Chemical Age

incorporating

PETROCHEMICALS and POLYMERS

VOL. 86 No. 2204 7 OCTOBER 1961

INDEX TO ADVERTISERS

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

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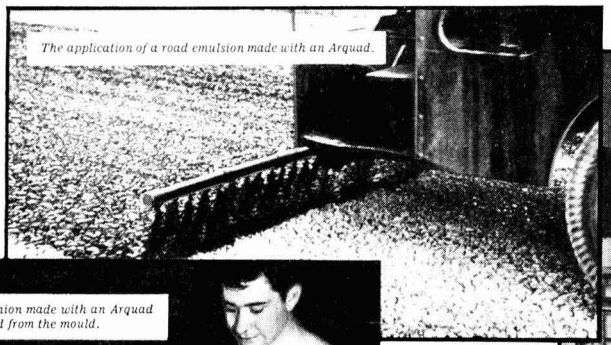
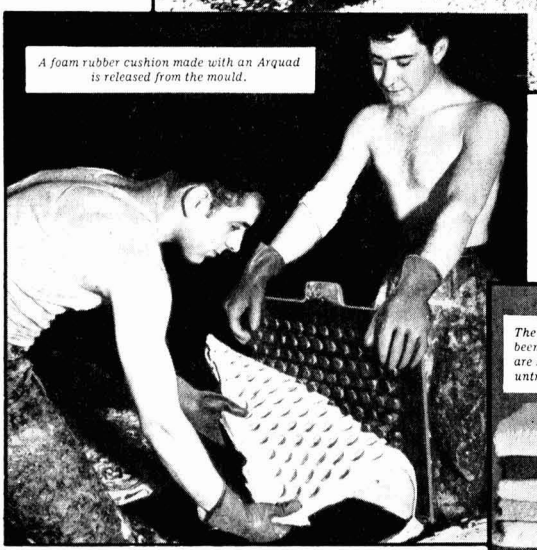
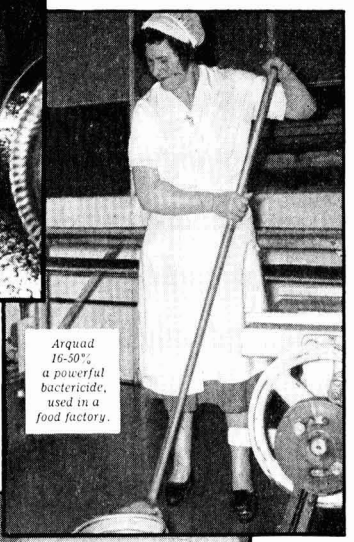


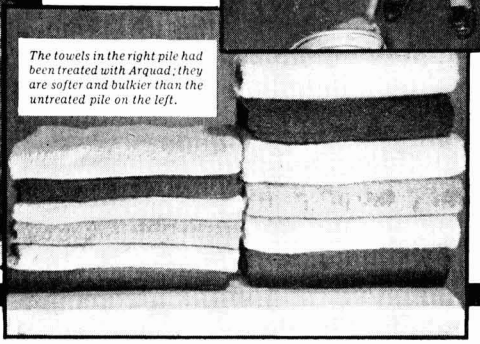
The application of a road emulsion made with an Arquad.



A foam rubber cushion made with an Arquad is released from the mould.



Arquad 16-50% a powerful bactericide, used in a food factory.



The towels in the right pile had been treated with Arquad; they are softer and bulkier than the untreated pile on the left.

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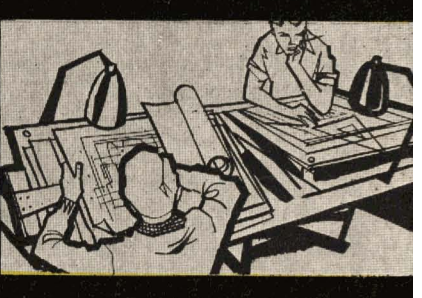
and every phase on schedule



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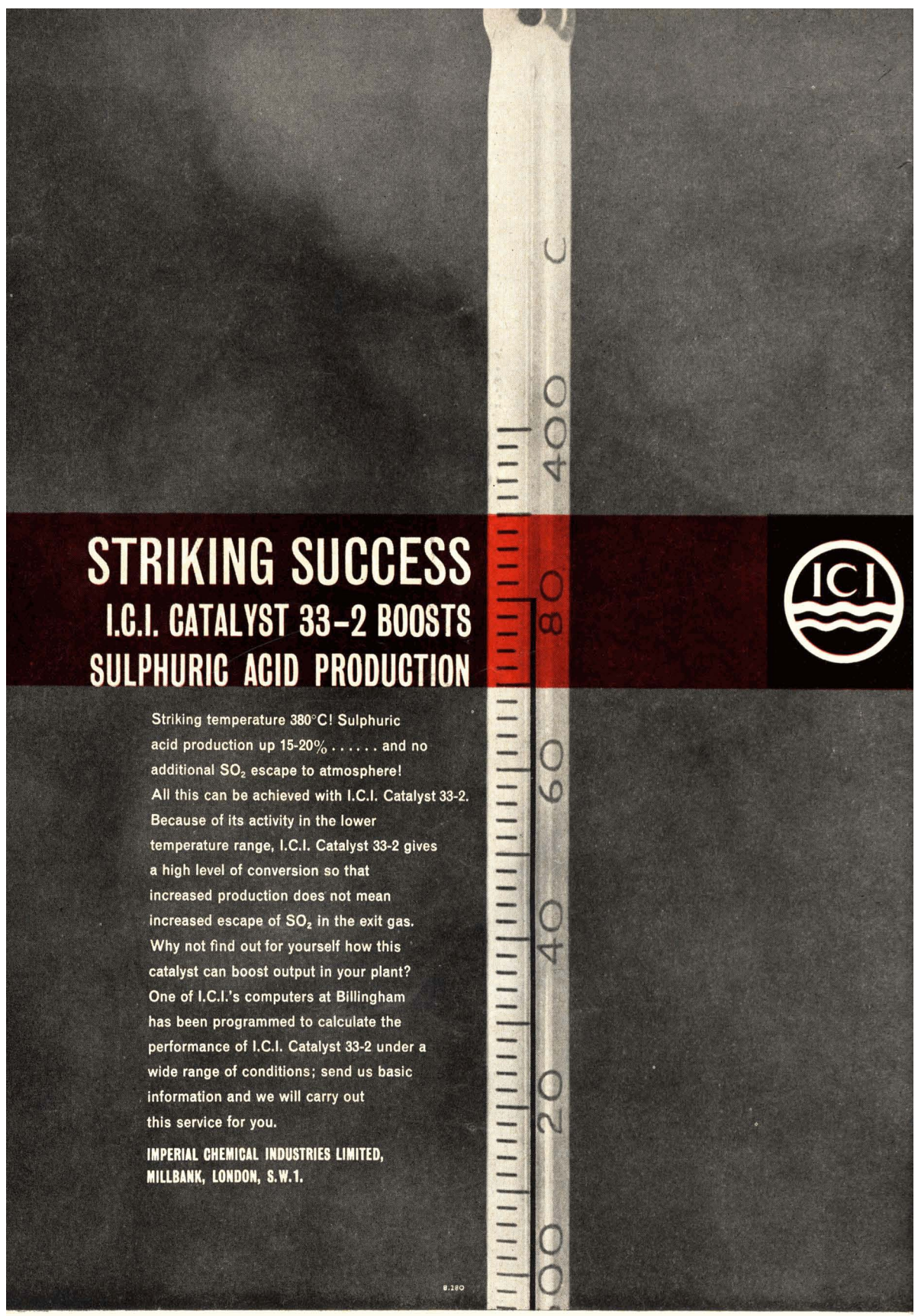

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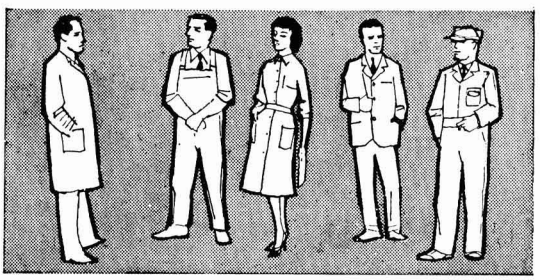

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IN THIS ISSUE

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Chemical Age
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PROSPECTS FOR I.C.I.

TRADING results of Imperial Chemical Industries Ltd. for the first half of this year were better than had been expected, although they clearly show that the downward drift of profit margins, which started in the second part of last year, continued into 1961. Unfortunately, most financial commentators have made the mistake of comparing the first half 1961 results with the first half of 1960, which proved a quite exceptional trading period.

The figures, released by I.C.I. after CHEMICAL AGE had gone to press last week, have led one leading firm of brokers to advise investors to sell their ordinary shares in this company. The brokers' views, expressed in a circular issued at the end of last week, are summarised on p. 546. This advice to sell is based on three factors: credit restrictions; gloomy forecasts by other U.K. chemical companies; and tougher trading conditions in Europe. As a result it is felt that it will be some years before I.C.I. again experience conditions as good as they did in the first part of last year.

The assessment is true in part. The squeeze on profits, however, is nothing new. It started in the second half of 1960 and, compared with that period, I.C.I. have held their own. Conditions have not noticeably worsened since then; the fact is that they are not so good as the halcyon days of boom and no one in the chemical industry expected that the remarkably prosperous trading conditions of that period would continue indefinitely.

That the first half of 1960 was an outstanding period was fully acknowledged by I.C.I. when the results for that period were published (CHEMICAL AGE, 1 October 1960, p. 546). It was then stated that most of the company's plants were operating at high outputs, generally close to full capacity.

Large modern chemical plants are built well in advance of demand and companies do not normally expect them to be fully occupied for two or three years. What happened in the first half of last year was that plants were being utilised far ahead of the time when that would normally have been the case.

There is a direct link between last week's survey of U.K. plant projects published by CHEMICAL AGE, which showed 50 I.C.I. projects worth well over an estimated £80 million, and the company's profit prospects. Provided that the general economic climate shows some recovery next year—and it is reasonable to expect that this may prove the case—then there should be some reversal of the downward trend in profit margins. The reason is that the I.C.I.'s high plant investment programme and relatively fixed operating costs will cause profits to expand more rapidly than sales during a period of business recovery.

One point seemingly overlooked by City commentators is I.C.I.'s great spread of interest. Not only are they producers of base materials, intermediates and a very wide range of finished products, including plastics, fibres and metals, but the company is also in the consumer goods trade with its paints and Lightning fasteners. I.C.I. products go into every industry and to most of the countries of the world. All these factors provide a very effective cushion against depressions in particular sectors

(Continued on page 554)

£300,000 FALL IN I.C.I. NET PROFIT PROMPTS BROKER'S "SELL SHARES" ADVICE

SQUEEZE on profit margins of Imperial Chemical Industries Ltd., which started in the second half of 1960, continued into the first half of this year.

Results for the first half of 1960 were not as bad as had been expected in the City and, writes the CHEMICAL AGE financial editor, there is nothing in them to support the view of one broker that investors should sell their I.C.I. ordinary stock. In fact most commentators have made the error of comparing the January to June 1961 figures with the first half of last year, which proved an outstanding period for the British chemical industry generally and one which is not likely to be repeated for some time.

Compared with the record results of the January to June period last year,

I.C.I. Sales and Profits

(In £ Million)

	1st half 1960	2nd half 1960	1st half 1961
Group sales ...	288.0	270.0	287.0
Exports only ...	47.3	49.3	49.0
Depreciation ...	17.9	19.4	19.3
Group income ...	50.2	37.8	36.7
Tax	23.0	17.1	16.3
Net income ...	25.7	19.5	19.2

I.C.I.'s first half 1961 group sales were down by less than one-half of 1% and were by value 6.3% up on the last half half of 1960. In view of mounting overseas competition and price cuts that slashed several £ millions off the sales total, this is a fine achievement. Home turnover in January to June 1961 was about 2½% below that of the same period last year, this being wholly due to lower selling prices; volume of home sales was about the same as for the record first half of last year.

On the export front, the f.o.b. value of overseas sales from the U.K. totalled £49 million—£300,000 down on the second half of last year but £1.7 million higher than in the first half of 1960. This again was a remarkable achievement, made in the face of substantial price cuts. The physical volume of exports reached the highest-ever level.

Pre-tax group income at £36.7 million was less than 3% down on the second half 1960 figure and 27% down on the first half 1960 figure, which was achieved in an outstanding boom period. Group net income applicable to I.C.I. totalled £19.2 million, or only £300,000 down on the second half of last year; compared with the first half of 1960 the current figure is down by 25.3%.

Group income represented 12.7% of sales in the first half of this year, compared with 14% in the second half of 1960 and 17.4% in the first half of last year. (The results are given in detail in 'Commercial News'.)

Advice of a leading broker that investors should sell their I.C.I. ordinary shares, given in a circular issued late last week is in the opinion of CHEMICAL AGE ill-founded and based on an inaccurate assessment of the situation (see leading article, p. 545).

This broker believes that the outlook for the chemical industry throughout Europe is one of falling profit margins and surplus capacity. It is felt that it might take two or three years before I.C.I. again experience trading conditions as favourable as those in 1960. Credit restrictions are thought likely to accentuate the run-down of stocks; the latest results of Albright and Wilson, Monsanto and Reichhold have showed the way in which margins have narrowed and all three companies expect difficult trading conditions ahead; a tough European market is becoming tougher for Europeans—Hoechst, for instance, do not expect profits to equal those of last year, although turnover will again rise.

The broker is pessimistic on the prospects for I.C.I. in the Common Market because in 1960 only 17% of U.K. chemical exports went to the area. Despite import tariffs of around one-third, nearly 40% of U.K. imports came from the C.M. Also the C.M. chemical industry has grown at a rate twice as fast as that of Britain and several European companies are now approaching the size of I.C.I. This, it is believed, will lead to more severe competition and lower prices.

Although the long-term outlook for the industry is regarded as promising, this broker sees little likelihood of any substantial growth in profits in the immediate future. Even in the unlikely event of profits being maintained this year, earnings yield at the present price would still be no better than 7½%. That, says the broker, is hardly sufficient for a company whose immediate prospects must be considered uncertain, in spite of its high investment status.

A.B.P.I. Dismayed at Ministry's Purchase of Italian and Danish Drugs

THE Association of British Pharmaceutical Industry is "dismayed" at the announcement of the Ministry of Health that contracts have been placed with British importers for the supply of a number of drugs manufactured in Italy and Denmark. None of the companies is a patentee or licensee of the drugs. The value of the contracts has not been disclosed.

It was announced in May that the Minister of Health, Mr. E. Powell, intended to invoke Section 46 of the Patent Act which enables the Government to use patented goods in the service of the Crown. Tenders for tetracycline, chlortetracycline, oxytetracycline, chloramphenicol and chlorothiazide have been considered and contracts for all these have now been placed. It has been decided not to let a contract for the supply of hydrochlorothiazide for the present.

A statement issued by the Manufacturers' Association said that the Minister's decision had been reached with only one thing in mind—to buy drugs for hospitals at the cheapest possible price—regardless of the damaging effects of their action on research and export in the drug industry.

Released together with the statement were figures on research expenditure obtained as a result of a survey carried out among members of the Association. They show that during 1960 research expenditure by the drug industry in the U.K. was £7½ million compared with £6½ million in 1959 and £3 million in 1954. It is true that the firms will be entitled to royalties on the 'unlicensed' imported drugs but these payments will make no contribution to the costs of that extensive research from which no saleable products emerge.

