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10 February 1962. Vol. 87. No. 2222

THE WEEKLY NEWSPAPER OF THE CHEMICAL INDUSTRY

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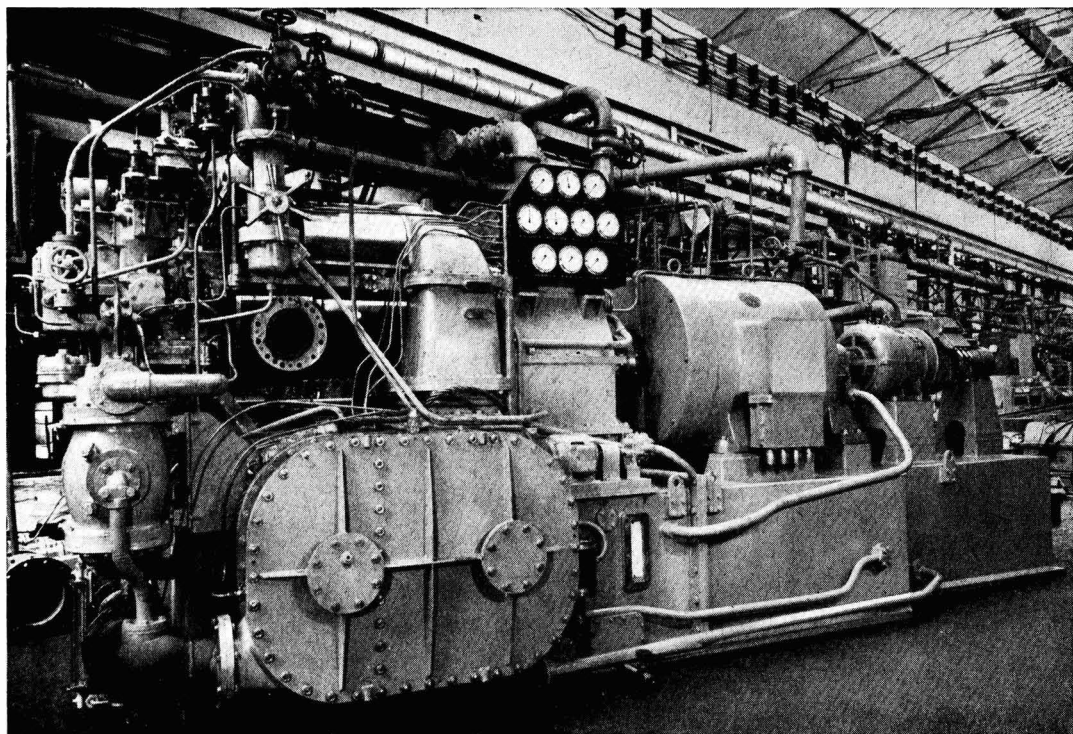


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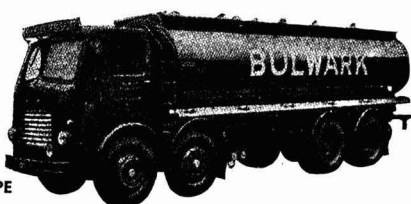
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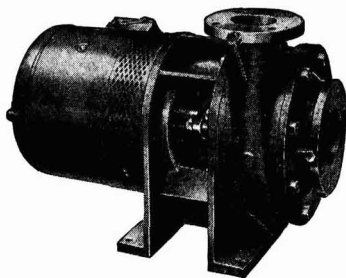
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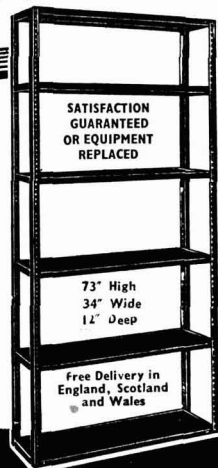
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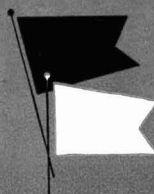
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Cyclohexylphenyl ketone m.p. 54°C.	1-Methyl imidazole $n^{20}=1.4965$.
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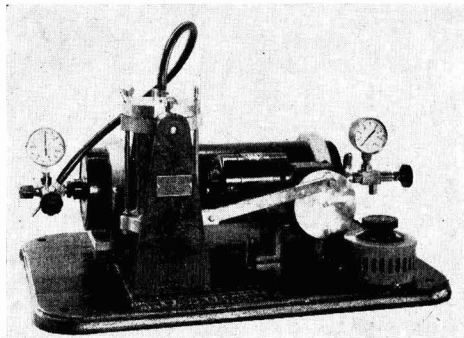
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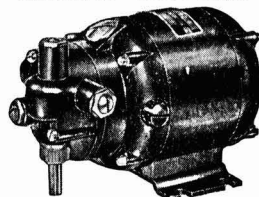
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600 10 oz. in.	37.5 4 lb. in.
300 16 oz. in.	25 4 lb. in.
150 24 oz. in.	18.8 4 lb. in.
100 32 oz. in.	12.5 4 lb. in.
75 36 oz. in.	9.4 4 lb. in.
50 3 lb. in.	6.25 4 lb. in.

