is claimed that Armofofos may be used on a variety of products, including compound fertilisers, ammonium sulphate, ammonium nitrate, potash, etc.

Copies of Technical Bulletin L29 together with samples of the Armofofos are available from **Armour Hess**, 6 Arlington Street, St. James, London S.W.1.

### Sunley to build Du Pont laboratory extension

The extension to the research laboratory of Du Pont Co. (U.K.) Ltd., at Hemel Hempstead, Herts, to cover research and technical facilities in Hylene isocyanates, is to be built by **Bernard Sunley and Sons**. The work, costing £37,500, is to be completed in 26 weeks.

## Du Pont introduce new bulk transport service for Maydown neoprene latex

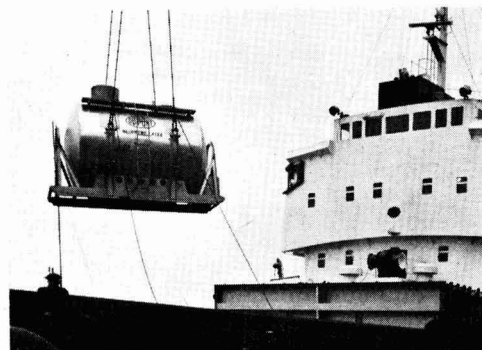
A NEW bulk transport service for neoprene synthetic rubber latex has been introduced by **Du Pont Co.** (United Kingdom) Ltd. to give quicker and better service to customers in the U.K. and on the Continent. First bulk consignment was recently delivered in a newly-designed 1,600 gall. tank from the Maydown Works, Northern Ireland, to **John Wild and Sons Ltd.**, makers of Texon and other industrial papers, Radcliffe, near Manchester.

Du Pont also plan to store full tanks at their Runcorn, Lanes., warehouse.

The first cylindrical tank, designed by Du Pont engineers, left Maydown for Belfast Docks on a low loader truck. There it was transferred to the hold of the new container ship M.V. *Buffalo* for the night voyage to Liverpool and in less than 24 hours of leaving the works was delivered in Radcliffe.

Constructed of mild steel and with a gross weight, when full, of 10 tons, the tank has an interior coating of epoxy resin paint. Urethane foam insulation is provided between the inner steel tank and the outer aluminium skin. The tank can be emptied in 30 minutes.

**Unloading the first bulk consignment of neoprene latex at Liverpool. This 1,600 gall. tank is urethane insulated**





## Petrochemicals in U.K. will take 3 million tons of oil in 1970

**P**ETROCHEMICALS is one of the three sectors of the oil industry which are expected to double their consumption between now and 1970, according to Mr. J. Davies, vice-chairman and managing director of Shell-Mex and B.P., who was addressing the Institute of Fuel at Sheffield recently. This means that petrochemicals should account for 3 million tons of oil in 1970.

Other sectors which are expected to expand at a similar rate are domestic and institutional heating and aviation fuels, but the industrial sector will continue to be the most important.

A continued expansion of the nine existing major refineries is anticipated

and there will almost certainly be new ones built. The most likely locations would appear to be the Bristol Channel area, the Thames estuary, and the Tyne-Tees area.

Pipelines will also develop apace. Mr. Davies thought that there will almost certainly be a system operating from the Thames estuary or the Mersey to the Midlands serving the dual purpose of supplying the fast increasing consumption of the Birmingham-Wolverhampton-Coventry complex and at the same time providing for the supply of north and north west London by by-pass rather than by transit through the Metropolitan area.

## American Cyanamid increase expenditure on capital expansion overseas

**R**ESearch expenditure by American Cyanamid reached the record level of \$31,925,521 (£11,336,181) during 1961 (for company results see *CHEMICAL AGE*, 17 February, p. 289). The accelerated research programme included the establishment of new laboratories at Geneva where work is now being carried out on basic research in the chemical and physical sciences. Cyanamid continued in their efforts to find an anti-cancer drug; they achieved major technological advances in the development of an acrylic filament; and continued development work on a catalyst suitable for removing smog-forming impurities from exhaust fumes.

Cyanamid spent an increased amount on capital expansion overseas where new manufacturing facilities were completed

or undertaken in 13 different countries, including the U.K. (the 3,000-ton-a-year melamine crystal plant at Gosport was completed). New manufacturing units which went into operation during the year included plants for pharmaceuticals, agricultural chemicals and fertilisers.

The acquisition of the business and assets of Wasco Chemical Co. has enabled Cyanamid to manufacture polymethyl methacrylate or acrylic sheeting. Construction was also started on a plant at Wallingford, Conn., for the production of methyl methacrylate polymers.

Among other plants in the U.S., the granular triplephosphate plant at Brewster, Florida, is nearing completion, and work has begun on the 40% expansion of ammonia capacity at the Fortier petrochemical plant near New Orleans.

drilling and production—some £1.3 million; tubes, pipes, pipe fittings and valves—£1.1 million; and electrical equipment—£670,000.

## U.K. tube plant for Canada

**F**AILURE of the demand from the oil and natural gas industries to come up to expectations has led to the sale of Stewarts and Lloyds' new steel tube plant at Shotton, Flintshire, to Page Hersey Tubes Ltd. of Toronto. The plant, which has never been brought into commercial production since its completion more than a year ago, will now be installed at Camrose, Alberta.

Stewarts' and Lloyds' decision to install the plant at Shotton to produce pipe in the 6½-16 in. o.d. range was taken in 1957, when an expansion in demand from the oil and natural gas industries was anticipated.

## Blythe Colour expansion awaits C.M. negotiations

**A**LTHOUGH certain improvements to the Cresswell, Stoke-on-Trent works of Blythe Colour Works Ltd. were made last year, further planned extensions are at present in abeyance, awaiting the outcome of Britain's negotiations to join the Common Market. Increased demand for the company's colours, stains, oxides, and other chemical products, expected if Britain joins the C.M., would be met by expanding and developing existing facilities at Cresswell. If Britain does not join the Common Market the company plans to set up production facilities on the Continent.

## New enzymology research unit for Shell

**A** NEW Chemical Enzymology unit is to be set up by the Royal Dutch/Shell group with a new laboratory at Sittingbourne, Kent. The object of the unit is basic research and research on topics of shorter range interest, mainly, but not exclusively, in the field of 'biological chemistry' on which Shell relies very largely for their development of pesticides and herbicides.

The new laboratory is expected to be completed on 1 April 1963, although the unit will be in operation before then. In addition to the permanent staff (see 'People in the news', p. 534) a limited number of scientists working in kindred fields in the universities will be welcome there for periods of research up to about three years in duration.

## Pfizer to sue Minister

**T**HE Pfizer Corporation of the U.S. are taking action against the Minister of Health with regard to his decision to buy drugs from unlicensed manufacturers. In order to do so, the Minister of Health has invoked Section 46 of the Patents Act.