The Committee of Public Accounts has in the past viewed with suspicion the apparent profit levels earned on proprietary drugs sold to the National Health Service. Most of the companies which showed only a nominal return on the capital which they said was employed on research were U.S.-owned companies. Research was carried out by the parent company and the profits of subsidiaries overseas are expected to contribute their share to the upkeep of the laboratories.

These companies have now broken down their British results for the Ministry of Health to show what is earned on drugs and what from the sale of non-pharmaceutical products. On this analysis the profits on drugs, after adjustment for research contributions came down to an average of 34% compared with the previous average of 73%. This is still considerably more than the 18 to 20% shown by the British and Swiss firms.

Will

Mr. John Tedd, export sales manager of the Distillers Co. Ltd., Chemical Division, who died on 27 June, intestate, aged 44 years, left £1,562 net.

Project News

Laporte Know-how for Spanish Hydrogen Peroxide Plant

TECHNICAL assistance and advice on the construction of an autoxidation hydrogen peroxide plant near Saragossa, Spain, will be provided by Laporte Chemicals Ltd., a subsidiary of Laporte Industries Ltd., under an agreement with the Spanish company, Peroxidos S.A. Initial capacity of the plant will be 1,000 tons/year of hydrogen peroxide (calculated as 100%) starting in 1963 and subsequently rising to 1,500 tons/year.

Peroxidos S.A. have been incorporated in Spain to deal in chemicals and chemical products and, in particular, all grades of hydrogen peroxide and its derivatives. Two of the directors will be nominated by Laporte. These arrangements have been made in conjunction with Foret S.A. of Barcelona, whose connections with Laporte cover a period of nearly 30 years. Since 1934, Foret S.A. have manufactured hydrogen peroxide by an electrolytic process licensed by Laporte.

It was reported in CHEMICAL AGE, 20 May, p. 817, that Peroxidos were negotiating with the Spanish Government for permission to erect a hydrogen peroxide plant with a capacity of 4,500 tonnes/year. Peroxidos were then still in formation and capital was to be Pesetas 100 million, of which 20% would be put up by non-Spanish interests.

Solway's New Kiln Makes Progress

● ERECTION of a new kiln at Whitehaven for **Solway Chemicals Ltd.**, one of the Albright and Wilson Group, is in an advanced stage. Due for completion early in 1962, it will raise production of sulphuric acid and cement from 100,000 to 170,000 tons/year each. This plant already has two kilns, which are fed with anhydrite mined on the site, producing cement and sulphur dioxide. The latter is passed into a contact acid plant. In turn, sulphuric acid is used mainly to make phosphoric acid and finally sodium tripolyphosphate.

Abrac Complete Extensions to Epoxides Plant

● WITH the completion last month of new extensions to their Stratford epoxides plant, **A. Boake Roberts and Co. Ltd.**, of the Albright and Wilson Group, now have one of the largest plants in West Europe for the production of epoxidised oils and esters.

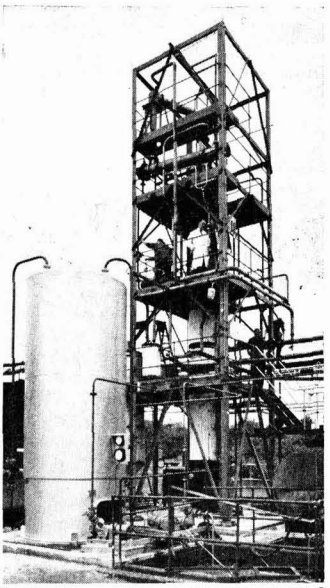
Fluor and B.H.C. Butadiene Plant

The butadiene plant recently completed at Grangemouth for British Hydrocarbon Chemicals Ltd. had as its main contractors Fluor Engineering and Construction Co. Ltd., Finwell House, Finsbury Square, London E.C.2, and not Chemico as stated in our survey of U.K. chemical projects last week.

Power-Gas to Build Magnesium Elektron Plant

● MAIN contractors for the engineering of the new plant planned by **Magnesium Elektron Ltd.** at Hopton, near Wirksworth, in Derbyshire, and referred to in 'Project News', 9 September, p. 359, are the **Power-Gas Corporation Ltd.**, Stockton-on-Tees, a member of the Davy-Ashmore Group. As stated previously, this plant will produce 5,000 tons/year of magnesium, extracting material of 99.9% purity from local dolomite by a thermal reduction process not previously operated on a commercial scale in this country. Total value of the completed plant to Magnesium Elektron is expected to be around £2 million.

The Distillers Company recently sold their 40% stake in Magnesium Elektron to British Aluminium, who now hold all the issued capital. Completion of the new project will make the U.K. largely independent of imports of this strategically important material.



Purification section at Abrac's extended epoxides plant

New Tonnage Oxygen Plant for R.T.B. Steelworks

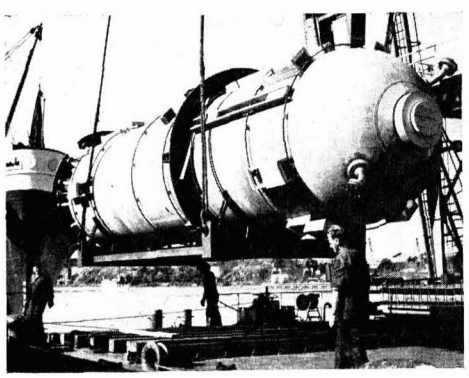
● CONTRACT for a 200 tons/day oxygen plant for a steel-making plant of Richard Thomas and Baldwins Ltd. has been placed with **Air Products**, the U.K. subsidiary of the U.S. group.

Birwelco Win Air-cooled Heat Exchanger Contracts

● AT least two new contracts to supply Aimco Transaire air-cooled heat exchangers to the petrochemical industry are believed to have been placed with **Birwelco Ltd.**, but no details are released at present. Birwelco have an exclusive agreement with Yuba Consolidated Industries Inc., Tulsa, Oklahoma, U.S., to manufacture and sell these heat exchangers in Europe and the British Commonwealth, and have already received several large contracts for this type of equipment from both the oil and the chemical industries.

Transaire air-cooled heat exchangers incorporating finned tubes and electrically driven fans, are stated to be parti-

Swedish-built Vessel for D.C.L. at Hull



Being hoisted aboard the s.s. 'Rollo' at Gothenburg, Sweden, by a heavy-lift pontoon crane is a 60-ton pressure vessel, in heavy gauge stainless steel, for the £2 m. acetic acid project of the Distillers Co. Ltd. at Hull. The vessel was manufactured at the Degerfors works of the Uddeholm Co. to the order of the Lummus Co. Ltd., main contractors for the project

cularly useful in areas where the water supply is inadequate or unreliable. The tubes and the fins, which are wound spirally on the tubes without brazing or welding by a special mechanical process, can be of mild steel, stainless steel, brass, copper or aluminium, according to the ambient atmosphere and the type of liquid to be cooled.

S.A.I. Open £500,000 Basic Slag Plant

● THE new £500,000 basic slag works of **Scottish Agricultural Industries Ltd.** at Scunthorpe, Lincs., was opened last Tuesday. As previously reported (C.A., 19 August, p. 261) the plant, which will produce 120,000 tons/year of basic slag, draws its raw material from the new Rotor oxygen process furnace of the Richard, Thomas and Baldwins steelworks.

Bechtel to Build Laporte's Australian TiO Plant

● OVERALL contract for engineering and constructing the titanium oxide plant to be built for **Laporte Titanium Ltd.** at Bunbury, Western Australia, has been awarded to the **Bechtel Organisation** (Bechtel Pacific Corporation Ltd., Melbourne; Bechtel International Ltd., London). The £3½ million plant, first announcement of which appeared in CHEMICAL AGE, 17 December 1960, p. 1029, is designed to produce 10,000 tons/year of titanium oxide pigment, the major portion of which will be shipped to the Eastern States of Australia to supply the paint, paper, plastics and associated industries.

The plant will be operated by Laporte Titanium (Australia) Pty. Ltd., set up earlier this year (C.A., 13 May, p. 763).

James Anderson Extensions May Involve £5 Million

● A LONG-TERM expansion that could involve future investment of around £5 million is being planned by **James Anderson (Colours) Ltd.**, Paisley. Preliminary talks about the development of a site for the purpose are now taking place between the company and the Paisley Town Council.

Pigment factory of the company lies within Paisley boundaries and the council has been approached about the embankment of a disused railway which bisects the Anderson site and which would impede the "long-term logical development of the site".

The council is interested in the embankment as the basis of a future route from an outlying housing estate into the centre of Paisley. Object of Anderson's approach is to reconcile, if possible, the future needs of the company and the public.

The expansion project was foreshadowed in November when Anderson's opened a new research and development block at their works in Hawkhead Road, Paisley, at a cost of £170,000.

Ferrofining Unit for BP's Llandarcy Lubricants Plant

● A NEW unit to be added to the lubricants plant at BP's Llandarcy refinery will use the Ferrofining process, a development of BP Group scientists in France and England, which enables lubricating oils to be manufactured without producing a solid waste by-product that requires disposal.

The Ferrofining unit will be the first to be constructed in the U.K. and will have a throughput capacity of 3,500 bbl./day. The new unit will carry out the final process in the manufacture of lubricating oils by which they are clarified and stabilised before blending. It will replace the existing clay plant which uses large quantities of special earth to carry out this treatment.

Construction work for the Ferrofining unit is planned to start early in 1962, and the unit is expected to be commissioned about the end of next year. As we go to press, contractors have not been announced.

New B.L.W.A. Members

At the general meeting of the British Laboratory Ware Association Ltd. held in London recently, Astell Laboratory Service Co. Ltd., London, were elected to ordinary membership, while Morbank Ltd., Pontypridd, Glam, and the Worcester Royal Porcelain Co. Ltd., Worcester, were elected associate members.

Marchon May Double Up Sulphamic Acid Capacity to 2,000 T.P.A.

SULPHAMIC acid plant of **Marchon Products Ltd.**, which, as stated in CHEMICAL AGE last week, recently came into operation with Britain's first bulk production of this material, will eventually be expanded. Capacity of this plant is now revealed as 1,000 tons/year, but as sales expand a second reactor will be installed at the Whitehaven site, doubling capacity.

Some of the sulphamic acid is to be converted into ammonium sulphamate by neutralising the sulphamic acid with a solution of ammonia. Plant to carry out this process is shortly to be built alongside the acid unit. When fully completed, it will produce about 600 tons/year.

The decision to make sulphamic acid was taken in co-operation with an associated company, Albright and Wilson (Mfg.) Ltd. Although this company had been selling sulphamic acid for some time their supplies had come from abroad and with the prospect of developing markets at home and overseas, the need for a captive source became greater. Marchon were chosen as the producers because they already made two of the chemicals needed in the process.

Because virtually nothing was known about how to make the acid by a continuous process, a year's research work was called for in Marchon's laboratories before the designers and chemical engineers could start work. Batch production was carried out some time ago at Oldbury and this experience was made available.

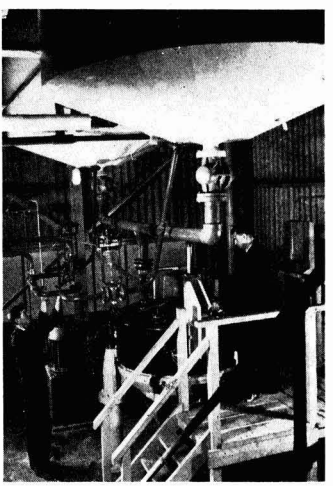
One of the main process difficulties was corrosion and this was met by using stainless steel linings in the reaction vessels together with p.v.c. piping. A side reaction that cut down acid yield had to be eliminated.

First stage of the process comprises mixing urea, bought from I.C.I., with sulphuric acid and sulphur trioxide, both of which come from Marchon's kiln and acid plants. These materials are fed in continuously and sulphamic acid is continuously produced and drawn off in the form of a slurry containing about 60% of sulphamic acid. The slurry is first aged and then goes through a rotary vacuum filter to remove most of the sulphuric acid which is recycled to the reaction vessel. Crystals of sulphamic acid are purified by recrystallisation. The pure crystals are finally dried and fed to a conveyor belt that takes them to a storage hopper. Packaging is carried out in polythene-lined sacks and fibre-board kegs.

Being the only strong acid that is a solid, sulphamic acid is easy to transport because it does not become corrosive until dissolved in water. Also there are no fumes, even on heating.

Main uses for sulphamic acid are in dyeing processes in the textile and leather industries and as a metal cleaner and descaler. British Railways are an important customer, using the acid to clean railway carriages; it is also used to remove 'beerstone' which forms on vats during the brewing of beer.

As ammonium sulphamate, it is useful as a fireproofing agent and weedkiller. A. and W. (Mfg.) have carried out experiments with the Forestry Commission into killing of unwanted scrub and trees.



A centrifuge in Marchon's sulphamic acid plant

MONSANTO STRENGTHEN THEIR EUROPEAN ACTIVITIES WITH NEW OVERSEAS H.Q. IN GENEVA

SETTING up of new European headquarters in Geneva by Monsanto Overseas S.A. is part of a move by the parent company, Monsanto Chemical Co., St. Louis, Miss., to strengthen their long-term sales, technical and investment position in West Europe.

This step consolidates a number of company operations at several European locations. It is understood that this new move will make no change in the administration of Monsanto Chemicals Ltd., London.

Key factors behind this consolidation, according to Mr. Marshall E. Young, vice-president and chairman of Monsanto Overseas and general manager of the Overseas Division of Monsanto Chemical Co., are the "outstanding success" of Monsanto's research activity in Switzerland through Monsanto Research S.A., Zurich, and Geneva's central location in West Europe. The research company, established at Zurich in 1956, is a wholly-owned subsidiary of Monsanto Overseas.

Mr. William M. Russell, president of the overseas company, will be in charge of the Geneva operations. Also located at the Geneva headquarters will be Mr. William R. Haas, regional director of sales, now stationed in Paris, who will be responsible for sales co-ordination throughout Europe; Dr. Charles H. Davenport, European technical representative at Geneva; and Mr. Donald B. Hirsch, manager of economic planning for Europe, who will join the organisation in Geneva at a date to be announced later.

Mr. Russell, born in Glasgow, has been European director of Monsanto Overseas since March, 1960, and has served with Monsanto since 1937. He joined the company in a sales capacity with the Organic Chemicals Division and was appointed director of sales for that division in 1953. He was appointed assistant general manager of the Overseas Division in 1958.

Mr. Haas was appointed regional director of sales for Monsanto Overseas S.A. at Paris in 1959. He joined Monsanto in 1944 in the former foreign department. He has served as a division director of sales and as marketing director.

Dr. Davenport, a Canadian, has been Monsanto's European technical representative since October, 1960. Mr. Hirsch recently joined Monsanto as manager of economic planning for Europe. For the time being he will be stationed in St. Louis temporarily. He has held numerous marketing research positions with the U.S. Government and industry and, most recently, has been serving in a marketing research consulting capacity in New York.

Soviet Gas Experts Visit Power-Gas and I.C.I. in Tour of U.K. Industry

FIVE of the Soviet Union's top gas experts who arrived in London on 29 September have this week visited the Power-Gas Corporation at Stockton-on-Tees, where they were welcomed by Mr. T. H. Riley, managing director. While at Stockton they also toured the works of the associated company, Ashmore, Benson, Pease and Co. Ltd.