SHADED-POLE INDUCTION GEARED MOTOR—Type 'FA'

R.P.M. - TORQUE	R.P.M. - TORQUE
216 4 oz. in.	13.5 24 oz. in.
108 7 oz. in.	9 30 oz. in.
54 10 oz. in.	6.7 35 oz. in.
36 12 oz. in.	4.8 44 oz. in.
27 15 oz. in.	3.35 3 lb. in.
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R.P.M. - TORQUE	R.P.M. - TORQUE
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50-150 20 oz. in.	6-16.5 4 lb. in.
32-100 32 oz. in.	4-11 4 lb. in.
25-75 40 oz. in.	3-8.25 4 lb. in.
16-50 48 oz. in.	2-5.5 4 lb. in.

CAPACITOR INDUCTION GEARED MOTOR—Type 'N'

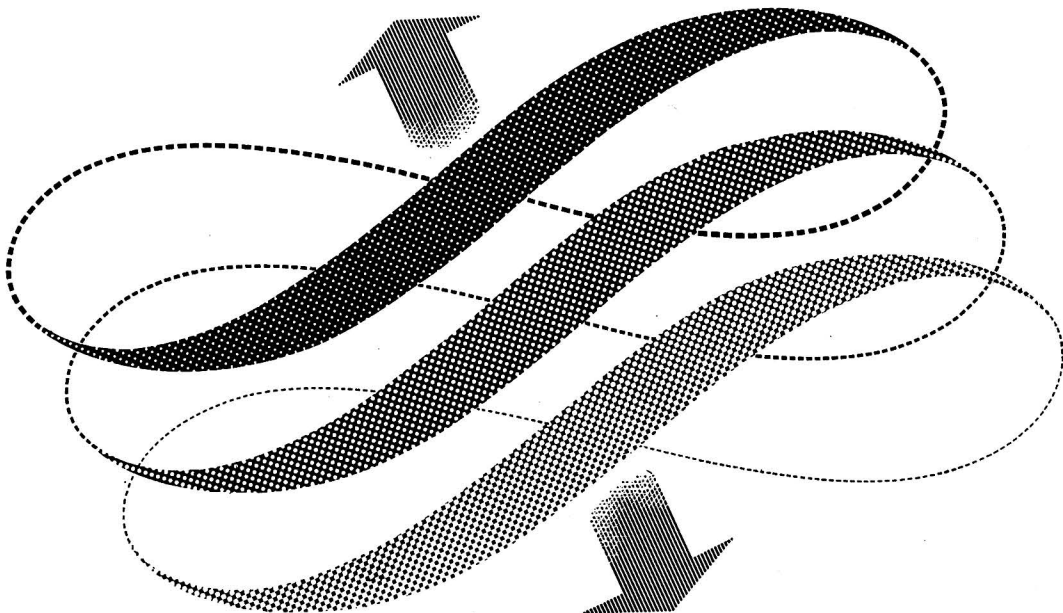
R.P.M. - TORQUE	R.P.M. - TORQUE
456 8 oz. in.	28.5 3 lb. in.
228 13 oz. in.	19 4 lb. in.
114 21 oz. in.	14.2 4 lb. in.
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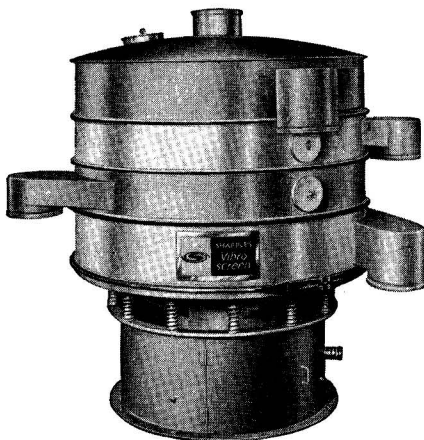
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- ☐ Arrange for a demonstration at our works.
- ☐ Make an examination of a sample of our products at the Sharples Works.