Recently the Ministry entered into contracts with U.K. buying agents for the supply of a number of drugs from Italy and Denmark. Among them are tetracycline and oxycycline for which Pfizer hold patents.

## Monsanto prices weaken further

**S**ELLING prices of certain of Monsanto Chemicals products weakened still further during the first three months of 1962, according to Sir Miles Thomas (see *CHEMICAL AGE*, 10 March, p. 400). Sir Miles told the annual meeting that every effort was being made to improve the situation and it was essential to keep the plant up to date.

## Rise in U.K. ethanol output

**U**.K. production of industrial ethyl alcohol in 1961 was at a monthly average of 4.69 million proof gall., compared with 4.44 million in 1960.

## BP purchases of materials, equipment in 1961

**O**RDERS for materials, equipment and services to the value of £18 million—an increase of some £1.4 million on 1960—were placed by BP Trading Limited (BP's principal trading subsidiary) during 1961. Of this total, orders worth £15 million were placed in the U.K., some 60% being for use overseas. In addition refineries and other main subsidiaries of BP placed orders in the U.K. valued at £4.7 million during the year.

Materials were shipped by air and sea to 48 overseas destinations in approximately 31,000 consignments, amounting to 129,000 tons at a freight cost of more than £1.1 million.

Among the various groups of materials, the major orders placed in 1961 were for bulk chemicals, catalysts and barytes which totalled nearly £2.2 million. Specialised equipment for oil



### **MARCHON ECONOMY GOES DEEP**

At Marchon's Whitehaven factory, production of detergent raw materials begins 500 feet below ground. Here, anhydrite is mined which, together with other raw materials, produces 500 tons of sulphuric acid every day. That Marchon has its own mine, and manufactures sulphuric acid on so large a scale, is one of the reasons why it can make detergent chemicals in Whitehaven and sell them competitively all over the world.

**Marchon**

# Olefin- Production

# Sand Cracker

LURGI-RUHRGAS PROCESS

Sand Cracker for the production of olefins from 70,000 tons of light naphtha per annum

#### Feedstocks:

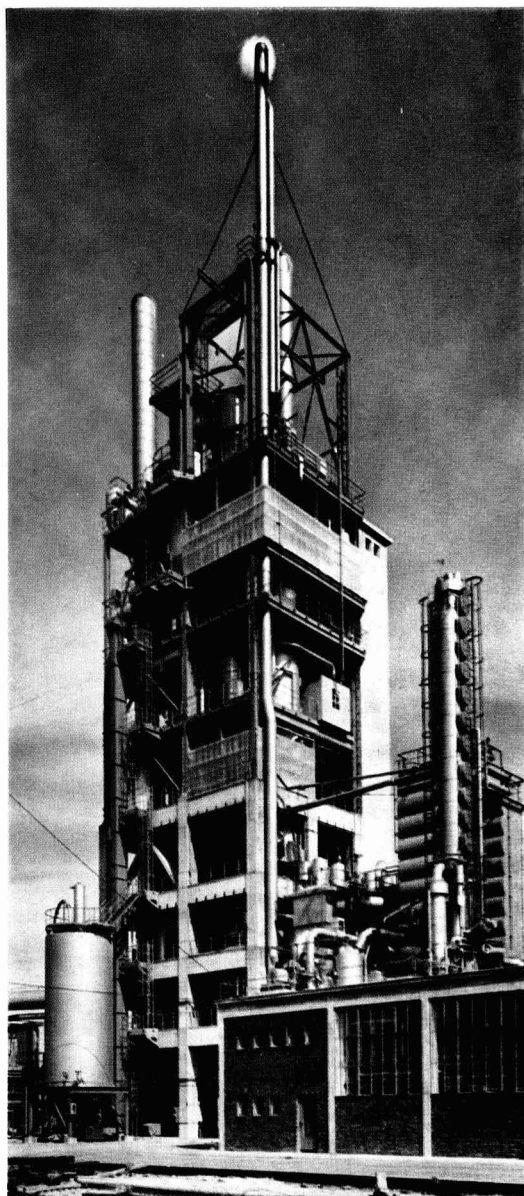
All petroleum products, ranging from liquefied gas to crude oil.

#### Products:

Ethylene, propylene, butylene and butadiene;  
hydrogen and methane;  
naphtha with a high content of aromatic hydrocarbons.

#### Principle of Process:

The preheated hydrocarbons are injected with superheated steam into a bed of hot sand which is kept in a strongly fluidised motion. The heat transferred from the sand to the hydrocarbons effects cracking into olefins. The coke formed during cracking deposits on the sand particles. This sand is withdrawn continuously, reheated and regenerated by burning off the coke deposits in a pipe lift, and returned to the sand bed.



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**FRANKFURT (MAIN) · GERMANY**

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Associated Lurgi companies:  
Lurgi Apparatebau Gesellschaft mbH  
Lurgi Gesellschaft für Chemie u. Hüttenwesen mbH  
Lurgi Gesellschaft für Chemotechnik mbH  
Lurgi Gesellschaft für Mineralöltechnik mbH

## Overseas News

# DUTCH CHEMICAL OUTPUT ROSE BY 6%, 7% RISE EXPECTED IN 1962

HOLLAND'S chemical industry last year produced some 6% more than the volume recorded for 1960, as against an overall industrial increase of only 2% over the year. Within the 6% output increase for chemical industry products were rises of 3% for synthetic fertilisers including urea, 9% for pharmaceutical products, 4% for soap, washing and cleansing products, 6% for dyestuffs, paints and tanning materials, as much as 20% for plastics and synthetic rubber, and some 5% for other chemicals.

Over the current year, Dutch chemical production is expected to rise by a further 7%, the rates of increase being similar to those above for all classes of products except "other chemical products", output of which is to go up by some 7%.

Dutch chemical industry exports rose by 9% over last year and are planned to rise by the same amount again during 1962. Particular success is reported for 1961 exports by plastics and synthetic rubber producers, whose foreign sales rose by 25% over 1960, and dyestuffs, paints and tanning products industry, whose exports rose by 10%. In these industries, exports are expected to rise in volume this year by 10% and 7% respectively. Last year's synthetic fertiliser exports were disappointing, rising by only some 3% despite price decreases; they are expected to increase by 5% in 1962. Inland sales, which in 1961 were some 5% above those for 1960, are to rise by a further 7% over the current year.

Figures issued by the chemical employers' body, Katholieke Vereniging van Ondernemers in de Chemische Industrie, indicate that over the first nine months of last year, actual chemical industry turnover had risen by some 7% over the corresponding 1960 period.

### Japanese refinery opened at Singapore

The £3 million refinery at Singapore jointly owned by Maruzen Toyo Oil Co. and Toyo Menka Co., under the title Maruzen Toyo Oil Co. (Singapore), was officially opened last week. With a crude oil capacity of 15,000 bbl./day, production is due to begin in April.