Later the same day, 2 October, they inspected the methane reforming plant at Whitby and on 3 October visited South Durham Steel and Iron Co. for a discussion on large diameter methane pipes. Following this came a tour of I.C.I. plant at Wilton and Billingham.

The Soviet team, who came to this country as guests of Mr. Harold Pickering, joint managing director of Calor Gas (Distributing) Co. Ltd., visited the latest Calor Gas filling station at Neath, Glam, on 5 October to watch plant undergoing trials. On 6 October they were due to visit the Calor research and development division at Addlestone, near Weybridge, and the Milbrook, Southampton, Calor Gas filling station. After a farewell dinner they return to the U.S.S.R. on 7 October.

The visiting party comprised: Dr. A. I. Sorokin, deputy minister, chairman of the U.S.S.R. Gas Association, and chairman of the Central Board, Scientific and Technical Society for Oil and Gas Industry; Mr. N. W. Grosov, managing director of the Trust of the U.S.S.R.; Gas Association Mr. Stepanov, Mr. Starostin and Mr. Cherniak, members of the Gas Association.

Obituary

Prof. H. V. A. Briscoe, Professor Emeritus of Inorganic Chemistry, Imperial College, London, who died recently, was formerly director of laboratories at the college. For several years a member of the Chemical Society council, he had also been chairman of the Newcastle Section, Society of Chemical Industry.

Prof. Briscoe had served on the council of the Royal Institute of Chemistry for 16 years and was for 11 years a vice-president. He was for some time chairman of the special examinations sub-committee. A past president of the Paint Research Association, his many publications included that as editor of the supplement to Mellor's 'Comprehensive Treatise on Inorganic and Theoretical Chemistry'.

B.S.I. Sets Up Three New Chemical Committees

WORK of the Chemical Division of the British Standards Institution in 1960-61 continued to expand both nationally and internationally, it was revealed at the annual meeting last week.

In the field of chemicals proper, three new committees were set up to deal with sampling of chemical products, methods of measuring materials in bulk, and physical methods of test. Useful work was done on dental materials but this was hampered to some extent by lack of facilities for testing new materials.

Three new standards committees set up by the Engineering Division will deal with nuclear energy, data processing and surface coatings. The new uses to which materials are being put had called for fresh study of the treatment on surfaces and similarly the stresses placed on materials by recent designs had called for a re-assessment notably of materials used for pressure vessel fabrication.

New codes of practice under development include those for fire precautions, for protection of steel against corrosion and for composite construction in steel.

Tufplas Laminate Know-how for U.S. Plant Fabricators

UNDER a 'know-how' agreement between Tough Plastics Ltd., Byfleet Road, Addlestone, Surrey, and Haveg Industries Inc., Wilmington, Delaware, U.S., the American firm will manufacture and sell, throughout the U.S., fabrications in Tufplas—the chemically bonded laminate of unplasticised p.v.c. and polyester resin reinforced with glass fibre, developed and pioneered by Tough Plastics Ltd. in the U.K. and Europe. This sale of 'know-how' is believed to be the first of its kind between the U.K. and the U.S.

Haveg have long been established as fabricators of chemical plant in various plastics materials. A new department of the company is being established and a joint stand is being manned by Haveg and Tough Plastics at the Toronto Plastics Fair this month.

New Cellobond Resins and Lower Prices

IMPROVEMENTS in basic materials manufacture have enabled British Resin Products Ltd. to extend their range of Cellobond polyester resins and to announce a general reduction in polyester resin prices. Eight new isophthalic based polyester resins, a new general purpose resin (A 2624) selling at below 2s/lb. for over 2,000 lb. lots and T 1442, a new promoter, are now available in addition to the established grades.

Isophthalic based polyester resins have improved chemical resistance and adhesion and are rapidly superseding orthophthalic resins for applications where these qualities are necessary. The new promoter increases the rate of resin cure without disturbing the gel time and thus allows faster mould turn-round. A revised price list and new information sheets are available on application.

★ COMPETITION in the tonnage oxygen field is becoming fiercer, with Air Products gaining another U.K. contract—for Richard Thomas and Baldwins Ltd. Air Products, who last year completed a tonnage oxygen/nitrogen plant at Fawley for Esso, have contracts from I.C.I. and in the steel industry from Guest Keen and Nettlefolds Ltd. and Stewarts and Lloyds Ltd.

The British Oxygen Group who have for long dominated this field—and still do so—expect to reach a total of 3,500 tons a day by the end of this year. Their current work includes plants for I.C.I., Scottish Gas Board's Lurgi plant, R.T.B.'s Spencer Works, Appleby Frodingham, Steel Company of Wales, Stewarts and Lloyds, Colvilles, Consett Iron, Steel, Peech and Tozer, and South Durham Iron and Steel.

Also pushing in this field are Air Liquide of France and Constructors John Brown, who have already gained one large contract for Poland.

Mr. Geoffrey Eley, chairman of R.T.B., who now have oxygen plants in hand by both British Oxygen and Air Products, is also a director of British Oxygen. This week he has been quoted as saying "As chairman of R.T.B., I must buy in the best and cheapest market. The fact that I am a director of British Oxygen does not in any way influence my decision as to what is best for R.T.B.".

★ FLAVOURINGS were the first business of W. J. Bush, acquired by Albright and Wilson earlier this year. Founded 110 years ago by 22 years' old William John Bush, the company claims to be Britain's oldest flavour house. Amyl acetate was the company's first really large-scale organic product introduced during World War 1. Another important organic is salicylic acid, bulk production of which was started at the same time. Now Bush produce enough aspirin at Widnes to make more than 30 million tablets a week. Total output at Widnes is today around 450 tons/week, including hydrochloric acid which is produced in large quantities as a by-product of benzotrichloride.

Bush are in fact Britain's largest chlorinators of toluene, producing benzaldehyde, benzoic acid, benzyl chloride and other related derivatives, along with other chemical and dyestuff intermediates including phenylacetic acid and acetanilide. One of the latest developments has been new plant to produce paracetamol, a new analgesic.

The scale on which toluene chlorination is carried out can be judged from the fact that there is storage space for 500,000 gall. of toluene. This reaction takes anything up to two days to complete, but can be stopped before then depending on products required. From some 30 chlorinators, products go to distillation towers, where benzyl chloride, benzal chloride and benzotrichloride are separated. Benzotrichloride is converted to benzoic acid by hydrolysis and large quantities of this are used to make sodium benzoate, a food preservative and inhibitor. Production capacity for this product has just been doubled.

★ THE American Chemical Society's 1962 Priestley Medal—highest honour in American chemistry—goes to Dr. Joel H. Hildebrand, professor emeritus of chemistry at the University of California; the gold medal, 'for distinguished services to chemistry' will be presented to him at the Society's 141st national meeting in Washington next March.

A past-president of the A.C.S. and an authority in the field of solubility, Dr. Hildebrand has carried out extensive research in fluorine, emulsions, fused salt mixtures and liquid alloys. He is also credited with having exerted a broad, beneficial influence on science education in the U.S., having initiated new teaching methods, written three textbooks, and lectured widely. During his 40-year teaching career at California he has served on almost every major administrative committee.

It was Dr. Hildebrand who first suggested the use of helium gas mixed with oxygen to prevent 'diver's bends'. From the depths to the heights: outside his professional interests Dr. Hildebrand is an accomplished mountaineer and skier, and was at one time manager of the U.S. Olympic ski team. In 1942 he was assigned by the U.S. Government to test a then top-secret vehicle now familiarly known as the 'weasel'—used by troops for crossing snow, ice, hard roads and sand.

★ STATISTICS often make dull reading, but I am sure readers will find it revealing to learn a little of how I.C.I's Billingham Division spends the £25.25 million that passes each year through its supply department. Of this £11.5 million goes on fuel; £4.75 million on raw materials; £1 million on construction materials; and £1.25 million for payments to contractors.

These figures begin to mean something when it is known that the division's daily usage of coal for boilers and coking is about 5,000 tons, or some 12 trainloads a day. Around 300,000 tons of phosphate rock and potash are used each year, making Billingham the company's biggest user of these materials for fertilisers.

Billingham supply department also handles much of the engineering materials for the Heavy Organic Chemicals Division and between them the two divisions are large users of oils for ammonia and other processes. The department buys 26 million paper and jute sacks a year; plus 250 miles of pipes; about 5,000 tons of thin steel sheet for the production of 500,000 drums; 1,000 to 1,250 gall. a week of paint for maintenance.

Then there are sand and gravel for road construction (up to 40,000 tons/year), 50,000 pencils; 650,000 clocking cards; 100,000 electric light bulbs; more than 800 tyres; 11,000 pairs of footwear; and more than 800 watches to mark long service. On the credit side, the department last year earned £140,000 on the side of Billingham workshop products, as well as handling the sale of 13,000 tons of iron and steel scrap.

★ A NEW Moa nickel plant for the Oriente Province of Cuba is being designed in Leningrad. This I learn from a report from official Soviet sources which is less remarkable for intelligible technical detail than for the heavy emphasis it places on the fact that the new plant, unlike the original Moa plant built in 1959 by the U.S. Freeport Sulphur Co., will utilise local ores and will help the Cuban economy. It is stated that the now appropriated U.S.-built plant had been producing unfinished products for shipment to the Port Nickel plant in Lousiana, the report states: "having built the Moa plant, the Americans obtained access to the natural resources of Cuba, ignoring the development of the Cuban national industry."

As far as I can make out, the new units, which will be Soviet-equipped, will be completed in 1962; plans for the first stage, which will prepare sulphate concentrates for processing into metallic nickel and cobalt, have been completed ahead of schedule and will shortly be submitted to the Cuban Government.

It is further stated that, in 1963, designs will be completed in Leningrad for an entirely new nickel plant for Cuba under contracts already signed by the two governments, this plant also to use local ores. It is also planned to put up "Cuba's most powerful thermal electric station" in the area where the new plant is to be constructed, and this will supply power to all the nickel and other undertakings of Oriente Province. The power station, as might be anticipated from the foregoing, is also to be designed in Leningrad.

Alembic

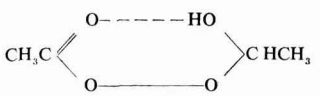
OXIDATION IN THE CHEMICAL INDUSTRY

SUCCESSFUL CELANESE PERACETIC ACID PLANT USES VAPOUR-PHASE OXIDATION

PERACETIC acid is a chemical intermediate of rapidly increasing industrial importance, primarily for the epoxidation of unsaturated compounds. It has for many years been prepared from hydrogen peroxide and acetic acid and this process has recently been improved both by the introduction of ion exchange resin catalysts, and by the development of *in situ* epoxidation techniques which do not require the separate manufacture of peracetic acid.

Following earlier work by the Celanese Corp. of America, British Celanese Ltd. have recently developed a vapour phase acetaldehyde oxidation process which is now being successfully operated on a large pilot plant. This new development of Celanese was described in a paper on 'The manufacture and uses of peracetic acid' by Dr. F. J. Weymouth and Mr. J. A. John, given at the London Section, Society of Chemical Industry symposium, held on 28 and 29 September on oxidation processes.

The oxidation of acetaldehyde with oxygen, a reaction that can be accelerated by ultra violet light or by the use of a catalyst, yields a crystalline product which was found to be a complex of acetaldehyde and peracetic acid.



This compound yields peracetic acid on warming but the reaction can be violent.

The main technical problem of such a process was the isolation of the peracetic acid. This was first achieved commercially by Union Carbide who used a two-step, liquid-phase process. They operate a plant based on this process, with a capacity said to be 5,000 tons/year. Several other liquid phase processes have been developed, for example, by Knapsack.

British Celanese carry out the reaction in the vapour phase. The process consists of feeding acetaldehyde and oxygen into the reactor, which is fitted with heating and cooling devices at a pressure which is essentially atmospheric. Oxygen is used rather than air since a higher proportion of acetaldehyde increases the reaction rate and the use of oxygen also facilitates the recovery of the acetaldehyde. From the reactor the products are passed to a distillation column and a solvent is fed in at about the same point. Acetaldehyde is recycled at the head of the column and the product, consisting of a solution of peracetic acid and a little acetic acid, is taken from the base. The concentration of acetaldehyde should be high enough to avoid explosion. Deficiency in the solvent allows a reaction to occur between the peracetic acid and acetaldehyde which gives unstable column conditions. The process can be operated over a wide temperature range.

The solvent chosen must have a boiling point between that of acetaldehyde and peracetic acid and the temperature of the column must be above the decomposition joint of the acetaldehyde/peracetic acid complex.

The unit was built on three scales before the pilot plant was erected. The pilot plant has been operating safely for nearly a year.

The high cost of peracetic acid has meant that its commercial applications have been limited to those in which it displays a high technical advantage, such as in the bleaching of nylon. Most of the nylon in the U.K. is bleached by peracetic acid. The market could be increased if the cost was reduced. Large-scale manufacture may make peracetic acid competitive. The use of epoxidised fatty acids as plasticisers/stabilisers for p.v.c. is growing, and a wide range of low molecular weight mono- and di-epoxides is now available for use in polyester and epoxy resins.

Pilot plants have been built by Courtaulds and British Celanese to carry out epoxidation with peracetic acid. For example, a plant has been erected for the manufacture of epoxy soya bean oil.

Long-term research is aimed at the peroxidation of the lower olefins. Propylene oxide has been produced on the pilot plant scale. The reaction of oxygen with propylene is relatively low but very high yields can be obtained with peracetic acid in an inert solvent. This may prove to be a major outlet in the future.

Shell Develop Improved Process for Recovery of Chlorine from By-product HCl

THE demand for hydrochloric acid has not kept pace with the increasing quantities available as by-products from chlorination processes. Both the acid disposal problem and the accompanying wastage of chlorine have in recent years drawn attention to the various recovery methods. These methods, together with recent development work carried out by the Shell group was discussed in a paper given by Mr. S. Muller (Bataafse Internationale Chemie Maatschappij, N.V.) at the S.C.I. symposium.

There has been a 10% per annum increase in world chlorine demand over the last few years. In 1959, the world production of chlorine was 7.5 million tonnes (51.8% in the U.S., 15.5% in the European Common Market, 9.2% in E.F.T.A. countries and 23.5% in the rest of the world) and the production of caustic soda was 10.3 million tonnes (41.2% in the U.S. 16 in E.C.M., 10.7, E.F.T.A. and 32.1 in the rest of the world). From graphs shown by Mr. Muller of the trends in world production of cautic soda, sodium carbonate and chlorine, it is possible to estimate that in 1970 world production of chlorine will be around 25 million short tons and of caustic soda about 24 million short tons. The proportion of caustic soda produced by the 'lime-soda' process is decreasing, and the cost of chlorine can be expected to increase if demand for chlorine exceeds that of caustic soda. This market pattern will in time cause chlorine to become the major cost bearer of the salt electrolysis process. The foreseen increase in chlorine price thus adds incentive to develop an economical process for the recovery of chlorine from HCl, 1 million tons of which were produced as by-product from chlorination processes in 1959.