The Shell refinery at Singapore came on stream in July 1962 with throughput of 20,000 bbl./day and costing some \$30 million.

### Expansion plans for Norsk Hydro

A new fertiliser plant which will increase production considerably is planned by the Norwegian company, Norsk Hydro. In addition, output at Glomfjord Salpeterfabrikker will be increased by 50% over the next few years and production at Eidanger Salpeterfabrikker will be doubled.

Plans for the new plant are in the preparatory stage. Nothing has been revealed concerning the capacity and site.

### Fertilisers-from-gas scheme for Iraq

A new fertiliser plant to be built at Basrah, Iraq, will use natural gas feedstock. A branch will be added to the pipeline already built by S.A.I.P.E.M., of the Italian E.N.I. Group, to bring gas to the local electric power station from the wells at Rumailah.

### 60 Swiss chemical firms involved in price guarantee

Promise of the five leading chemical companies in Switzerland not to increase the prices of products sold on the home

market before 31 December, has now been extended to cover 60 Swiss chemical firms.

### 1961 production in France

Total 1961 production of some important chemicals in France are as follows:

<b>Sulphuric acid (H<sub>2</sub>SO<sub>4</sub>)</b>	tonnes
contact	1,406,000
chamber	744,500
<b>Calcium carbide</b>	431,620
<b>Caustic soda (NaOH)</b>	
solid calcium base	196,730
electrolytic	74,790
liquid calcium base	41,320
electrolytic	282,570
<b>Ammonia (N)</b>	862,714
<b>Nitric acid (N)</b>	362,935

### Two new French chemical plant ventures

Bonaldi D.E.C., Crema, Italy, have reached preliminary agreement with Fouga, Beziers, France, concerning the setting up of a joint company, Cie Europeenne de Materiel de Petrochemie for the design and fabrication in France of large petrochemical plants, most of which would be exported.

Gexa is the name of a new company formed in France to sell in overseas countries complete installations in the oil, chemical and fertiliser fields. Participants are Alsacienne des Constructions Mecaniques, Five-Lille Cail, Chantiers de l'Atlantique and Constructions Electrique et Mecaniques Alsthom.

## Shorko and Thomassen and Drijver form polyolefin film venture in Benelux

A JOINT company in the Benelux, for the manufacture of polyolefin film and film products is to be formed by Shorko Investing S.A., of Sihlbruggstrasse 3, Baar/zg., Switzerland, and Thomassen and Drijver N.V., the two companies to hold 60% and 40% of the shares, respectively. A site has already been acquired at Borneim, Belgium, for the joint company's plant, construction of which will start shortly.

Shorko Investing are jointly owned by Bataafse Petroleum Maatschappij (Royal Dutch/Shell Group) and National Distillers and Chemical Corporation of New York.

It was recently reported (C.A., 24 February, page 316) that Shorko Packaging (U.K.) Ltd., who were recently formed jointly by the Metal Box Co. and Shorko Ltd. (itself owned jointly by Shell and National Distillers and Chemical Corporation of America) had purchased a factory site at Swindon to produce, in the first instance, oriented polypropylene film, initial investment in the first stages to be £1½-£2 million.

### New carbon black plant for California

Construction of the new \$5 million carbon black plant of United Carbon Co., U.S., at Mojave California, was recently

completed. Reactor shake-down trials start soon. The new plant, engineered and built by the Lummus Co. of Houston, Texas, has an initial rated capacity of 64 million lb. and will serve the entire Pacific Coast area.

U.C.C. operate six carbon black plants in the U.S. and also have plants in Australia, France and the U.K. Their new carbon black plant in Venezuela has now been completed.

### Fall in U.S. production of carbon black

U.S. domestic production of carbon black in 1961 fell 4.4% short of the record 1960 level of more than 2,000 million lb., according to Dr. Isaac Drogin, vice-president of United Carbon Co. Furnace processes now account for 80% of total U.S. production, with volume of furnace-black having risen by some 60% in the past 10 years. Channel process account for about 15% of output, with volume about one-half of the 1951 total. Thermal blacks make up the rest, with output up nearly 50% in 1961 compared with 10 years ago.

Of total furnace-black production, one-third is HAF. The remainder is split between SRF and ISAF, about 20% each, and FEF, about 15% of total.

● **Mr. W. Latta**, general manager of Rhodes, Brydon and Youatt (Division of Crane Ltd.), Reddish Engineering Works, Stockport, Ches, has left the company to join T. and T. Vicars Ltd., a member of the Henry Simon Group, as director and general manager.

● **Dr. J. W. Cornforth, F.R.S.**, and **Dr. G. J. Popjak** have been given charge of the new Chemical Enzymology unit of the Royal Dutch/Shell group (see also p. 530). Dr. Cornforth was for some years a member of the National Institute of Medical Research and Dr. Popjak is at present Director of the Medical Research Council's Experimental Radiopathology Research Unit.

● **The Hon. M. R. Bridgeman, C.B.E.**, is chairman of B.P. Chemical Co. Ltd., Britannic House, London E.C.2, recently formed to take over the chemical interests of the British Petroleum Co. Ltd. Other directors are **Mr. M. A. L. Banks** (a director of British Hydrocarbon Chemicals Ltd.), **Mr. W. D. Brown, Mr. A. E. C. Drake, C.B.E., Mr. A. F. Down, Mr. R. B. Dummett, Mr. J. M. Pattinson, C.B.E., and Mr. D. G. Smith.**

● **Mr. Denzil Freeth**, Parliamentary Secretary to the Minister for Science, will be the principal speaker at the Congress Banquet of the International Society for Fat Research at the Hyde Park Hotel, London, on 11 April. The congress opens on 10 April, when **Lord Fleck** and **Dr. E. G. Woodroffe**, president of the congress, will welcome delegates from some 30 countries.

● **Mr. W. K. Wilson** has been appointed director of the newly created Export Department of Shawinigan Resins Corp. The new department will be located at the company's home office in Springfield, Mass.

● **Mr. J. W. G. van Rosmalen** and **Dr. E. Meinsma** have been appointed assistant directors of the Dutch petrochemical and mineral oil refining concerns, Shell Nederland Chemie and Shell Nederland Raffinaderij. They succeed **Mr. H. van der Heide.**

● **Mr. Finlay Walls**, a senior executive of I.C.I. Plastics Division, was elected chairman of the British Plastics Federation in succession to **Mr. David Radford**. **Mr. H. A. Collinson** (Leicester, Lovell and Co. Ltd., Southampton) was elected vice-chairman, while **Mr. H. H. Woolveridge** (Distillers Co.) remains president. Mr. Walls joined I.C.I. in 1928 and in 1934 he joined the newly formed plastics group and became responsible for the first Perspex plant. In 1938 he moved to London to be in charge of thermoplastics sales and has subsequently occupied various posts in the I.C.I. Plastics Division.

● **Mr. John G. Window**, sales director of Q.V.F. Ltd., Stoke-on-Trent, left London Airport on Thursday for a three-weeks' tour of Japan. He plans a seven-weeks' tour of South America later in the spring.

# PEOPLE in the news

● **Mr. George R. Collins**, vice-president and director of construction for the Lummus Company, has been elected president of the National Constructors' Association of the U.S. Mr. Collins, who is 52, has served some five years at Lummus' London headquarters, where he developed and directed the construction department. This assignment ended in 1953 when he returned to the New York office.

● **The Earl of Halsbury**, a director of Head Wrightson Processes Ltd., is to join the board of the Distillers Company Ltd. on 1 April. A member of the committee appointed to study problems of adopting a decimal currency system, he was managing director of the National Research Development Corporation from 1949 to 1959.



**Professor R. A. Raphael** who, as stated in C.A. last week, p. 477, has been elected a Fellow of the Royal Society

● **Mr. F. Leonard Bryant**, who was re-elected president of Hooker Chemical Corporation, U.S., has been designated chief executive officer as well, **Mr. Thomas E. Moffitt**, chief executive officer since September 1958, was re-elected chairman of the board.

● **Dr. B. K. Blount**, Deputy Secretary of D.S.I.R., is chairman of a steering committee for the laboratory of the Government Chemist just set up by the C.S.I.R. Other members are: **Prof. R. Belcher**, Professor of Analytical Chemistry, Birmingham University; **Mr. R. C. Chirnside**, chief chemist and head of the chemistry and technical services division of the General Electric Co. Ltd.; **Dr. D. T. Lewis**, Government Chemist; **Mr. H. Wooldridge**, Deputy Director (stations division), D.S.I.R. headquarters.

● **Mr. N. L. Harms**, president of Symington Wayne International, U.S., has been appointed a director of Wayne Tank and Pump Co. Ltd., Bracknell, Berks.

● **Dr. C. H. Bamford**, who has been director of fundamental research at the Maidenhead, Berks, laboratory of Courtaulds Ltd. since its inception in 1945, was appointed last week to the Campbell Brown Chair of Industrial Chemistry at the University of Liverpool and will take up his new duties on 1 October. A Fellow of Trinity College, Cambridge, in 1937, he was employed during World War 2 by Interservices Research Bureau with the Ministry of Economic Warfare. In 1941 he was the holder of the R.I.C. Meldola Medal. He has achieved international distinction for his work at Maidenhead, which has included work on large molecules and addition polymers. Lecturer in organic chemistry, University of Bristol, **Dr. A. R. Battersby** has been appointed to the newly established second Chair of Organic Chemistry at the University of Liverpool and will likewise begin duties there on 1 October. He was Commonwealth Fund Fellow in 1950-52, and in 1959 he was awarded the Corday-Morgan Medal and Prize.

● **Dr. Rezsó Bognár**, faculty head at the Lajos Kossuth University of Science, Debrecen, Hungary, is among this month's recipients of the Kossuth Prize, awarded to him for outstanding research on the chemistry of nitrogen glycosides and flavonoides and the development of the Hungarian manufacture of alkaloids and antibiotics.

● **Dr. Leo A. Wall** of the U.S. National Bureau of Standards, has been awarded the Department of Commerce Gold Medal for Exceptional Service. A chemist in the Polymer Structure Section of the Bureau, Dr. Wall was honoured "in recognition of pioneering research in the synthesis of new fluorocarbon compounds for the preparation of organic polymers."

● The following board changes have been announced by Fisons. The office of group managing director has been abolished. **Sir John Carmichael** and **Mr. J. W. Napier**, formerly a managing director, have been appointed executive vice-chairmen. The following have been elected to the Board: **Mr. Arnold Robinson**, who was until recently chairman of Whiffen and Sons Ltd. and deputy chairman of Fisons Overseas Ltd., and **Dr. E. Parry Jones**, chairman and managing director of Fisons Pest Control Ltd. Mr. Robinson will be taking up a new appointment as managing director of Fisons Fertiliser Ltd. on 1 April.

## British Pharmaceutical Conference

The centenary meeting of the British Pharmaceutical Conference is to be held in London, 2 to 6 September, 1963. As the Conference is expected to attract a number of overseas visitors, the organisers felt that an early announcement would be appreciated.





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## Commercial News

### British Nylon Spinners

Group trading profit in 1961, of British Nylon Spinners Ltd., jointly owned by I.C.I. and Courtaulds, after depreciation of £2,413,966 (£2,101,114) and other charges, was £9,372,402 (£11,521,338). Tax took £4,243,388 (£5,340,791) and net profit was £5,358,633 (£6,443,862). Dividends totalled £2,940,000 (same).

Hesitation in demand for nylon products noted in the closing weeks of 1960 continued well into 1961, but by the latter part of last year, the market was considerably stronger—a trend that has continued into 1962. Exports expanded significantly but competition at home and overseas led to lower selling prices and although the effect on margins was partly offset towards the end of 1961 by full utilisation of increased capacity, total profits were reduced.

Direct exports of nylon yarns are expanding in spite of increasingly competitive markets and in 1962, B.N.S. plan to increase their exports by at least 50%. "So far," it is added, "exports this year are exceeding even this ambitious target."

### William Blythe

Group profits of William Blythe and Co. Ltd. for 1961 were £169,487 (£269,210). After tax of £80,983 (£122,058), net profit was £88,504 (£147,152). Final dividend is 15% making 20% (25%).

### Blythe Colour Works

Consolidated net profit of Blythe Colour Works Ltd. for 1961 was £372,840. Mr. D. R. Wildblood, chairman, in his annual report, said that although profit was rather less than that earned in the record year, it was still the second highest in the company's history. Constant efforts are made to increase exports and unless Britain joined the European Economic Community, it might be necessary to build a factory on the Continent to maintain contact with the European market and provide an efficient service for customers in that area (see also page 530).

Future prospects largely depended on the company's efforts to find adequate markets and its ability to control rising costs.

### Reichhold Chemicals

Dividend of 15% or 9d/share has been declared by Reichhold Chemicals Ltd., making a total of 22½% or 1s 1½d/share (same). Group profit after all charges, including taxation was £208,816 (£257,694)

### John and E. Sturge

Group net profit of John and E. Sturge Ltd. in 1961 totalled £72,353 (£145,607) after tax of £82,574 (£89,809) and depreciation of £123,713 (£106,870). Group trading profit was £154,927 (£235,416). A final dividend of 4% is proposed

- B.N.S. profits down, exports increase
- Courtaulds offer for mining concern
- Reichhold Chemicals keep dividend at 15%
- Snia Viscosa announce bonus share issue

making 8% compared with the 1960 equivalent of 9½%.