There are four basic methods for the recovery of chlorine. (1) The catalytic oxidation of hydrogen chloride with air or oxygen is a process which gives a conversion of 40% but high temperatures have previously had to be used which causes volatilisation of the catalyst and corrosion. (2) The oxidation of HCl by an inorganic oxidising agent which gives low yields. (3) A two-stage process involving the intermediate formation of a metal chloride from which chlorine is then released. Nickel and iron oxide is the most favoured means of carrying out this reaction. The chief difficulty is the oxidation of the chloride which tends to volatilise at the temperature of the reaction. (4) The electrolysis of HCl is the only method known to be used commercially at present. Monsanto has had a 2-ton per day unit operating for two years. This process can only operate economically where cheap sources of electricity are available. The other processes have in the past been developed to various degrees and have in some cases reached industrial application. Hercules Powder had a 35 ton per day plant but low yields and high processing cost caused the project to be abandoned. This year the Institut Francais du Petrole announced the development of a process which uses a mixture of nitric and sulphuric acids as the oxidising agent. It is said to avoid the formation of the troublesome nitrosyl chloride.

The Deacon process—the oxidation of HCl by air or oxygen—was thought by

Comparative Economics of Various Chlorine Recovery Processes

Size of plant 30,000 t.p.a. chlorine. Location : The Netherlands

	Shell	Deacon	De Nora	IFP
Raw material £/t Cl_2	—	—	—	—
Chemicals ,, ...	1.4	1.4	0.4	1.7
Utilities ,, ...	2.7	5.4	9.6	3.0
By-products ,, ...	—	—	(0.7)	—
Fixed costs ,, ...	2.7	3.6	3.0	4.3
Total manufacturing cost £/Cl_2	6.8	10.4	12.3	9.0
Netback £/t Cl_2	20.0	20.0	20.0	20.0
Gross Profit	13.2	9.6	7.7	11.0
Capital Cost £Stg.	470,000	710,000	800,000	735,000
Profitability (% return on capital)	76%	31%	19%	35%

Shell to be worth more detailed study and further development. This process is exothermic, but to give economic yields it must be run at a temperature which causes volatilisation of the copper chloride catalyst. A further disadvantage is that hot spots tend to form in fixed beds. It was thought that these disadvantages could be overcome by using a highly active catalyst at a lower temperature. Also a study of the thermodynamics of the reaction shows that the lower the temperature the higher the equilibrium conversion. It was found that conversions of 75% could be obtained in both fluid and fixed beds.

In the process, as developed by Shell, air or oxygen can be used. Oxygen has some advantages over air on conversion but temperature control of the bed is more difficult and an oxygen plant is too costly to be economical unless the chlorine plant is to be very large.

Active Catalyst

The catalyst is a copper catalyst (copper or manganese was used in the Deacon process) containing one or more chlorides of rare earth metals and one or more chlorides of alkali metals. The catalyst is more active when the mixture is present in the molten condition at the temperature of the reaction. Under these conditions the surface area of the catalyst is not so important as the pore diameter which should not be too small. The best support is silica gel. The activity of the catalyst is unaffected by contaminants and the copper chloride loss is low in long runs. The catalyst had not deteriorated in runs of 600 hours. The temperature at which the reaction is carried out is 330° to 400°C, which is very close to equilibrium conversion.

The process is designed to operate on HCl gas but the hydrogen chloride need not be dry. Small amounts of water do not affect the conversion significantly. By-product HCl usually comes off as a gas or mixed with hydrocarbons.

For a chlorine recovery process to be commercially successful it must justify capital investment. A number of evaluations have been made and are shown in the table. They assume that the plants will produce 30,000 tons per annum and are situated in the Netherlands and are, therefore, subject to the facility costs prevailing there. In conjunction with this table it must be remembered that the De Nora electrolytic process relies on cheap electricity which is not available in the Netherlands. This plant would show up more favourably in the right location. Although the Deacon plant effects a 40% conversion there are too many maintenance problems associated with it, and the plant of Institut Francais du Petrole must be developed further.

Shell feel confident that their process offers a commercially feasible solution to the problem of by-product hydrochloric acid and that it is a great improvement on any of the processes that have so far been tried. The process design is expected to be completed by the end of 1961 and, by mid-1962, design of the plant should be ready.

Continuing Rise in Production Index for Chemical Industry

INDEX of industrial production for the chemicals and allied industries continues to rise. Based on a 1954 average of 100, the index shows a second quarter 1961 figure of 153, compared with a second quarter 1960 index of 149. June 1961 index stood at 155 (151 in May 1961 and 146 in June 1960). Average index for 1960 was 145.

Index for general chemicals, etc., stood at 155 in June (151 in May and 146 in June 1960). Second quarter 1961 index was 153 compared with a second-quarter 1960 figure of 149). Index for 1960 was an average of 146.

For coke ovens, oil refineries, etc., a provisional July figure of 149 is given (148 in June and 135 in July 1960). Second quarter index was 146 (135 in the same period of 1960), while the 1960 average was 139.

Chancellor Proposes Central Council to Correlate Industry's Expansion Plans

BELIEF that the time has come to establish new and more effective machinery for the co-ordination of plans and forecasts for the main sectors of Britain's economy was expressed in a letter sent by the Chancellor of the Exchequer (Mr. Selwyn Lloyd) to management and trade union organisations. This subject of Government planning policy was referred to in 'Distillates' last week, when Alembic discussed the probable effect of a planned economy on the chemical industry.

Mr. Lloyd's letter, made public on Friday last week, sets out specific proposals based on the meetings he has had with both sides of industry. In it he says "There is a need to study centrally the plans and prospects of our main industries, to correlate them with each other and with the Government's plans for the public sector and to see how in aggregate they contribute to and fit in with the prospects for the economy as a whole, including the vital external balance of payments."

Mr. Lloyd says that the task of keeping claims on Britain's resources within the country's capacity is the responsibility of Government. However, experience had shown the need for a closer link between Government and industry to create a climate favourable to expansion and to make possible effective action to correct weaknesses in the economic structure. "This new machinery should therefore assist in the promotion of more rapid and sustained economic growth."

The Chancellor proposes the setting up of a National Economic Development Council with himself as chairman and one or two other Ministers as members. Other members would be drawn from the unions and from the management side of private and nationalised industry with perhaps some additional members. Total membership would be about 20.

This council would examine and if necessary commission studies relevant to the country's economic objectives and to consider how these objectives can best be secured. Views expressed by the council would carry great weight both with Government and industry. It would be for the council to consider how far, and in what form, the results of its work should be made public.

Staff of the council—to be drawn from the Civil Service and industry, with a director appointed from outside the Civil Service—would examine development plans of the main private industries and in the light of such studies and of discussions with Government Departments about the nationalised industries, prepare for the council's consideration studies of a kind referred to in the second paragraph.

Mr. Lloyd hopes to discuss these proposals with management and labour in the first 10 days of October.

Plastics Pipe Manufacturers' Society Formed

The Plastic Pipe Manufacturers' Society has been formed by 16 major companies to encourage research and ensure the highest standards of quality in all plastics piping; to further the use of only first-quality raw material; and the application of the most stringent quality controls. Mr. F. H. A. Macrill is chairman and Mr. D. F. Dodd is secretary. Head office is 21 Bennetts Hill, Birmingham.

PRO AQUA INTERNATIONAL FAIR

Chemical Engineering Techniques Feature in Basle Water Treatment Exhibition

MORE than 110 exhibitors from eight countries took part in the Pro Aqua International Trade Fair for Water Supply, Waste Water Purification and Sewage Disposal, which opened in Basle on 30 September and will remain open until 7 October. The fair, phased with a congress of water industry experts, contained much of interest to the chemical industry, writes a CHEMICAL AGE reporter.

Hammelrath and Schwenzer, Pumpenfabrik KG, Aachenerstr. 24/26, Düsseldorf, West Germany, exhibited, beside their wide range of Dia-type membrane pumps (from 5 to 80 cu.m./hr.) and self-priming centrifugal pumps for slurries, liquid waste and thick liquids, two new models of the latter programme. Capacities of these two models represent the new minimum and maximum in the firm's self-priming centrifugal programme, being respectively of 16 cu.m./hr. and 19 cu.m./min.

Among the exhibits of **Passavant-Werke,** of Michelbacher Hütte, bei Michelbach/Nassau, West Germany, were a drum sieve unit for filtering of industrial waste water spanned with plastics fabric—a Passavant development—so fine as to retain even plankton contained in the liquid. The same firm had on show various models and photographs of industrial units, including that of a hydro-cyclone able to free process water of a steelworks of sinter material, efficiency being of over 98%.

Polymetron AG, Kreuzbühlstrasse 8, Zurich 8, Switzerland, introduced their new 157 salinometer, working automatically to operate an acoustic alarm on the exceeding by a condensate of permissible salt content and a signal lamp at that one of the six control points where the exceeding is recorded. Similar alarms are given by the company's 162B and 163 conductivity tester as well as the operation of certain control functions when the conductivity level is passed—as, for example, in the case of the exhaustion of a total desalter or the break-through of impure condensate in water processing activities.

New developments in the field of activated carbon were shown on the Basle stand of **Lurgi Gesellschaft für Chemotechnik mbH,** Leerbachstrasse 72/84, Frankfurt-on-Main. Using double-layer filters and in some cases various kinds of activated carbon, Lurgi have found it possible to combine ozone treatment of unfiltered drinking water with a process freeing it completely from manganese and unpleasant odours and aromas in one filter aggregate. Lurgi also introduced a new filtering system with their Immedium filter, by which liquid for filtration passes into the filter agent from both above and below simultaneously to be drawn off as a clear filtrate from the agent itself.

Wallace and Tiernan GmbH, Postfach 49, Günzburg/Donau, West Germany, showed their new Silactor apparatus for the continuous production and feeding of chlorine-activated silicic acid or of silicic acid activated by other elements. This unit is designed for water processing operations, as are chlorine gas and solids dosing units.

A standardisation programme has been carried out by **Metrohm AG** concern, Oberdorfstrasse 68, Herisau, Switzerland. This firm, which produces a comprehensive range of control and registration units for industrial waste water and water processing and for laboratory use, now offers its standardised apparatus in uniform housings, presenting the opportunity to put together control, measurement or switch aggregates rationally and with the saving of both room and expenditure.

Acid-proof Pipes

The Basle firm of **Paul Welker AG,** Solothurnerstrasse 57, claimed greater economy for large-diameter acid-proof cement pipes than for comparative earthenware products, showing 100 cm. diameter cement pipes proof against acids, alkalis and solvents and centrifuged with Asplit E by the German Züblin and Farbwerke Hoechst processes. Such pipes, stated Welker, are preferable to earthenware pipes in sizes of over 60 cm. diameter.

An unlimited 100% guarantee goes with each electrolysis unit supplied by **Wolf and Hunziker AG,** of Güterstr. 187, Basle, under their Guldager programme for the protection against corrosion and solid scale in warm water, hot and warm water heating, air moistening and condenser units. Over-saturated oxygen and aggressive carbonic acid in the heated water concerned is bound to an aluminium anode unit. Simultaneously an aluminium anode unit. Simultaneously, the carbonates produced by the heating of the freed scale are precipitated by the action of the electric current and the aluminium hydroxide formed on the aluminium anode.

An ion exchange plant with which 70 cu.m. of waste water can be processed and returned to operation circulation was shown by means of photographs by its designer—Dr. F. Furrer, Zürichstrasse 66, Küsnacht/ZH, Switzerland—and its producer—**Arbeitsgemeinschaft Industrieabwasser Dipl. Ing. W. Götzelmann KG,** of Mönchhaldenstrasse 27/1, Stuttgart-N, West Germany. By a new process, the special ion exchange resins bind completely both complex metal cyanides and free cyanide, the processed waste water containing neither heavy metals nor dissolved chromate and cyanide, the water also being desalted to a considerable extent. Fresh water required to compensate for losses represents only some 2.5% of the total circulation. Similar plants with capacities of from 1 to 120 cu.m./hr. already in operation.

As proof against radioactive contamination of water, **Landis and Gyr AG,** Zug, Switzerland, have developed a continuous and automatic measurement and registration unit for the constant checking of radio-active substances contained in water, an alarm signal being given on intensity rising above the set limit.

Level Control

Fr. Sauter AG, Basle 16, showed their level control system of a double electrode connected to a transistorised electrode relay; on the liquid in a container reaching the upper permissible level, the upper electrode reacts by setting a pump in operation, while the sinking of the level below the lower electrode sets the pump out of action again. Among other Sauter level controls is a pneumatic unit for thick or dirty liquids, regulating the opening and closing of entry valves by means of pressure alterations working on a manostat.

Described as "a completely new development in the field of rotary pump construction" was the Turo pump of **Emile Egger and Co. S.A.,** Cressier/NE, Switzerland. This permits the transport by pump of liquids, suspensions, solids, etc., which hitherto was either impossible or very difficult. The flow passes through the pump housing without any confinement in space, this and the purely hydraulic system on which operation is based permitting the transportation of anything which can enter the pump housing. As an example of the pump's ability, rubber balls, nylon threads and pieces of textile were passed through the Turo unit in stand demonstrations.

The continuous control of industrial waste water, as occurring in the chemical, paper and other industries, is the job of the industrial turbidity meters designed by **Sigrist-Photometer AG,** Zweierstrasse 129, Zurich 36. These operate by the comparison measurement of light, the amount of suspended elements in waste water being indicated by their Tyndall-effect light dispersion power. For badly contaminated water, such as might occur in the chemical industry, a newly-developed window-free throughput cell obviates the former fouling of the measuring cell window.

W. Wirth, Hardstrasse 94, Basle 20, exhibited the range of Vanton pumps and Sethco filters, as well as several pump models for handling of acids and contaminated liquid waste. The Vanton

pump programme includes the self-lubricating Flex-i-Liner incorporating an eccentrically driven rotor permitting eddy-free feed into the exit line and able to handle from the most sensitive compounds to aggressive materials. The Sethco filters are available in fineness grades of from 1 to 150 microns, standard sizes being 10, 15 and 25 microns.

Wistra Ofenbau-GmbH, Wiesenstrasse 134, Düsseldorf-Heerdt, West Germany, had on show a wide range of furnaces for the destruction of industrial waste from chemical plants. This comprised rotary drum furnaces, chamber furnaces and cyclone furnaces, the furnaces being designed separately for petro-chemical industry waste and for chemical wastes in liquid, viscous, solid or granular form.

Glass fibre-fortified plastics pipes produced by a patent-pending centrifuging process were displayed by **Basler Stückfärberei AG,** Badenstrasse 25, Basle. These pipes are claimed to be completely gas-tight, with greater chemical resistance than pipes of other kinds and with more homogenous walls. The pipes, marketed under the name Armaverit, are also available in the form of bends, fittings and flanges.

Brno Congress Will Cover Latest Chemical Engineering Techniques

FIRST International Congress on Chemical Plant, Engineering and Automation (C.H.I.S.A.) to be held 3-8 September 1962 in conjunction with the Brno International Fair, and referred to in CHEMICAL AGE, 23 September, p. 433, will include papers on all aspects of chemical engineering. There will be visits to engineering works and chemical plants in Czechoslovakia.

The Ministry of Chemical Industry and the Kralovopolska Chemical Engineering Works, Brno, are co-operating in organising the congress. So far invitations to attend have been sent to more than 2,500 chemical engineers in over 50 countries.

Subjects to be covered include flow characteristics; heat exchange; heat transfer; mass transfer; separation processes; chemical reactors; problems related to construction materials of various kinds; instrumentation; process control; and automation.