The directors in their interim statement of October 1961, intimated that in the absence of any further deterioration in market conditions they would recommend a dividend of 9%. But since then, intensified competition in world markets has further cut profit margins. As an early reversal of this trend was not expected, it was decided to recommend a lower total dividend.

### Courtaulds/Halkyn

Courtaulds are making an offer of 1s 8½d per 1s share for the £41,135 capital of Halkyn District Mine United Mines. Halkyn directors have recommended the offer.

### Fisons

One of Fisons' subsidiaries, the Eclipse Peat Co., has exchanged contracts for the purchase of the Fina Peat business of Mr. R. R. Kirkham of Wilmslow, Cheshire.

### Transparent Paper

Group trading profit of the Transparent Paper Ltd., one of the joint owners of United Sulphuric Acid Corporation Ltd., in 1961 totalled £681,929 (£796,927). Tax took £277,481 (£341,398) and net profit was £206,486 (£307,097). Final dividend of 15% makes 20% (same) on capital increased by one-for-five rights issue.

### Allied Chemical S.A.

Allied Chemical Corporation have formed a new Swiss company, Allied Chemical S.A., Zug, to develop and expand the company's export business, especially in Europe and the Mediterranean area. The new subsidiary's principal officers will be the same as those of Allied Chemical's International Division. Mr. William H. Winfield, division president, and Mr. Wesley Wickersham, division vice-president, will assume the additional responsibilities of these positions in the new company.

A branch office will be established in Monaco as operating headquarters.

### Norsk Hydro

Norsk Hydro expect sales in the year 1961-62 to reach a new record of around Kr.623 million (£31.15 million).

### Bunawerke Huls

Sales of synthetic rubber in 1961 of Bunawerke Huls AG, a subsidiary of Chemische Werke Hüls, totalled 76,000 tons, or 13% more than in 1960. Exports declined and receipts did not come up to

expectations. Even higher sales are expected in 1962. This year, further investments will be undertaken to cut costs and enable Hüls to keep up with foreign competition.

### J. R. Geigy AG

The Basle, Switzerland, chemical company J. R. Geigy AG announces for 1961 a net profit of SF12,980,116 (SF\$11,758,167). Payment of a 1961 dividend of SF120/share (same) on the increased capital of SF36 million was recommended.

### Hooker Chemical

Hooker Chemical's plans for the merging of Parker Rust Proof have been approved by the stockholders of both companies. Hooker are to exchange stock valued at more than \$28 million.

### Snia Viscosa

The Italian synthetic fibres producer Snia Viscosa, Milan, has announced for 1961 an unchanged dividend of 140 lire/share, plus a bonus share to be offered to shareholders at a ratio of 1:5. This bonus-share issue and a further 1:5 issue of some 6,670,000 new shares will bring the Snia Viscosa capital up to some 56,040 million lire.

### Uddeholm AB

Profit of Uddeholm AB, Sweden, for 1961, was Kr18 million, or about the same as in 1960. Dividend is Kr8/share (Kr10 on smaller capital).

### INCREASES IN CAPITAL

SHORKO PACKAGING (U.K.) LTD., chemical manufacturers and dealers, etc., 37 Baker Street, London W.1. Increased by £199,000 beyond the registered capital of £1,000.

S.A. APPLICAZIONI CHIMICHE, synthetic fibre producers, Milan. Capital has been increased from 3,500 million lire to 5,000 million lire.

S.A. ORSI MANGELLI, chemical-fibre producers, Milan. Capital has been increased from 1,250 million lire to 1,800 million lire.

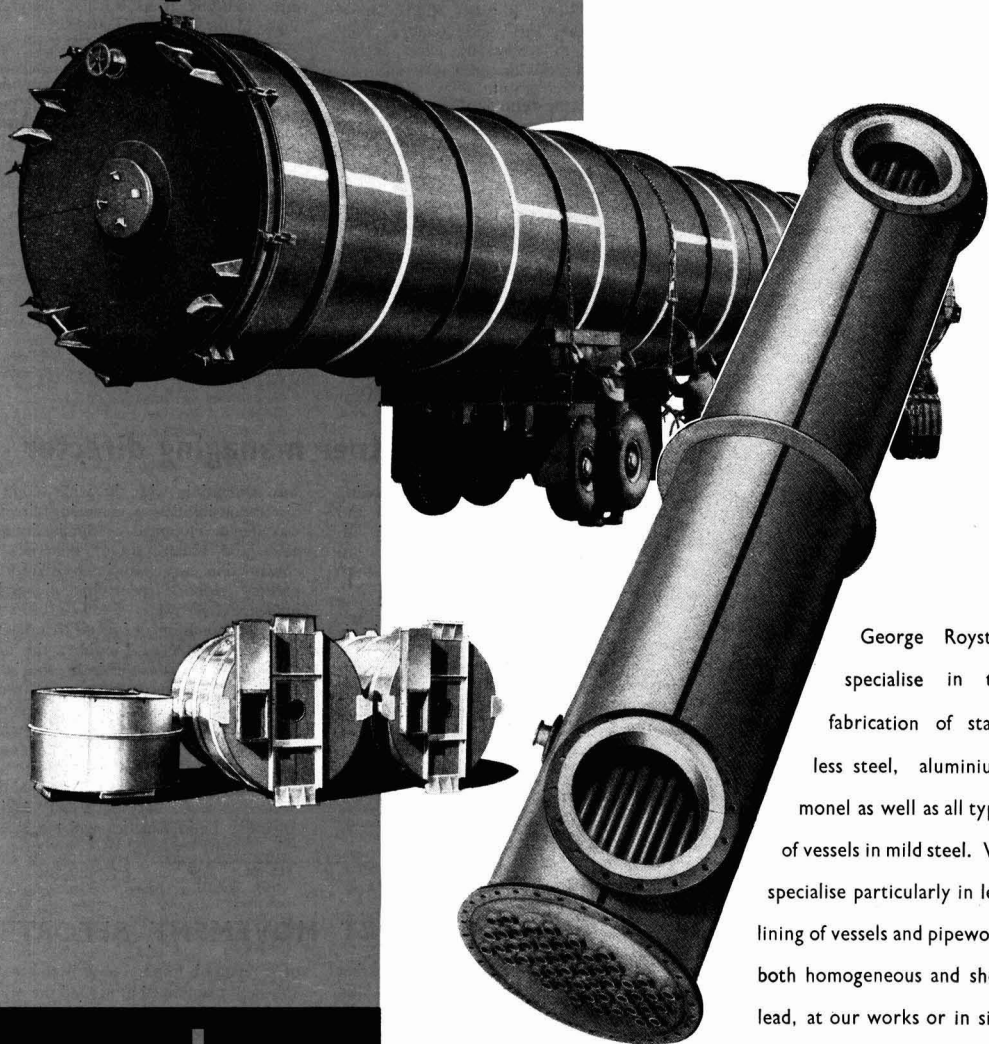
GORDON SLATER LTD., gum and starch manufacturers, etc., Crown Street, Chester Road, Manchester 15. Increased by £50,000 beyond the registered capital of £50,000.

### NEW COMPANIES

AEROSOL HOLDINGS LTD. Cap. £10,000. Manufacturers of and dealers in aerosol preparations, etc. Directors: D. R. K. Marshall, A. F. R. Gait. Reg. office: King Edward Street, Grimsby.

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# TRADE NOTES

## Tioxide pigments

A guide to the use of their Tioxide pigments in the manufacture of industrial stoving paints is now available—also relevant technical publications giving recommendations—from British Titan Products Co. Ltd., 10 Stratton Street, London W.1.

## Du Pont German agents

Nordmann, Rassmann and Co., Hamburg, have been appointed exclusive distributors of industrial chemicals and electrochemicals, except ceramic products, for Du Pont de Nemours International S.A.

## U.O.C. bead stearines

Universal Oil Co. Ltd., Hull, are now offering stearines in bead form. Their whole range of saturated fatty acids—lauric acid, myristic acid, palmitic acid and stearic acid—are in fact now available in beads.

## Fire extinguishers

A new 15 lb. dry-powder fire extinguisher, designed for use on inflammable-liquid fires and also fires involving live electrical equipment, is announced by Nu-Swift International Ltd., of Elland, Yorkshire. In the hands of an inexperienced fire fighter, it is claimed, Model 1615 can extinguish an inflammable liquid fire of 40 sq. ft., while with an experienced fire fighter, the area of an inflammable fire which it can extinguish is 120 sq. ft.

## Changes of name

Process and Chemical Engineering Co. Ltd., 6/8 Northumberland Park, London N.17, have changed their name to B.M. Webster Industries Ltd.

J. F. Chemicals Ltd., 11 Stoke Poges Lane, Slough, have changed their name to Stockpack Ltd.

McKee Head Wrightson Ltd., petroleum and chemical industries plant, etc., 16/26 Baltic Street, London E.C.1, have changed their name to Head Wrightson Processes Ltd.

## Flameproof controls

Flameproof temperature and level control equipment designed for the protection of hydraulic power packs in both mining and surface industries is the subject of a pamphlet issued by Craven Electronics Ltd., Victoria Works, Bingley, Yorks—a member of the Sutcliffe Group.

## Price cut for latex

Prices of Polysar latex 722 have been reduced by Polymer (U.K.) Ltd. to 2s 1d/lb in bulk ex works and to 2s 4d/lb in drums ex store in non-returnable 45-gall. drums.

## Automatic liquid sampler

A self-contained, battery-operated portable unit that automatically takes liquid samples at regular intervals from channels, streams, tanks, etc.—useful for water pollution tests and for general use in laboratories and pilot plants—is des-

cribed in a data sheet from Elcontrol Ltd., Wilbury Way, Hitchin, Herts.

## Industrial paint

A bulletin giving further performance data for Thioxochlor—a new chlorinated rubber industrial paint—has been issued by Detel Products Ltd., Stonefield Way, Victoria Road, Ruimslip, Middx. It is claimed that this paint requires only two coats to achieve the effect of five coats or more with other materials.

## Flame-retardant foams

A new 10-page booklet entitled 'Flexible urethane foam—self-extinguishing properties' details the effects of introducing various flame-retardant additives to flexible urethane foam formulations. Indications are given in connection with ageing properties, foam composition, physical strength and testing procedures. The booklet may be obtained from: Product News Section, Allied Chemical International, 40 Rector Street, New York 6, N.Y.

## Obituary

### Early death of Kestner managing director

Mr. George Hendry Black, managing director of the Kestner Evaporator and Engineering Co. Ltd., London, died suddenly on 20 March at his home in Beckenham, Kent, at the early age of 44. He had been ill for some weeks.

Educated in mechanical engineering at Loughborough College, he served his apprenticeship with Herbert Morris Ltd., and afterwards joined them. He later joined Kestner in a junior position in 1936. He became a director of the company in 1952, and in 1961 was appointed managing director when Mr. J. Arthur Reavell, was appointed president and his son, Mr. Brian N. Reavell, appointed chairman.

Mr. Black's special interests, so far as

## Price cuts for B.R.P. polyester resins

PRICE cuts of up to £23/ton for their Cellobond polyester resins—the second reduction in recent months—have been announced by British Resin Products Ltd., a member of the Distillers Plastics Group. The company says the cuts have been made possible by continued reductions in raw materials costs and economies resulting from B.R.P.'s increasing share of the polyester market.

In the past two years B.R.P. have doubled their share of the polyester glass/laminates market and are confident of their expansion plans. Cellobond resins, produced at the company's Barry, Glamorgan, works, are used with glass fibre reinforcement for boats, car bodies, caravans and a range of other applications.

B.R.P. have now announced two new resins: Cellobond A.2712, a general-purpose clear self-extinguishing grade, and A.2783, a further addition to the range of isophthalic polyester resins for use where exceptional corrosion resistance is required.

was compatible with the wide scope of his responsibilities as managing director, was the development of applications of acid- and alkali-resistant materials of construction, especially in the reinforced plastics group. Under his pioneering influence they were developed for the corrosive conditions of metal treatment—there he had success in both the non-ferrous and ferrous field. In the latter his most recent successes were in special steel strip plant for Richard, Thomas and Baldwin Ltd., where both the immersed and spray plants were recently commissioned.

He travelled widely on behalf of the company, especially in South Africa, Australia, Latin America and the U.S.

## Market Reports

### GOOD EX-CONTRACT MOVEMENT REPORTED

**LONDON** Conditions in the market for industrial chemicals have shown little change and prices are generally steady. New business has mainly been for spot or nearby requirements, but there has been a good ex-contract movement to the chief consuming industries. The routine soda products and the potash chemicals are meeting with a steady request and an active interest is reported in borax, boric acid, hydrogen peroxide and barium compounds. In the market for fertilisers there is a steady seasonal demand.

**MANCHESTER** The large industrial users of chemicals are already mostly well covered for supplies over the second quarter, but fair orders covering a wide range of products, though mainly for prompt or near delivery positions, have

been reported. Exports have been reasonably well maintained at around the recent level. In the by-products section, the light and heavy distillates are mostly going into consumption in fair quantities.

**SCOTLAND** Although some sections of industry had a certain briskness, on the whole trading conditions were maintained at rather steadier levels. The range of demands was varied with, of course, those pertaining to general heavy chemicals predominant. Quantities mostly showed little change and were based generally on nominal requirements. The export market again showed interest, numerous enquiries being received. Demands for agricultural chemicals were steady, some forward demands being placed.