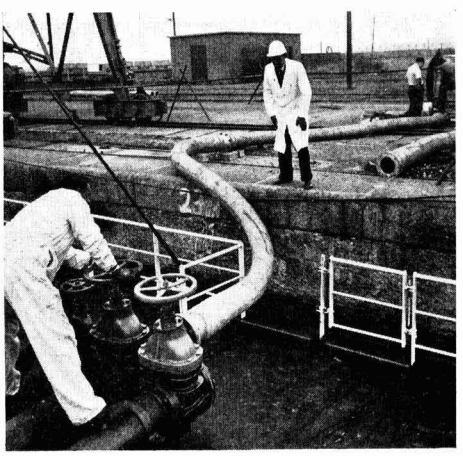
One of the congress languages will be English and intending participants are asked to submit papers and summaries to the organising committee of the C.H.I.S.A. congress at 1 Vystaviste, Brno, Czechoslovakia, by 15 March. All papers received will be published unabridged in the congress proceedings; summaries, of not more than 250 words, will be published also in Czech, German and Russian.

St. John Ambulance Issue First Aid Manual

Rules for treatment of chemical poisoning, splashes of chemicals in the eye, asphyxia caused by dangerous gases, etc., and many other chemical works hazards are included in the second edition of the St. John Ambulance Association's 'Occupational First Aid' manual, now published. Fully illustrated, 72-page manual gives much other practical information on the organisation of first aid centres, the duties of first aid attendants, etc., while appendices discuss the design and equipment of first aid centres, and summarise industrial legislation related to occupational hazards.

The manual costs 4s 6d and is obtainable from the Stores Department, St. John's Gate, London E.C.1.

EDC for British Geon's Barry Plant



First consignment of ethylene dichloride to be shipped direct to the British Geon Ltd. factory at Barry, Glam, is unloaded at Barry docks. Shipped by tanker from the Grangemouth plant of British Hydrocarbon Chemicals Ltd., it marks the start of production at British Geon's latest p.v.c. manufacturing extension

Local Authority Charges for Trade Effluents

THE Minister of Housing and Local Government has drawn the attention of local authorities to the provision about trade effluents. Under this provision the local authorities are empowered to make charges for such effluents and to attach conditions, or vary existing conditions, for their consent for discharges of trade effluents. The Minister asks local authorities that, where a special charge is made for effluents that are difficult to treat, it is right that they should make their calculations known as plainly as they can to the trader. By so doing the authorities may well avoid unnecessary appeals to the Minister against the charges they have fixed.

Big Increase in Chemical Plant Deliveries

Chemical plant deliveries in the second quarter of 1961 were valued at a provisional £18.5 million, compared with a first quarter figure of £12.4 million and a second-quarter 1960 total of £9.8 million. Deliveries for the first half of this year were worth £30.9 million, compared with annual totals of £44.3 million and £37.3 million for 1960 and 1959 respectively.

Benzole Prices

Current prices for benzole, per gall., min. 200 gall., delivered in bulk are: 90's, 5s 4½d; pure, 5s 8½d. This amends our list of prices (30 Sept., p. 526) in which prices for benzole were incorrectly given as 5s 3d and 5s 7d, respectively.

Prospects for I.C.I.

(Continued from page 545)

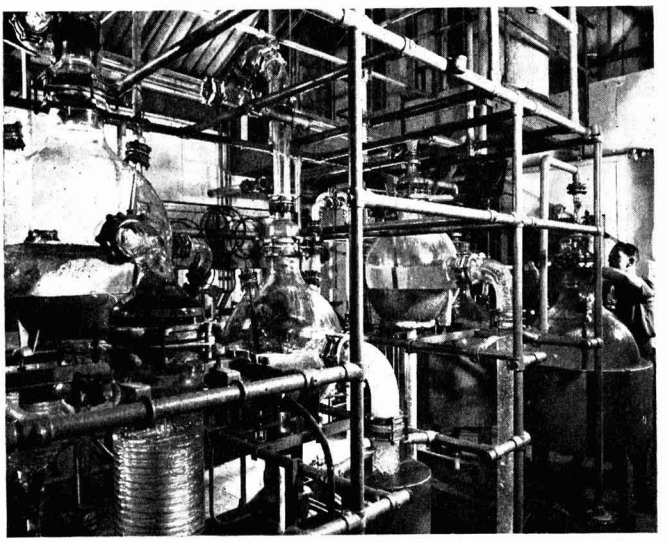
of industry and in falling demand from any one country.

The protection given by this spread of interests is seen in the fact that while sales of some I.C.I. products are now below last year's level, the reverse is true of many other products. This year's sales of Terylene polyester fibre, for instance, will be appreciably above the level of 1960 or any previous year. While home trade conditions generally have not been as good as 1960, overseas demand for Terylene has been above previous expectations.

City experts who advise investors to sell their I.C.I. shares now might just as well tell them to sell all their shareholdings in all companies. If immediate prospects for chemical profits are not good, then it would be difficult to find any industry offering better returns for the short-term investor. On the other hand, the long-term outlook for chemicals is undeniably brighter than for most other British industries.

ALBRIGHT'S VERSATILE STRATFORD PLANT

Pharmaceutical and Fine Chemicals Produced in Small Quantities



The Stratford phosphorous acid plant showing the three stages of evaporation and molten product storage vessel

THE firm of Thomas Tyrer and Co. Ltd., at Stratford, East London, was typical of many of the chemical concerns which existed in that area. Their claim was that they could fulfil any customer's order, whatever was required in whatever quantities. Consequently the number of chemicals produced by such a firm ran into thousands, the plants in which they were produced had to be versatile and expansion was haphazard.

Because of some similarity of interests, mainly hypophosphites, phosphorous acid and various miscellaneous phosphates, Albright and Wilson obtained a controlling interest in Thomas Tyrer in the 1930's and in 1955, it was decided that the company should be absorbed in the Albright and Wilson manufacturing group.

During the past five or six years there has been a considerable rationalisation of the number of chemicals manufactured and merchandised; the present number produced is between 300 and 400 in some 18 departments and a further 150 or so are still merchandised.

The Stratford factory differs from the other Albright and Wilson manufacturing units, where production is almost exclusively of large-tonnage chemicals, in that the products are generally of the pharmaceutical and fine chemical type, and are produced in quantities ranging from a few pounds to 200 tons a year. With the exception only of phosphorous acid, production is batchwise.

Storage Move

Another change Albright and Wilson have made is to move the warehousing and repackaging section to Barking. Only bulk chemicals are handled at Stratford (quantities of 56 lb. and above), repacking into smaller standard packs (mainly 1 lb., 7 lb., 14 lb., 28 lb. and the equivalent metric weights) is carried out at Barking.

Many of the plants at Stratford, some of which can still be used to make a variety of similar chemicals, are over capacity. If the company possessed only the capacity which was needed many of the chemicals would not be worth making at all. For this reason many firms have cut down their range. The practice is to make chemicals in bulk against a small order and put the surplus into store. This means that much of the firm's money is tied up in stock but, in spite of this, it is found to be the only economical procedure.

Albright and Wilson, like Thomas Tyrer, will still make a given quantity of chemical for a particular customer but on the understanding that the customer will take whatever quantity is actually produced, and the company for their part make every effort to produce the exact quantity the customer stipulates.

Phosphorous acid is produced at Stratford by a continuous hydrolysis of phosphorus trichloride in a plant which was originally designed to make 150 tons a year. The capacity has since been doubled and some 13,000 lb. of acid is produced per week. Two annual runs of 10 to 12 weeks are made. The PCl_3 comes from Oldbury in 5 and 9 ton tankers.

The strongly exothermic reaction is controlled in practice by carrying out the hydrolysis with saturated hydrochloric acid. Water is fed into the top of a glass bubble cap column and the PCl_3 enters about half way down. By the time the water has reached the point of the column at which the trichloride is entering, it has become saturated with hydrogen chloride produced *in situ* by the reaction. The phosphorous acid is contaminated with a little phosphoric acid due to the slight traces of P_2O_5 in the trichloride coming from Oldbury, with traces of iron also in the original phosphorus trichloride and a little hydrochloric acid from the process.

The main outlets for phosphorous acid is in the manufacture of lead phosphite used as a plastics stabiliser. A specially pure 45% solution is also sold I.C.I. for the production of Terylene. A high proportion is exported.

Although no expansions are planned at Stratford at present it is expected that expansion will be in the direction of organo-phosphorus compounds, which are already produced at Stratford.

Among other chemicals produced at Stratford are chlorobromomethane, used as a fire extinguisher, a range of organotin compounds sold under the name of Mellite and a number of citrates.

New Ships for Marchon Products

One of two new ships being built for Marchon Products Ltd. at Wallsend will be launched on 9 November. It will be named *Marchon Enterprise* and will join the *Marchon Trader* in carrying phosphate rock from Casablanca to Whitehaven. Deadweight will be about 2,400 tons. A third Marchon ship will be launched early in 1962.

New Industrial Films

New films released by the Central Office of Information include 'Handling loose materials' (granular and powdery materials, covering mechanical and pneumatic methods of conveying), UK2187; 'An introduction to ion exchange', UK2188; 'The Winfrith pipeline', UK2191; 'Zinc controls corrosion' hot dip galvanising, electro galvanising, spraying, painting, Sherardizing, cathodic protection), V558.

The films are on hire from the Central Film Library, Industrial Section, and further information is available from Government Building, Bromyard Avenue, Acton, London W.8.

SAFETY ASPECTS IN THE USE OF ORGANIC SOLVENTS

Special Survey by Chief Factory Inspector

A SURVEY of the more important organic solvents and the health risks arising from their use in industry is the special subject chosen by the Chief Inspector of Factories for review in his annual report on Industrial Health in 1960 (H.M.S.O., 3s 6d).

The variety of such solvents is continually growing, and a guide to the identification of the more toxic, the hazards associated with them and the precautions to safeguard health are given. The solvents in common use are classified and dealt with under chemical groups: hydrocarbons; halogen substituted hydrocarbons; alcohols; ethers; glycol derivatives; esters; ketones; and a miscellaneous group which includes carbon bisulphide. Organic solvents are indispensable tools of industry, but many of the body tissues have themselves the larger molecular characteristics of the substances which they attack. It is the challenge of the industry, states the report, to arrange that these solvents are used so as to eliminate or at least minimise these effects.

Investigations carried out in factories using toxic solvents suggest that the use of trichlorethylene presents one of the more serious problems. Examinations leave little doubt that many workers are being exposed to excessive concentrations of this solvent and indicate the need for better general and local exhaust ventilation.

Lead Poisoning

During 1960 there were 55 cases of lead poisoning, none of which were fatal, 6 cases of mercurial poisoning (2 fatal), one case of arsenical poisoning and 17 of aniline poisoning. Of the six cases of mercurial poisoning, two, including the fatality, occurred in the course of the manufacture of organo-mercury compounds. These cases are the first due to organo-mercury compounds to be notified in the U.K. for a considerable number of years. None was associated with the manufacture of use of liquid organo-mercury seed-dressing preparations now appearing on the market. Two cases of mercurial poisoning occurred in one factory during the manufacture of ethyl mercury chloride. Following the second case of poisoning, the management decided to close down the plant until extensive modification had been carried out.

Much of the work of the laboratory was connected with the examination of workers suffering from exposure to lead or mercury and a number of investigations were undertaken in factories in co-operation with the chemical branch. A good correlation was found to exist between the chemical and pathological findings and in a number of instances serious hazards were discovered with the result that it was possible to make recommendations for the immediate improvement of existing conditions. The procedure is so promising that it is hoped to concentrate the efforts of the laboratory in this direction.

Of the 17 cases of aniline poisoning notified, 13 occurred in the same chemical factory. The management is reported as being very co-operative in carrying out advice following several visits by medical and district inspectors. This included the provision of exhaust ventilation at drum filling points and the transfer of some equipment into the open air.

The total number of gassing incidents during the year was 222 with 20 fatalities. Carbon monoxide was responsible for 80 of these incidents and for 10 deaths. These totals are higher than those of 1959 (56 and 6 respectively), but these were the lowest annual totals on record and the 1960 figures are comparable with other recent levels and are substantially below those of earlier years.

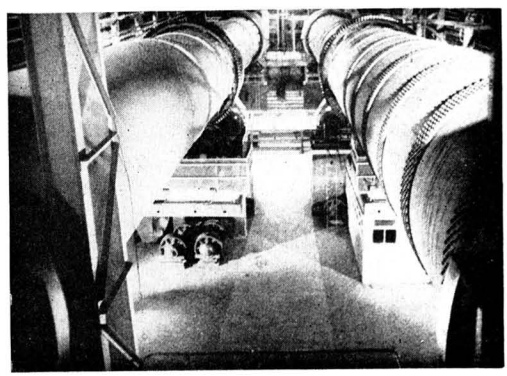
NEW LAPORTE FILM SHOWS PRODUCTION OF TITANIUM OXIDE

TITANIUM oxide facilities of Laporte Titanium Ltd. at Stallingborough—the first plant of its kind in the Commonwealth, opened in 1927—are the subject of a new film— 'Titanium Oxide by Laporte'.

Since 1927, more than £5 million has been spent on developing this plant and the company is now in the throes of a further £3.5 million expansion project aimed at raising output from just over 30,000 tons/year to 50,000 tons. The new extension will be in full production by the end of 1962.

The film opens by following a consignment of ilmenite from Norway to Laporte Titanium's factory. Each of the 25 separate stages involved in transforming this black mineral into white titanium oxide—and they include every chemical engineering process except distillation—is shown. Particularly stressed is the importance placed on process control, laboratory tests and customer service. A new automatic programme control system developed by Laporte engineers, for instance, is proving a great aid to ensuring consistency of material.

Colour is introduced into the film as the company's newest product, titanium nickel yellow, is shown. Many end products embodying titanium oxide are also shown in colour. The film, produced by the Film Producers' Guild, runs for 28 minutes and will be shown in all parts of the country to commercial and technical audiences from the paint, paper, plastics and other user industries.



Two rotary calciners in Laporte's titanium oxide plant at Stallingborough — a still from the film

An Engineer's Eye to The Future

A SCHOOL-LEAVER who intends to follow a career in chemistry or physics has an idea what to expect, but the would-be engineer is not so fortunate. There are no engineering teachers in schools. To show students about to leave school what an engineering career involves, the film 'Eye to the Future' has been prepared by I.C.I.'s film unit.

The film, running for 30 minutes, shows the scope of engineering in industry and then follows the progress of a typical student through his university course and the further training he receives as a new fully-fledged graduate.

'Eye to the Future' gained an award at the industrial film festival at Turin in June for the film that most effectively stressed the technical, economic and social value of correct professional training as a means towards the better employment of human capabilities. It is available on loan to anyone interested.

Overseas News

OFFICIAL GO-AHEAD RECEIVED FOR HOOKER'S ARGENTINE PHENOL PLANT

ARGENTINA'S President has signed a decree approving the investment of Hooker Chemical Corporation, U.S., in Duranor, Industrias Quimicas Sociedad Anonima Industrial y Comercial—an Argentine affiliate formed to produce phenol using the Hooker process. Granting of the decree signifies that the enterprise is considered necessary for national economic development, as provided in the foreign capital investment law under which foreign capital invested in Argentina enjoys the same rights as capital of national origin. The decree also permits surcharge-free importation of chemical process equipment, construction equipment, and special tools.

Duranor will be located at Rio Tercero, Province of Cordoba, some 450 miles north-west of Buenos Aires. An equivalent stock interest in the jointly owned company will be held by Atanor, Compania Nacional para la Industria Quimica, S.A.M., a major Argentine manufacturer of chemicals and plastics.