# 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 2 May

Fluorine-containing silanes and polysiloxanes. Haszeldine, R. N. 895 592  
 Process for the manufacture of  $\alpha$ -olefin polymers. Farbwerke Hoechst AG 895 595  
 Copolymers of 3-methyl-1-butene and their preparation. Union Carbide Corporation. 895 330  
 Polymerisation of olefins. National Lead Co. 895 417  
 Process of treating polyolefins. Farbwerke Hoechst AG. 895 419  
 Separation of sterols. Eastman Kodak Co. 895 145  
 Process for the manufacture of maleic anhydride. 895 675  
 Low foam detergent compositions. Rohm & Haas Co. 895 596  
 Method of producing thiocarbamates and thiocarbonates. Sowa, F. J. 895 147  
 Fluorinated halogenated diketones and their use as chelating agents. United States Atomic Energy Commission. 895 676  
 Catalyst and method for the polymerisation of alpha-olefins. Montecatini. 895 597  
 Process for the preparation of peptides. Uclaf. [Addition to 791 319 and 863 170.] 895 383  
 Phenylalkyl-phenyl ether compounds. Farbenfabriken Bayer AG. 895 151  
 Method of temporary protection of hydroxy, mercapto and amino groups. Ciba Ltd. 895 344  
 Process for purifying impure cresols, particularly those with a strong odour. Leuna-werke Walter Ulbricht Veb. 895 119  
 Process for the manufacture of halogen p-phenes. Syntex SA. 895 340  
 Therapeutic fungicidal compositions comprising poly-halogenated phenols. Shaw, C. G. 895 421  
 Sulphur recovery process. Townsend, F. M. 895 503  
 Coating compositions. Balm Paints Proprietary Ltd. 895 423  
 Process for making alumina. Pechiney. 895 446  
 Process for the production of vinyl polymers. Kureha Kasei Co. Ltd. 895 153  
 Metalliferous disazo-dyestuffs containing monohalogen triazine residues, and their manufacture and use. Ciba Ltd. 895 448  
 Metalliferous disazotriazine-dyestuffs, and their manufacture and use. Ciba Ltd. 895 449  
 N-[N-(monocarbocyclic aryl) carbamyl-lower-alkyl] amines and their preparation. Sterling Drug Inc. 895 601  
 Photo-oxidation process and porphyrins for its use therein. Monsanto Chemical Co. 895 450  
 Dyeing of polyester fibres. Sandoz Ltd. 895 427  
 Oxidation of sulphur dioxide to sulphur trioxide and catalysts therefor. Imperial Chemical Industries Ltd. 895 624  
 Manufacture of dispersions of polyvinyl acetate. Farbwerke Hoechst AG. 895 428  
 Benzene-sulphonyl benzyl-ureas and process of preparing them. Farbwerke Hoechst AG. 895 625

Process for producing dialkyl aluminium hydrides. Koppers Co. Inc. 895 355  
 Tryptamine derivatives and acid addition salts thereof. Sterling Drug Inc. 895 430  
 Sulphur-containing organic cyanide, and its use as a fungicidal agent. Merck AG, E. 895 598  
 Oxazole compounds and process for their manufacture. Ciba Ltd. 895 431  
 Production of acetylene and ethylene by hydrocarbon cracking. Roumania, Secretary General for the Petroleum & Chemical Industry. 895 386  
 Manufacture of polyurethanes. Imperial Chemical Industries Ltd. [Addition to 842 154.] 895 388  
 Polypeptides. Ciba Ltd. 895 345  
 4,4'-dichlorodiphenyl sulphone. Uclaf. 895 473  
 Sulphones. Uclaf. 895 464  
 Method of heat treatment of synthetic filaments of polyvinyl alcohol. Kurashiki Rayon Kabushiki Kaisha. 895 389  
 Method of manufacturing synthetic filaments of polyvinyl alcohol of high quality. Kurashiki Rayon Kabushiki Kaisha. 895 390  
 Polyamides and their production. Beck, Koller & Co. (England) Ltd. [Addition to 803 517.] 895 650  
 Monoazo-dyestuff of the benzene-azo-pyrazolone series and process for its manufacture. Farbwerke Hoechst AG. 895 392  
 Bromination of salicylanilide. Dow Chemical Co. 895 656  
 Process for the production of N-substituted-o-aryl urethanes. Farbenfabriken Bayer AG. 895 393  
 Hydrazine derivatives. Kefalas AS. 895 071  
 Immunising preparations containing clostridium perfringens toxins and toxoids. Wellcome Foundation Ltd. 895 073  
 Pharmaceutical compositions. Imperial Chemical Industries Ltd. 895 395  
 Amino-acetamidoximes and their preparation. Boots Pure Drug Co. Ltd. 895 495  
 Preparation of ammonium para-tungstate. General Mills Inc. 895 402  
 Triazinylmantraquinone dyestuffs and process for their manufacture. Ciba Ltd. 895 399  
 Pentacyclic steroids and methods of preparing same. American Cyanamid Co. 895 400  
 Process for the preparation of 10-hydroxycyclo-2-enoic acid. Shell Research Ltd. 895 436  
 Method of manufacturing ammonium nitrohumate. Hokkaido Tanka Kisen Kabushiki Kaisha. 895 437  
 Bis azo dyes. Aziende Colori Nazionali Affini Acna S.p.A. 895 438  
 Process for dyeing polyolefin fibres, films and like shaped articles. Aziende Colori Nazionali Affini Acna S.p.A. 895 439  
 Continuous process for the production of  $\alpha$ -epichlorhydrin. Solvay & Cie. 895 405  
 Sulphur-containing derivatives of starch. National Starch & Chemical Corporation. 895 406  
 Basic dyestuffs. Farbenfabriken Bayer AG. 895 240  
 Alkylation process. Texaco Development Corporation. 895 178  
 Polymerisation of conjugated diolefins and catalysts therefor. Farbenfabriken Bayer AG. 895 607  
 Organic liquids having electrical conductivity. Shell Internationale Research Maatschappij NV. 895 086  
 Process for the production of compounds of polyvalent metals with polychlorophenols and higher carboxylic acids. Farbenfabriken Bayer AG. 895 440  
 Production of epsilon-caprolactam. Union Carbide Corporation. 895 088  
 Stabilisation of organic substances subject to oxidative deterioration with metal deactivators. Goodyear Tire & Rubber Co. 895 180