New Fluorinated Hydrocarbons Produced in Canada

Du Pont of Canada are now producing two new fluorinated hydrocarbons at their Maitland, Ontario, works. Freon-113 is used in refrigeration, as a selective safe solvent in cleaning cine film and in the electrical and electronics industry. Freon-114 is used as a refrigerant in air conditioning, refrigeration and as a propellant in the aerosol industry.

Du Pont also produce Freon-11, Freon-12 and Freon-22 all of which have refrigerant and aerosol applications.

New Fertiliser-Plastics Complex for Poland

A factory to produce 200,000 tons/year of nitrogenous fertiliser in 1965, to be increased to 330,000 tons by 1968—more than Poland's present fertiliser output—is being erected at Putawy, Poland. Additional plants to be built there will produce p.v.c.—scheduled to reach 200,000 tons in 1970—and other plastics.

Pakistan Government to Establish Oil and Gas Corp.

The Pakistan Government is to establish a public corporation for the development and exploration of oil and gas resources. The new corporation, called the Oil and Gas Development Corp., will be a corporate body under a Board of Directors appointed by the Central Government. It will have its own fund to which the Government will contribute Rs.50 million in instalments.

The decision to establish the corporation was taken some time ago but the plans have been put into operation more quickly than anticipated owing to a loan agreement worth $30 million signed with Russia for the exploration of oil and gas. Soviet experts will work in association with agencies of the corporation. Oil, if discovered, will be controlled by the corporation.

The corporation is authorised to sponsor the formation of subsidiary companies for the commercial exploitation and marketing of natural oil and gas. It can also engage experts and advisors on prescribed conditions.

U.S. Sales May Top $30,000 M. Next Year

According to Mr. C. Bingham, sales vice-president for the Chemical Division, Pittsburgh Plate Glass Co., U.S. chemical industry sales should reach between $30,000 million and $31,000 million next year. This would be between 3% to 6% up on the figure of $29 million that is estimated for 1961. Mr. Bingham expects to see some reversal of the downward trend in profit margins.

Mr. M. Murdock, sales vice-president of the Ethyl Corporation, who with Mr. Bingham was a speaker at a New York conference, estimates that demand for petroleum products in 1962 will exceed 10 million barrels a day, or 3.2% higher than estimated consumption in 1962.

P.B.U. to Double Polyester and Polyether Output

The Progil-Bayer-Ugine concern of France has opened two new production units at its Pont-de-Claix plant, near Grenoble, which will result in the doubling of polyester and polyether production from the present 500 tonnes/month to 1,000 tonnes/month during the course of next year. While the company is now producing a special isocyanate for paint and lacquer manufacture at the rate of 100 tonnes/month, production of toluene diisocyanate (TDI) is to begin at a rate of 500 tonnes/month during the coming months and to increase to 1,000 tonnes/month by the middle of next year.

Progil-Bayer-Ugine is a joint subsidiary of Progil S.A., Paris, Farbenfabriken Bayer AG, Leverkusen, West Germany; and Société d'Electro-Chimie, d'Electro-Métallurgie et des Aciéries Electriques d'Ugine, Paris.

Rigid Foams May Move Faster than Flexibles in U.S.

The estimate that U.S. consumption of rigid and semi-rigid foams will rise more than three-and-a-half times between 1961 to 1966 (increasing from 84 million lb. to 345 million lb.) and that consumption of flexible foams will rise two-and-a-half times from a current 112 million lb. to 275 million lb. was made recently by Mr. J. C. Tallman (E.I. du Pont de Nemours). He was speaking at a meeting of the American Institute of Chemical Engineers.

His estimates for 1961 in millions of pounds (1966 figures in brackets) were as follows:

Rigid and semi-rigid foams—polystyrene 60 (130); polyurethanes 15 (130); polyolefins 2 (35); p.v.c. 2 (20); polyepoxies 1 (20); phenolic 1 (5); others 3 (5).

Flexible foams—polyurethanes 100 (235); p.v.c. 10 (35); others 2 (5).

Soviet Fertiliser Plant for Syria

Russia is to build an ammonium nitrate fertiliser plant in Syria. Situated at Homs, the 110,000 ton a year plant will cost $28 million. The first stage of 60,000 tons capacity is due on stream by 1965. The final stages of the plant are scheduled for completion in 1968.

New Plastics Plants in S. America

Production has begun at two new plastics plants of the Borden Chemical Co. group in South America. These are the Cali, Colombia, plant of Compania Quimica Borden S.A., with a capacity of 6.6 million lb. of phenol and resorcinol plastics and 13 million lb. of formaldehyde, and the Pilar, Argentine, plant of Compania Casco S.A.I.C., with roughly the same capacities of similar products.

Staatsmijnen to Expand Plastics Output

Staatsmijnen, Holland, have announced plans to bring up plastics production, which last year amounted to some 38,000 tonnes, to about 78,000 tonnes by 1962. This will be achieved mainly by expanding production of caprolactam and high-pressure polythene, while it is expected that production of low-pressure polythene and formaldehyde will begin next year. Nitrogen production, in finished products and from coking plants, will be raised from 229,000 tonnes last year to 244,000 tonnes next year. Total investments for 1962 are put at 77 million florins. An estimated 20 million florins will go to capital holdings in other concerns (see also C.A., 9 Sept., p. 358).

New Oxygen Plant for Ugine

The French chemical and metallurgical producers Ugine, of Paris, plan to erect a new oxygen production unit, to work in conjunction with an Ugine steelworks. The investment project concerned has been presented to the High Authority of the European Coal and Steel Community.

Acetylene-based Complex for Tenneco, U.S.

The 100 million lb./year, S.B.A.-licensed acetylene plant that is to be built for the Tenneco Chemical Co. at Pasedena, near Houston, Texas, by the M. W. Kellogg Co. (C.A., 23 September, p. 440) will be the hub of a complex of chemical plants being built by Tenneco on their 794-acre Houston Ship Canal

property. Among the additional units will be plants for the production of oxygen and vinyl chloride. Facilities to produce vinyl acetate monomer, ammonia and methanol are currently in the planning stage. The oxygen will be used in the production of acetylene which in turn will be converted into monomer. Offgases from the acetylene recovery section will serve as feed material for the preparation of ammonia and methanol. Completion of the entire project is scheduled for late 1962.

Chlor-alkali Project in Canada

Canadian Industries Ltd. plan construction of a $5 million plant in New Brunswick to manufacture chlorine and caustic soda. Exact location of the new plant, scheduled for completion in 1963, has still to be announced. The plant will use salt from Nova Scotia, and output will be mainly absorbed by the pulp and paper industry.

The New Brunswick operation will be the third C.I.L. plant manufacturing chlorine and caustic soda. Others are located at Shawinigan, Que., and Cornwall, Ontario.

Polypropylene Fibre Expansions in U.S.

Hercules Powder now have on stream at Covington, Va., their 12 million lb./year polypropylene fibre plant, which was formerly used for making nylon fibre. Facilities of AviSun Corporation (jointly owned by American Viscose and Sun Oil) for the production of polypropylene fibre at New Castle, Del., are now being expanded. AviSun have recently brought into production polymer plant at New Castle to make 100 million lb./year of polypropylene.

Decision Soon on Rhodesian Oil Refinery Project

End of the protracted negotiations for official approval of a £10 million oil refinery project at Umtali, Southern Rhodesia, sponsored by Shell-British Petroleum, are now in sight, the outstanding matter under consideration being rail charges for carrying crude oil. The Government's decision is expected by the end of this month.

Italy's Growing Deficit in Trade with C.M. Partners

Over the last four years Italian trade in chemicals with West Germany, Germany, and France presented the following picture:

	1957 M.Lire	1960 M.Lire
Imports from Germany	33,600	62,900
Exports to Germany	8,200	17,900
Adverse balance	25,400	45,000
Imports from France	10,600	21,500
Exports to France	6,700	10,600
Adverse balance	3,900	10,900

It is obvious that Italy's adverse balance in this sector has been piling up steadily. The total deficit in Italy's trade with these two countries rose from 29,300 million Lire to 55,900 million lire, a rise of 110% over the four-year period. The total deficit in 1960 was 36.6% up on the 1959 adverse balance, compared with increases of 22.2% in 1959 and 11.9% in 1958. Thus the adverse balance has been expanding continuously.

£5 Million Aluminium Plant for Mexico

An aluminium plant with a capacity of 20,000 tons a year is to be built in Mexico at the cost of £5,700,000. The Mexican company, Intercontinental S.A., and other Mexican companies will hold 51% of the shares, 35% will be held by the Aluminium Company of America and 14% by the American and Foreign Power Company.

Farmers Co-operatives to Build U.S. Ammonia Facility

A number of farmers co-operatives are to join with Central Farmers Fertilizer Co., Chicago, to form a new company which will own and operate an ammonia plant with an estimated capacity of 250 tons/day. Products will be anhydrous ammonia, ammonium nitrate, nitrogen solutions and, probably, urea.

12% Rise in Foreign Trade of U.S. Chemical Industry

More than $3,000 million of chemicals were made and sold in 1960 by overseas subsidiaries and branches of U.S. producers, representing an increase of nearly 12% on 1959 and 36% up on 1957. This is stated by the U.S. Department of Commerce, who add that Europe is the largest market for U.S. overseas chemical operations. Sales in Europe last year amounted to $2,200 million, 18% up on 1959. U.S. exports of chemicals in 1960 totalled just under $1,700 million, or 21% higher than in 1957.

U.O.P. Plan New Unit to Make Rubber Additive

New plant is to be installed at McCook, Ill., by Universal Oil Products to make 1 million lb./year of a company-developed rubber additive. The product will be used to prevent ozone deterioration in rubber.

E.N.I. Group to Build Gas Pipeline in Argentine

The Italian State oil corporation E.N.I.-Agip has secured a $240 million contract from the Argentinian Government for construction of a natural gas pipeline from the Patagonian oilfields to Buenos Aires, the contract to be signed later this month.

The pipeline will be about 1,100 miles long, with a number of compressor stations alone costing around $20 million. The Italian tender is understood to have been considerably below rival bids from major U.S. groups.

Hungarian Fertiliser Output Up

Output of nitrogenous fertilisers in Hungary during the first half of 1961 is reported to have been 148,500 tons—13% more than the first-half 1960 output. Output of superphosphate, at 61,400 tons, showed an increase of 30% over the first six months of 1960.

Progress with Indian Fertiliser Projects

A PROGRESS report on the Indian fertiliser industry, issued by the Board of Trade, Export Services Branch, lists new projects approved or awaiting approval. It includes the production of more than 200,000 tons/year of superphosphates; plus large quantities of nitrogenous and phosphatic fertilisers.

Enquiries relating to these projects, which are listed below, should be addressed to the B.o.T. Export Services Branch, Lacon House, Theobalds Road, London W.C.1 (Chancery 4411, ext. 901) quoting reference E.S.B. 12596/60). Unless otherwise stated, these projects have been approved.

COMPANY	PROJECTS	CONTRACT
Premier Fertilisers Ltd., Cuddalore	40,000 tons of superphosphate, due in production, mid-1962	Contract awarded
Pioneer Fertilisers & Chemicals Ltd., Coimbatore	40,000 tons of superphosphate, due in production, mid-1962	Contract not yet arranged
Blue Mountain Estate Industries Ltd., Madras	48,000 tons of superphosphate	Contract not yet arranged
Thiru Arooran Sugars Ltd.	45,000 tons of superphosphate; approval awaited	—
Kothari and Sons, Tuticorin	30,000 tons ammonia or ammonium phosphate (approved); plus 120 tons of ammonia or 600 tons of ammonium phosphate per day (approval awaited)	—
Chamundi Chemicals and Fertilisers, Mysore	*40,000 tons of superphosphate*	Contract on open import licence
Andhra Sugars Ltd., Tanuku	100 tons/day superphosphate	In production
Hyderabad Chemicals & Fertilisers Ltd., Hyderabad	1,800-2,250 tons/month and 5,400-6,750 tons/month of compound fertilisers	In production
M. Harischandra Prasad, Hyderabad	500 tons/year urea (approved); 9-10 tons/day urea (awaiting approval). Also licensed to make N fertilisers through Andhra Sugars Ltd.	—
Krishna Industrial Corp., Tadepallegudum	50,000 tons of superphosphate	No progress made on this project
Mysore State Government (may be State or private development)	70,000 tons of N fertilisers ; 53,000 tons of P fertilisers (approval awaited)	—
Kerala (may be State or private development)	*70,000 tons of N fertilisers (approval awaited)*	—

PEOPLE in the news

● **Dr. W. Blakey** has been appointed chairman of B.I.P. Chemicals Ltd. **Mr. J. E. Beard** has become chairman of B.I.P. Reinforced Products Ltd., Streetly Manufacturing Co. Ltd. and Hornflowa Ltd. and **Mr. F. E. Mills** is the new chairman of B.I.P. Engineering Ltd. and B.I.P. Tools Ltd. All are subsidiaries of British Industrial Plastics Ltd., now a member of the Turner and Newall Group.

● **Prof. Dr. J. R. M. van den Brink** has been appointed chairman of the Netherlands synthetic fibre concern Algemene Kunstzijde Unie NV, Arnhem, in succession to the late **Prof. P. W. Kamphuisen.** Prof. van den Brink has been on the A.K.U. board since 1953.

● **Dr. J. W. Menter** has been appointed director of the Tube Investments research laboratory at Hinxton Hall, near Cambridge. The laboratory carries out fundamental research in metal physics and physical metallurgy.

● From 1 October, **Mr. A. N. Russell** has been appointed as sales manager of the Geigy Co. Ltd. Textile Dyestuffs Division, and **Mr. D. B. Simpson,** sales manager of the Textile Chemicals Division. Mr. Russell joined Geigy in 1952 as assistant to Mr. J. Holt, textile divisional sales manager, who died in February this year. Later he became textile divisional area sales manager for Lancashire, and subsequently joint assistant sales manager of the Division. Mr. Simpson joined Geigy in 1943, became commercial and technical representative for the dry cleaning industry in 1950, and the following year was appointed technical representative for textile chemicals. In January 1961 he became assistant sales manager in the Textile Chemicals Division.

John C. Garrels, 47-year-old American who on 1 October succeeded Mr. D. R. Mackie as managing director of Monsanto Chemicals Ltd.

● **Mr. W. Loring,** previously with O-Cedar Ltd., has been appointed as aerosol development chemist with Durazone-Choice Products, Lovers Walk, Finchley, London N.3. Mr. Loring will be working on the further development of the Durazone-Choice range of aerosols and on the introduction of a number of new products. He will also be responsible for the formation of a research laboratory equipped to deal with the aerosol problems of outside companies.

● Retirement on 30 September of **Mr. P. S. Rendall,** a deputy chairman and a managing director of Courtaulds Ltd., has led to a number of changes in the International Rayon and Synthetic Fibres Committee, Paris. **Sir Alan Wilson, F.R.S.,** a deputy chairman and a managing director, in charge of research and development of Courtaulds, has been appointed a member of the management committee of the I.R.S.F.C., replacing Mr. Rendall who had been a vice-president. **Mr. W. P. Courtauld,** a director of Courtaulds, assumes the duties of chairman of the preparatory committee for the Second World Congress of Man-made Fibres, to be held in London, 1-4 May 1962, in succession to Mr. Rendall.

● **Dr. J. L. S. Coulter** has been appointed medical director of Armour Pharmaceutical Co. Ltd.

● **Mr. Robert C. Hills,** who has been elected president of Freeport Sulphur Co., New York, succeeds **Mr. Charles A. Wight,** who becomes vice-chairman of the board. Mr. Hills has been a director and executive vice-president of Freeport since 1955 and has been in charge of Freeport's present five sulphur-producing properties and was responsible for the construction and start-up in 1960 of the world's first offshore sulphur mine at Grand Isle, Louisiana.

● **Mr. John Topham** has been appointed representative for the textile industry in the area of the Laporte Midlands selling organisation, A. W. Brook Ltd. He will be responsible for selling products manufactured by Laporte for the textile industry (principally hydrogen peroxide, sodium chlorite and peracetic acid), and also for the sale of the traditional textile chemicals supplied by A. W. Brook.

● **Prof. Paul J. Flory,** of Stanford University, widely known for his achievements in polymer chemistry, has won the 1962 William H. Nichols Medal of the American Chemical Society's New York Section. The prize is given annually to stimulate original research in chemistry. The award of the A.C.S. Priestley Medal to Dr. Joel H. Hildebrand is discussed in ' Distillates '.

● **Commdr. A. B. Dickie** and **Mr. H. Stimson** have been appointed assistant directors of Newman Hender and Co. Ltd., manufacturers of industrial valves and allied products. Commdr. Dickie, head of the group research and development division will continue as director of that division. Mr. Stimson, who has been deputy to the sales director, will also continue in his present field as assistant director of sales.

● **Sir Miles Thomas,** chairman of Monsanto Chemicals Ltd., has also joined the board of the Thomson Organisation, publishers of *The Sunday Times.* Sir Miles, a former president of the Advertising Association, has served both in advertising and journalism. Recently, he became a director of the Dowty Engineering Group.

● **Mr. J. M. Lloyd** has been appointed a director of British Tar Products Ltd. and **Mr. A. E. Brown,** managing director, has retired from the board.

● **Dr. A. Caress** is to become research and development director of Imperial Chemical Industries from 1 December in succession to **Dr. J. Ferguson** who is retiring from the Board on 30 November.

Dr. A. Caress

Dr. J. Ferguson

Dr. Caress's appointment is in addition to his present appointment of overseas director.

Dr. Ferguson has been with I.C.I. for 33 years. He joined Synthetic Ammonia and Nitrates at Billingham in 1928 and was appointed a delegate director of I.C.I. (General Chemicals) in 1939. In 1942 he joined the Alkali Division board and was research director of the Division until 1950 when he returned to the General Chemicals Division of which he became managing director in 1951. He was appointed a director of I.C.I. in 1957. He is hon. treasurer of the Society of Chemical Industry.

● **Mr. G. Paterson** has been appointed personnel manager of Head Wrightson and Co. Ltd.

● **Mr. Dennis S. Beard** has been appointed technical sales director of Griffin and George (Sales) Ltd. Holder of an I.C.I. Research Fellowship in the Department of Chemistry at Leeds University from 1947-51, afterwards taking up a post with the National Research Development Corporation (1951-54), he joined the Griffin and George Group in 1960.

● **Mr. A. D. Bonham-Carter,** U.K. coordinating director of Unilever Ltd., has succeeded Mr. G. Cunliffe (Norcros Ltd.) as chairman of the finance committee, British Standards Institution. Elected to serve on the B.S.I. general council from the Chemical Division are: **Mr. L. W. Blundell** (North Thames Gas Board), **Dr. E. B. Evans** (Esso Development Co. Ltd.), **Mr. C. W. Mundy** (Younghusband,

(Continued on page 562)

Commercial News

- **B.A.S.F. Get Option on Allied Colloid Shares**
- **Berk Acquire Greensplat China Clays**
- **Higher Pre-tax Profits for Glaxo Group**
- **Big Drop in I.C.I.'s Half-yearly Profits**

Allied Colloid

Allied Colloid have amplified the statement they made recently announcing the agreement signed with Badische Anilin- und Soda-Fabrik whereby any Allied's shares, 75% of which are owned by directors and their families, for sale would be offered to the German company (see CHEMICAL AGE, 16 September, p. 411). The agreement has caused some concern to minority shareholders who have wondered what their position would be if the directors sold out to B.A.S.F. The chairman now says that in that "unlikely event" they would do everything in their power to protect minority shareholders. It is emphasised that the object of the agreement is to strengthen the ties with B.A.S.F. The directors state that they do not intend to sell any shares, and it is only if they decided to sell, for unforeseen reasons, that the agreement would operate.

F. W. Berk

F. W. Berk and Co. Ltd. have acquired Greensplat China Clays Ltd., who own deposits of high-grade china clay in the St. Austell area. Grades suitable for the paint, paper and ceramics industries will be distributed through the company's head office in London, and through provincial offices in Manchester, Glasgow, Swansea and Wolverhampton.

Glaxo Laboratories

Subject to audit, group profits of Glaxo Laboratories Ltd. for the year ended 30 June totalled £3,717,801 (£3,760,410), after providing for all charges including tax of £3,900,000 (£3,550,000). Proportion of profits attributable to outside shareholders was £70,338 (£97,495). Pre-tax group profits totalled £7,617,800 (£7,310,410). For the first time the group profits include profits of Evans Medical Ltd. amounting to £258,359 (nil) of which £162,802 relate to the period prior to acquisition. Glaxo are paying a final dividend of 9% on £11.6 million ordinary stock, making 15% (18% paid on £8.26 million stock). £2 million (same) is allocated to reserve and the final dividend takes £641,245 (£556,925).

Net earnings of Allen and Hanbury's totalled £433,000 (£381,000). Dividend is raised 20 points to 65%.

I.C.I.

I.C.I.'s group income before tax for the half-year ended 30 June was £36.7 million, compared with £50.2 million in the same period of 1960 and with £88 million for the full year. This figure was reached after depreciation of £19.3 million (£17.9 million). Tax took £16.3 million (£23 million) and group income after tax was £20.4 million (£27.2 million). From this is deducted £1.2 million (£1.5 million) which is applicable to minority members of subsidiaries, leaving group income applicable to I.C.I. of £19.2 million (£25.7 million).

Group sales for the half year totalled £287 million (£288 million) with home turnover down by about 2½% on the same period of 1960. This was wholly due to cuts in selling prices, the physical volume of sales being about the same as the record achieved in the first half of the year. Despite substantial price cuts, the f.o.b. value of I.C.I. exports from the U.K. for the first half of 1961 was £49 million, compared with £47.3 million. Volume of exports was a new record.

Markets for products from some overseas subsidiaries were depressed, due mainly to local conditions. The decrease in income for the first half of 1961 compared with the same period of 1960 was due primarily to reductions in selling prices and increases from the middle of 1960 in wages and salaries.

Interim dividend is maintained at 1s 3d per £1 unit and will be paid on 30 November. On Tuesday I.C.I. were quoted at 58s 4½d, compared with 66s a week earlier.

Palestine Potash

In recognition of their services, Palestine Potash propose to grant options to Lord Glenconner, chairman, and Mr. J. B. Brodie, director, to purchase 70,000 and 105,000 shares respectively of the company's holding in the reorganised share capital of the Dead Sea Works. The options can be taken up between 31 March 1965 and 31 March 1972. In each case, a sum of £100 is being paid for the option.

B.A.S.F.

The DM 100 million worth of new shares issued by Badische Anilin-und Soda-Fabriken AG, of Ludwigshafen-on-Rhine, West Germany (C.A., 22 April, p. 666), have now been issued to the Stock Exchanges of Zurich, Basle, Geneva, Paris and Vienna.

Du Pont

A proposal has been filed by the Federal Government in the U.S. district court to the effect that the Du Pont company should divest themselves of their 63 million shares in General Motors by sales on stock exchanges or other methods chosen by the company. The stock is currently valued at $3,150 million and represents about 23% of General Motors stock.

Geigy

J. R. Geigy AG, chemical and pharmaceutical producers, Basle, Switzerland, announce for the first half of the current year a turnover of some 170 million Swiss francs—15% more than that for the corresponding 1960 period. Turnover on dyestuffs, pharmaceuticals and pesticides rose, but that on chemicals and pigments fell. Price pressure was recorded particularly for chemicals, pigments and insecticides.

World turnover of the Geigy group was in the region of 500 million francs —some 12% more than for the first half of 1960. The main Geigy company now has some 3,130 shareholders.

Globe Laboratories

Chas. Pfizer have now completed acquisition of Globe Laboratories, with shareholders of the latter company agreeing to accept 60,000 shares in Pfizer worth about $2.3 million. Pfizer raised their original bid for this company after a counter-bid had been made by Alcon Laboratories.

Gulf Oil

Directors of Gulf Oil Corporation have declared a quarterly cash dividend of 30 cents/share payable 8 December 1961, on shares outstanding 13 October 1961. This brings Gulf dividends for the year to $1.10/share plus a 2% stock dividend which will be paid 8 December 1961.

This is the tenth consecutive year in which Gulf shareholders will have received both cash and stock dividends.

Johnson and Johnson

Two Belgian pharmaceutical houses, Dr. C. Janssen, N.V. and Research Laboratorium Dr. C. Janssen, N.V., together with associates in the Netherlands and West Germany, have been acquired by Johnson and Johnson of the U.S.

S.I.R.G.

Società Italiana Resine Gulf, of Sassari, Italy, has been given permission to issue some 500 million lire of bearer shares for the completion of its petrochemical plant at Porto Torres.

S.N.S.I.I.

The Italian industrial investment concern Società Nazionale Sviluppo Imprese Industriali, of Milan, announces that over the financial year ended 31 March 1961 some 24.15% of its holdings were in the chemical and mining industry; this was the main single interest of the company, which has interests in the Montecatini concern. Total holdings for the period were 17,640 million (14,730 million) lire, and net profit 1,180 million (1,143 million) lire. A dividend of 8% (same) is to be paid on the capital of 12,500 million lire.

INCREASES OF CAPITAL

DIVA LABORATORIES (GREAT BRITAIN) LTD., 229A Shaftesbury Avenue, London W.C.2. Increased by £5,000 beyond the registered capital of £10,000.

EAST HULL CHEMISTS LTD., 627 Holderness Road, Hull. Increased by

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PEOPLE IN THE NEWS

(*Continued from page 559*)

Barnes and Co. Ltd.), and **Mr. J. Lawrance** (Pigments, Paints and Varnishes Industry Standards Committee). Others elected to the general council include: **Mr. H. A. Pursey** (Turners Asbestos Cement Co. Ltd.), **Dr. L. Pfeil** (International Nickel Co. (Mond) Ltd.), **Mr. R. C. H. Toye** (Petroleum Equipment Industry Standards Committee).

● **Mr. J. P. Koppel** has been appointed a director of Courtaulds Ltd. with effect from 28 September. He has been with Courtaulds for many years and is deputy chairman of British Cellophane Ltd.

● **Mr. Cooke Bausman, Jr.,** has been appointed manager of marketing, Petrochemicals Department of the Gulf Oil Corporation, U.S. To be based in Pittsburgh, he will direct Gulf's programme for marketing of petrochemicals both in the U.S. and abroad. Gulf's U.S. petrochemicals sales headquarters will remain in New York.

● Five new members appointed to the Council for Scientific and Industrial Research include **Professor E. R. H. Jones,** Waynflete Professor of Chemistry, Oxford University, and **Mr. H. C. Tett,** chairman and managing director, Esso Petroleum Co. Ltd.

● Three new technical representatives have been appointed by Quickfit and Quartz Ltd., of Stone, Staffs, as part of a general revision of the company's representation throughout the British Isles. **Mr. S. N. Shepherd** will be technical representative for Scotland, Cumberland, Northumberland, Durham and North Riding of Yorkshire; **Mr. J. G. Tomlinson** will cover the East and West Ridings of Yorkshire, Derby, Notts, Lincs, Leics; **Mr. J. F. Markes** will be responsible for London (North, West-Central, East-Central and East), Norfolk, Suffolk, Cambs, Hunts, Beds, Herts and Essex. Revised territories for other representatives have also been announced.

● BTR Industries Ltd. announce the appointment of **Mr. R. F. Howes** as method study officer, responsible for method study on major engineering projects and plant reorganisation throughout the group. He has had several years' experience of method study and production control in the Plastics Division of I.C.I. Ltd. and with the de Havilland Engine Co. Ltd.

Progress at the B.D.H. Warehouse

The first and second floors of the new B.D.H. warehouse and office block being erected at Poole, Dorset, by John Laing Construction will literally go up in the next few weeks. They will be raised from the ground hydraulically by what is known as the 'lift slab' method of construction.

Work began on the new four-storey building in March. It is the final stage in a £1 million development programme which is due for completion mid-1962.

Superphosphate Technical Conference

A technical conference was recently held by the International Superphosphate Manufacturers' Association at Wiesbaden. The programme covered a wide field including such aspects as the value of hydrochloric acid for the fertiliser industry, the introduction of urea into granular mixed fertilisers and methods of distributing fertilisers in bulk. Some of the papers delivered at the Conference will be summarised in a future issue of CHEMICAL AGE.

COMMERCIAL NEWS

(*Continued from page 560*)

£7,000 beyond the registered capital of £500.

MAGADI SODA CO. LTD., Imperial Chemical House, Millbank, London S.W.1. Increased by £250,000 beyond the registered capital of £1,480,000.

W. A. C. MOUNTAIN LTD., soap, starch and chemical manufacturers, etc., Gee Cross Works, Hyde, Ches. Increased by £18,000 beyond the registered capital of £6,000.

P.M.D. CHEMICALS LTD., chemical engineers, etc., Hearsall Lane, Coventry. Increased by £7,500 beyond the registered capital of £500.

HENRY W. PEABODY (INDUSTRIAL) LTD., manufacturers of and dealers in detergent, oils, chemical preparations, etc., 16 Byward Street, London E.C.3. Increased by £25,000 beyond the registered capital of £100,000.

POLYCHEMIA (LONDON) LTD., agents, merchants, manufacturers of chemicals, etc., 6 Hanover Square, London W.1. Increased by £4,000 beyond the registered capital of £1,000.

SIEREX LTD., manufacturers of and dealers in X-ray and activated material of all kinds, etc., 241 Tottenham Court Road, London W.1. Increased by £30,000 beyond, the registered capital of £20,000.

NEW COMPANIES

G.S. CHEMICALS LTD. Cap. £500. Manufacturers of and dealers in industrial and other chemicals, etc. Directors: F. J. G. Graham and Gerda E. O. Graham. Reg. office; 1 Bishops Court, Sundridge, near Sevenoaks.

SUN CHEMICAL CORPORATION (U.K.) LTD. Cap. £100. Manufacturers of and dealers in polystyrene foam and other chemical products, etc. Directors: W. J. Fullerton, N. E. Alexander, E. Jacobson, S. Z. Krinsly and J. Y. Resnick. Solicitors: Cardew-Smith and Ross, 73 Great Peter Street, London S.W.1.

Market Reports

Good Business for Home Account

LONDON There has been no outstanding feature in the industrial chemicals market during the past week and the price position remains steady throughout. New business on home account has been reasonably good for the period, while contract delivery specifications have covered good volumes.

The position of the agricultural chemicals shows little change, but a fair buying interest has been reported for the nitrogenous fertilisers. A fair business is passing in the coal tar products and there has been a steady call for supplies against existing commitments.

MANCHESTER Prices generally have been steady and contracts on the whole are being drawn against satisfactorily by both home consumers and shippers, and a fair weight of replacement business has been reported. There is a quietly steady demand in most sections of the market for coal tar products. Trade in fertiliser materials is featured by additional bookings in the compounds, basic slag, and the nitrogenous materials.