Oxidation of hydrogen sulphide. Badische Anilin-&-Soda-Fabrik AG. 895 539  
 Organo-silicon compounds. Dow Corning Corporation. 895 091  
 Method of catalyst manufacture. Universal Oil Products Co. 895 617  
 Catalytic oxidation of hydrocarbons. Ruthruif, R. F. 895 183  
 Production of acetic acid. Ajinomoto Kabushiki Kaisha. 895 185  
 Purification and fractionation of petroleum sulphate mixtures. Shell Research Ltd. 895 468  
 Polyhalogenoethyl-thiocyanates and pesticidal compositions containing them. Farbenfabriken Bayer AG. 895 186  
 Anthraquinone pigments. Interchemical Corporation. 895 369  
 Method for modifying polymers. Du Pont de Nemours & Co., E. I. 895 619  
 Preparation of nitrosamines. FMC Corporation. 895 268  
 Production of polychloropropionic acid chlorides. Badische Anilin-&-Soda-Fabrik AG. 895 192  
 Process and apparatus for liquefying natural gas. Shell Internationale Research Maatschappij NV. 895 094  
 Production of formaldehyde polymers and formaldehyde solutions. Houllieres du Bassin du Nord et du Pas-de-Calais. 895 193  
 Process for the manufacture of anthraquinone. Ciba Ltd. 895 620

## DIARY DATES

**MONDAY 2 APRIL**  
 S. Instr. Tech.—Sheffield: Fuel Tech. Dept., Univ. Sheffield, 7 p.m. A.g.m.

**TUESDAY 3 APRIL**  
 I. Chem. E.—Manchester 1: Chem. E. Dept., Co. Sc. & Tech., 9.30 p.m. Symposium on 'Halogenation'.

I. Chem. E.—Southampton: Visit to International Synthetic Rubber Co., Hyde, and a paper by Dr. F. P. Stainthorpe.  
 I. Chem. E.—Manchester: Chem. E. lecture theatre, Col. Sc. & Tech., Jackson St. Symposium on 'Unit processes'.

**WEDNESDAY 4 APRIL**  
 S.A.C.—London: C.S. room, Burlington House, W.1, 7 p.m. Original papers.  
 C.S., R.I.C., S.C.I.—Dublin: Chem. Dept., Univ., Upper Merrion St., 5.30 p.m. 'The enzymic synthesis & degradation of polysaccharides' by Dr. W. J. Whelan.

**THURSDAY 5 APRIL**  
 S.A.C.—Wolverhampton: Tech. Col., 7 p.m. 'Determination of boron' by Drs. H. J. Cluley & R. H. Biddulph.

S.C.I.—London: 14 Belgrave Sq., S.W.1, 6.30 p.m. A.g.m. 'Some aspects of the development problem in the pharmaceutical industry' by Dr. A. C. C. Newman.

Plas. Inst.—Southampton: Chem. Dept., Univ., 7.30 p.m. 'Phenol formaldehyde chemistry' by N. J. L. Megson.

Inst. Plant E.—Coventry: Hotel Leofric, 7.30 p.m. 'Industrial refrigeration'

C.S.—Plymouth: Col. Tech, 7 p.m. 'Analytical research' by Dr. J. Haslam.

**FRIDAY 6 APRIL**  
 S.C.I.—Manchester 1: 36 George St., 6 p.m. A.g.m. & 'Anti-oxidants' by G. Scott.

S. Instr. Tech.—Chester: John Summers Ltd., Hawarden Bridge steelworks, evg. visit.

S. Instr. Tech.—Fawley: Admin. depart., Esso Petroleum Co. Ltd., 5.45 p.m. A.g.m. & films.

R.I.C., S.A.C.—Newton-Abbot: Seale-Hayne Agri. Col., 9.30 a.m. 'Sampling'

Plas. Inst.—Manchester 3: Textile Inst., 10 Blackfriars St., 6.45 p.m. 'Reinforced plastics' by B. J. Phipp.

S.A.C.—Manchester: Nag's Head Hotel, Lloyd St., 7.15 p.m. Discussion, 'Assessment of psychostimulants' by Dr. M. W. Parkes.

S.C.I.—London: 14 Belgrave Sq., S.W.1, 6.30 p.m. 'The oil-from-coal industry in South Africa as a source of organic chemicals' by P. E. Rousseau.

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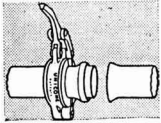


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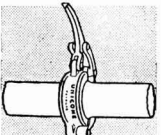
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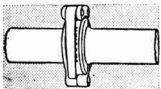
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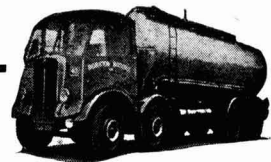
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## PATENTS & TRADE MARKS

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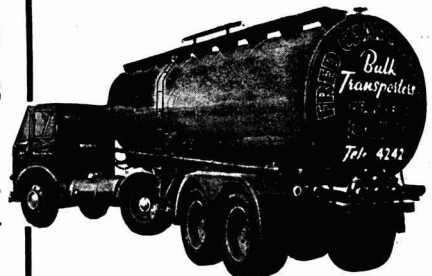
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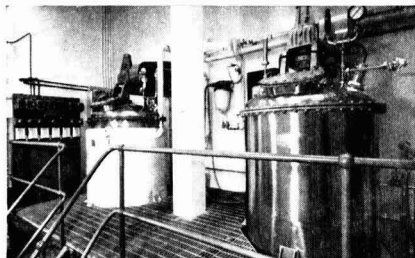
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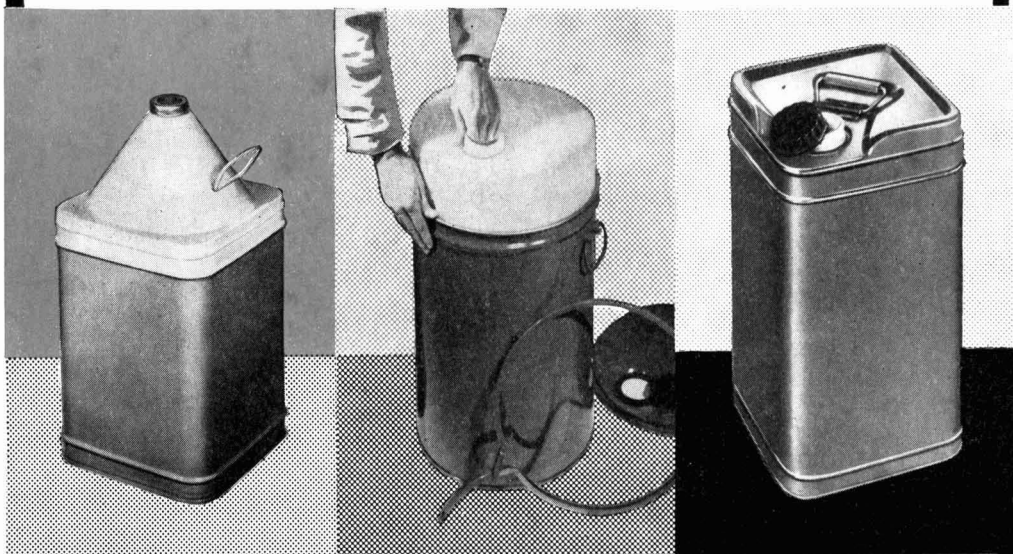
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