SCOTLAND The past week has not shown any improvement in conditions generally. Demands, although steady, have again been mostly for nominal quantities for immediate requirements. Prices for the most part have been steady with little alteration. There has been little change in agricultural chemicals with the position quiet except for a few urgent demands.

More Indian Students Sponsored by I.C.I.

Under a scheme, instituted three years ago by Imperial Chemical Industries (India) Private Ltd., two more Indian students have been awarded scholarships tenable at British Universities.

Eight awards have now been made, and two scholarships remain available under the scheme. Each scholarship, which affords students up to three years advanced technical training, is worth approximately £600 a year.

This year's awards have gone to Mr. D. N. Bose, M.Sc. (Tech.), who is an Associate Lecturer at the Indian Institute of Technology, Kharagpur (semiconductor physics at the University of Reading) and Mr. C. S. Kahlon, B.A., B.Sc. (Eng.), of the Thapur Institute of Engineering and Technology, Patiala (mechanical engineering at the Manchester College of Science and Technology).

Permutit's Hydrogen Ion Starvation Unit

In connection with the water treatment plant contract that the Permutit Co. Ltd. have been awarded by Esso Petroleum (CHEMICAL AGE, 16 September, p. 397). Permutit point out that the word 'Starvation' used in the phrase "involving a hydrogen ion Starvation unit" is a registered trade mark of the company for processes of this kind.

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 3s 6d including postage; annual subscription £8 2s.

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 8 November

Manufacture of titanium dioxide. Laporte Titanium Ltd. **881 808**

Pyrotechnic compositions. Chatfield, H. W., and Holmes, P. M. **881 731**

Organo-siloxane compositions. Bradford Dyers Association Ltd. **881 661**

Curing agents for epoxide resins. Leicester, Lovell & Co. Ltd. **882 016**

Synthetic polymer compositions. Dunlop Rubber Co. Ltd. **882 093**

Organosilicon compounds and processes for producing same. Union Carbide Corporation. **882 094, 882 096, 882 099, 882 100, 882 051**

Organo functional cyclosiloxane polymers and derivatives thereof. Union Carbide Corporation. **882 095**

Process for the production of organosilicon compounds. Union Carbide Corporation. **882 097**

Organosilicon compounds. Union Carbide Corporation. **882 098**

Organosilicon compounds and processes for their production. Union Carbide Corporation. **882 052**

Poly-substituted ammonium silicon compounds and processes for their preparation. Union Carbide Corporation. **882 053**

Organopolysiloxanes and process for their production. Union Carbide Corporation. **882 054, 882 062**

Pyrrole-containing organosilicon compounds and process for producing same. Union Carbide Corporation. **882 055**

Organosilicon salts and process for producing same. Union Carbide Corporation. **882 056**

Organosilicon methylidene-amino compounds and process for producing same. Union Carbide Corporation. **882 057**

Process for producing composite articles and organosilicon materials used in the production thereof. Union Carbide Corporation. **882 058**

Organosilicon carbamyl compounds and processes for producing same. Union Carbide Corporation. **882 059**

Organosilicon acylamine compounds and process for producing same. Union Carbide Corporation. **882 060, 882 061**

Production of chromic acetylacetonate. Union Carbide Corporation. **881 836**

Manufacture of quaternary organic phosphorous compounds. Farbwerke Hoechst AG. **881 656**

Polymerisation catalyst and process for polymerising olefines with said catalyst. Montecatini. **881 753**

Soporific compositions. Millman, N. **881 838**

Process for preparing an ammonium salt of pyrrolidone carboxylic acid. International Minerals & Chemical Corporation. **882 018**

Mono azo-dyestuffs containing halogenated acylamino groups and their manufacture and use. Ciba Ltd. **881 737**

Purification of pyrethrum extracts. Olin Mathieson Chemical Corporation. **881 841**

Preparation of neopentylglycol. Eastman Kodak Co. **881 842**

Process and apparatus for the preparation of titanium trichloride. Montecatini. **881 955**

Arylpiperidine derivatives. Janssen, P. A. J. **881 893**

Tetrahydropyridine derivatives. Janssen, P. A. J. **881 894**

Silane azo dyestuffs and a process for the preparation thereof. Union Carbide Corporation. **882 063**

Silicon-containing thiazine dyestuffs and a process for the preparation thereof. Union Carbide Corporation. **882 064**

Silicon-containing triaryl-methane dyestuffs and a process for the preparation thereof. Union Carbide Corporation. **882 065**

Siloxane azo dyestuffs and process for the preparation thereof. Union Carbide Corporation. **882 066**

Process for the polymerisation of ethylenically unsaturated compounds. Union Carbide Corporation. **881 157**

Elution of organic substances from ion-exchange resins. Merck & Co., Inc. **881 855**

Siloxane polishing composition. Simoniz Co. **881 666**

Pyridine compounds. Ciba Ltd. **881 895**

Process for the production of hydrogen peroxide. Montecatini. **881 900**

Steroids and the manufacture thereof. Upjohn Co. **881 901**

Polymers. Du Pont de Nemours & Co., E. I. **881 988**

Butyl rubber-phenol-formaldehyde condensate compositions. British Resin Products Ltd. **881 581**

Production of polyacrylonitrile fibres and threads having high dyestuff affinity. Badische Anilin- & Soda-Fabrik AG. **881 989**

Compounds containing boron and silicon. American Cyanamid Co. **881 624**

Process for the manufacture of the alkali metal salts of urea. Feldmühle Papier-Und Zellstoffwerke AG. **881 582**

Organopolysiloxane compositions for impregnating fibrous materials, especially leather. Wacker Chemie GmbH. **882 088**

Recovery of hydrogen fluoride from its azeotrope with water. United Kingdom Atomic Energy Authority. **881 532**

Processes for producing vinyl alcohol polymers and copolymers. Rhodiatoce S.p.A. **881 585**

Elastomeric compositions and articles comprising them. Du Pont de Nemours & Co., E. I. **881 635**

Purification of organo-silicate condensation products. Monsanto Chemical Co. **881 768**

Compound basic bismuth nitrate and method of manufacturing same. Ionard, K. **881 810**

Stabilisation of films of vinyl halide polymers. Du Pont de Nemours & Co., E. I. **881 534**

Saturated tricyclic ether compounds with an odour of the ambergris type. Polak & Schwarz International N.V. **881 535**

1:3:4-Oxadiazoles and their manufacture and use. Ciba Ltd. **881 537**

Catalytic masses for the oxidation of naphthalene to 1:4-naphthoquinone. Ciba Ltd. **882 089**

Non-combustible, phosphorus-containing condensation resins and a process for their manufacture. Farbwerke Hoechst AG. **881 657**

Alkyl-aryl carbinols. Angelini, F. (trading as Aziende Chimiche Riunite F. Angelini). **881 588**

Salts of hydroxy-halogen-triazines and process for their manufacture. Ciba Ltd. **881 589**

Ion-exchange water treatment. Zwicky, J. F. **881 772**

Sulphamoyl benzamides and processes for the production thereof. Geigy, AG, J. R. **882 090**

Polymerisation of ethylene. Monsanto Chemical Co. **881 994**

Method for the production of assemblies comprising titanium. Imperial Chemical Industries Ltd **881 625**

Production of hydrocarbons. Imperial Chemical Industries Ltd. **881 542**

Process for the production of addition polymers from mono-meric vinyl compounds and unsaturated cross-linked polyester resin. Herberts, K. (trading as Herberts & Co., K.) **881 968**

Process for the preparation of N-vinyl cyclic carbamates and lactones. Dow Chemical Co. **881 814**

Copolymeric organosiloxane lubricants. Union Carbide Corporation. **881 778**

Production of amides and lactams. British Petroleum Co. Ltd., and Fisher, I. S. **881 927**

Colouring process and composition. Union Carbide Corporation. **882 067**

Process of producing fluoroacetamide. Phillips & Associates Ltd., M.A. **881 884**

Production of hydrocarbons. British Petroleum Co. Ltd., Hambling, J. K., and Yeo, A. A. **882 026**

Organohalogenosilanes. Imperial Chemical Industries Ltd. **881 698**

High-tensile strength silicone rubber compositions. Connecticut Hard Rubber Co. **881 789**

Cyclopentyl haloalkanes and their preparation. Esso Research & Engineering Co. **881 555**

Production of hollow articles from polytetra fluoroethylene. Imperial Chemical Industries Ltd. **881 701**

Ion-exchange processes. New Consolidated Gold Fields Ltd. **881 887**

Process for the manufacture of sulphamyl-anilines. Ciba Ltd. **881 862**

Process for separating butylenes from butane. Universal Oil Products Co. **881 597**

Emulsion modification in alkylation catalyst. Esso Research & Engineering Co. **881 892**

N - (p - chlorobenzene-sulphonyl)-N¹(p-dimethylaminophenyl) urea, and its preperation. Pfizer & Co. Inc., Chas. **881 627**

Polycarbonates. Union Carbide Corporation. **882 049**

Process for the preparation of 2-methyl-1-butene and trialkylaluminium compounds. Continental Oil Co. **881 685**

Production of organoborazole compounds. United States Borax & Chemical Corporation. **881 820**

Plating by thermal decomposition of organometallic compounds. Ethyl Corporation. **881 637**

Hydrazinium compounds, their production and pharmaceutical compositions containing them. Grace & Co., W. R. **881 639**

Production of mesityl oxide. Union Carbide Corporation. **881 918**

Thiophosphonic acid esters. Farbenfabriken Bayer AG. **881 977**

Production of alcohols. Esso Research & Engineering Co. **881 979**

Stabilised polyolefins. Du Pont de Nemours & Co., E. I. **882 037**

Polyolefin fibres. Montecatini. **881 981**

Preparation of organo-metallic compounds. Nalco Chemical Co. **882 005**

Process for the production of finely divided polyethylene terephthalate materials from fibre waste. Vereinigte Glanzstoff-Fabriken AG. **882 039**

Polymerisation process. Solvay et Cie. **881 576**

Polymer compositions. Shell Research Ltd. **881 578**

Pyridine compounds. Ciba Ltd. [Divided out of 881 895.] **881 896**

Organopolysiloxanes and process for producing same. Union Carbide Corp. [Divided out of 882 062.] **882 069**

Production of hydrocarbons. British Petroleum Co. Ltd., Yeo, A. A., and Hambling, J. K. [Divided out of 882 026.] **882 027**

DIARY DATES

MONDAY 9 OCTOBER

R.I.C.—Ewell, Ewell County Tech. College, Reigate Rd., 6.30. 'Organic derivatives of coinage metals,' by Prof. G. E. Wates.

TUESDAY 10 OCTOBER

S.A.C.—Birmingham: University, Edgbaston, at 7 p.m. Joint meeting on 'Research work in analytical chemistry at the technical university of Budapest', by Prof. L. Erdey.

S.C.I.—Belfast 7: The Chemistry Lecture Theatre, Queen's University, Stranmillis Road, 7.45 p.m. 'The mechanics of detergent action', by Prof. M. K. Adam.

WEDNESDAY 11 OCTOBER

S.C.I.—Dublin: Trinity College, 5.30 p.m. 'The extraction & use of leaf protein as a human food', by N. W. Pirie.

S.C.I.—London: 14, Belgrave Sq., S.W.1, 6.15 p.m. 'A preliminary investigation into the compounds responsible for meat flavour', by Dr. A. E. Bender & 'The composition of blackcurrent juice', by Dr. R. Swindells.

SOC. Instr. Tech.—London: Mansion House, 26, Portland Place, W.1, 6.30 p.m. 'Process control in paper mills', by H. B. Whitehouse & M. I. Maclaurin.

THURSDAY 12 OCTOBER

S.C.I.—Edinburgh: Heriot-Watt College, Chambers St., 7.30 p.m. 'Some observations on the chemistry of Human blood groups substances', by Prof. W. T. J. Morgan.

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TRADE NOTES

Technicon Move

Following the successful introduction of their Autoanalyzer system of components for automatic and continuous chemical analysis, Technicon Instruments Co. Ltd., are now installed in their new laboratories, offices and works at Hanworth Lane, Chertsey, Surrey (telephone: Chertsey 2291/3). Technicon will hold at Chertsey their regular courses of a week's duration for the instruction of new users of the Autoanalyzer system.

Fluid Heat Transmission

A technical brochure, with photographs and drawings, has been recently published by the Kestner Evaporator and Engineering Co. Ltd., 5 Grosvenor Gardens, London S.W.1, describing the latest developments of their patent Merilene and Perolene fluid heat transmission systems for use in chemical, food and other industrial processing where temperatures of up to 400°C are required at low pressure. The Merilene plant employs specially refined mineral oil, the Perolene, a eutectic chemical mixture. The operating units of both systems are fully instrumented and pressure and thermostatically controlled.

Foliac Products

A number of new pamphlets describe the Foliac range of products supplied by Graphite Products Ltd., Northfields, Wandsworth Park, London S.W.18—a member of the Morgan Crucible Group. The products include colloidal dispersions, p.t.f.e. pipe thread tape, Super Red jointing compound for pipe joints, etc., W.18 colloidal graphite in water, A.20 colloidal graphite in alcohol, and high temperature thread compound 991.

Super-Centrifuges

The full range of Sharples Super-Centrifuges, showing all the latest designs, is described and illustrated in bulletin No. 761. Principle of operation of the Super-Centrifuge is also explained, with diagrams. Copies of the bulletin are available from Sharples Centrifuges Ltd., Tower Works, Doman Road, Camberley, Surrey.

Drying and Dust Filtration

Drying plant for the processing of chemicals is illustrated, along with industrial ovens for stoving, drying, low-temperature heat treatment and other applications, in bulletin No. CHAL 14 from Controlled Heat and Air Ltd., Cornwall Road, Smethwick, Birmingham. Also illustrated are Max-Fabric dry type dust collectors used in conjunction with a large vitreous enamelling installation.

Rubber Accelerator

From Robinson Brothers Ltd., Ryders Green, West Bromwich, comes a new data sheet on Robac ZBUD Extra (zinc dibutyl dithiocarbamate—dibutylamine complex). This is a liquid ultra accelerator, and when used either alone or in combination with Robac ZIX (zinc isopropyl xanthate) is very suitable for low temperature and room temperature cures of cements, doughs and doubling mixes.

Singlehurst Equipment

Singlehurst Equipment Ltd., specialists in industrial hose and high pressure flexible pipes and fittings, have acquired and now occupy the entire block of property of which they formerly rented a part at 211 Coventry Road, Small Heath, Birmingham 10 (telephone: Victoria 1132).

Fight Against Corrosion

An exhibition entitled 'The Fight Against Corrosion' is being held by Henry Wiggin and Co. Ltd. at 19 Park Lane, London W.1, from 10 to 12 October. It will illustrate the properties and uses of Wiggin corrosion-resisting alloys. On show will be examples of the successful use of these materials in corrosive conditions, and thus will be supported by technical publication, film shows and lectures.

Paint Strippers

Technical Bulletin No. L.7/1—'Stripping agent formulations for protective coatings'—is available from Armour Hess Chemicals Ltd., 6 Arlington Street, St. James's, London S.W.1. The bulletin includes formulae for a number of strippers based on Armour Hess's cationic surface active chemicals. Of particular interest is formula N. 4 which is recommended for stripping epoxy resin finishes.

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