Please tick relevant square or squares

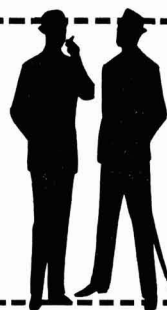
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VOL. 87

No. 2222

FEBRUARY 10 1962

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Editor

M. C. HYDE

Manager

R. C. BENNETT

Director N. B. LIVINGSTONE WALLACE

Midland OfficeDaimler House, Paradise Street,
Birmingham. [Midland 0784-5]**Leeds Office**Permanent House, The Headrow,
Leeds 1. [Leeds 22601]**Scottish Office**116 Hope Street, Glasgow C2.
[Central 3954-5]**IN THIS ISSUE**

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PUBLIC RELATIONS

BY the time readers see this week's copy of CHEMICAL AGE, the preliminary skirmishing in I.C.I.'s bid for Courtaulds will be over and the main fight will be on. Of I.C.I.'s profit in 1961 and their forward estimates (made public on Thursday afternoon after C.A. went to press), this journal has no foreknowledge, but p. 237 includes a round-up of some of the points made recently by Mr. S. P. Chambers. These can be taken as an accurate guide to the trend of sales, exports and production, if not profits, as well as to some of the other points to be included in the statement.

One thing is certain, this statement will at least demonstrate I.C.I.'s very capable grasp of the art of public relations. In comparison with I.C.I.'s post-war record in this field. Courtaulds have always shown a disdain of publicity. However in the past few weeks they have begun to recognise the fact that it can prove fatal to neglect public opinion.

Their earlier statements on I.C.I.'s take-over bid were terse. These were followed by a Press conference, which disclosed the ability of some of the younger directors in the field of public relations. Only this week, Courtaulds have started a bold series of advertisements designed to explain what is at stake in the take-over bid and to emphasise the company's leading role in the field of man-made fibres and to stress that the successful development of this industry is best left to Courtaulds alone (see also 'Distillates').

The question that many in the chemical industry will ask is "Have Courtaulds left it too late to repair the damage of years of silence?" Only the next few weeks will tell, and only their shareholders hold the decisive answer.

It is to be hoped that the point now belatedly recognised by Courtaulds, will be more widely appreciated. I.C.I.'s bid has led that company to disclose a spate of information that would otherwise have been kept secret. The result has been not to harm Courtaulds—as the company would doubtless have argued a few weeks ago—but to strengthen their position immensely.

As CHEMICAL AGE has said often in the past, the chemical industry in general is not publicity-conscious. The view of most companies is that they are already widely known and that their products enjoy a good reputation throughout the world—so, why the need for publicity?

This view overlooks the fact that not only must they woo potential customers if they want to expand their business, but that in the present conditions of mounting competition they must advertise if they are to hold on to existing customers. They also overlook the vital fact that to strengthen their hand against possible take-overs, they must also woo stockholders and the general public.

Public relations is not merely the function of a specialised department, it is something that has to be believed in by the directors of a company and practised by them. Neither is public relations something to be turned on like a tap at times of danger or stress, and turned off again as soon as possible. It should be applied to all activities of a company for the benefit of its many 'publics'—stockholders, employees, customers, national Government, local authority, man-in-the-street, etc.

Hoechst Group turnover up 6.4% but price competition hits plastics and phosphorus

WEST GERMANY'S second biggest chemical concern, Farbwerke Hoechst AG, Frankfurt-on-Main, report that in 1961 turnover of the company and all German companies in which Hoechst have a holding of over 50%, rose 6.4% to some DM2,876 million (£256 million). Exports were worth some DM910 million (£81 million); they accounted for 31.6% of total turnover, a rather lower share than for 1960.

As against the overall turnover increase of 6.4%, quantitative sales rose 11% over the year—these increases compare with those of 4% and 7% respectively for the West German chemical industry as a whole. Foreign companies of the Hoechst Group recorded for 1961 a total turnover of DM338 million (£30 million). Hoechst last year spent some DM443 million or £39.5 million (DM422 million or £37.5 million) on total investments, while this year it is planned to invest a further sum of DM400 million. Research costs rose from DM113 million in 1960 to DM120 million last year.

A lively growth was recorded in chlorine, due to steadily rising needs of the solvents and plastics industries.

Production of phosphorus at the Knapsack works rose considerably, but suffered from price pressure. Due to expansion in detergents, a further production increase is expected for the future.

Capacities for carbon production are in full use at the Griesheim plant. A new furnace was taken into operation late last year, so a further steep increase is expected in 1962.

Fertiliser overcapacity

Fertiliser sales increased, the trend being towards complex types. Export sales of nitrogenous fertilisers also rose. Nevertheless, over-production on a global scale is expected to continue. Sales of calcium-nitrogenous fertilisers were increased by the expansion of Knapsack capacities. Business in plant protection media was at normal levels in 1961.

Dyestuffs developed well last year, but the revaluation of the Mark hit sales. Pigment dyes were particularly successful, while sales of Remazol dyestuffs to the U.S. were "very good". Production of intermediates rose satisfactorily, with "considerable possibilities" of development foreseen for the future.

International competition was heavy in plastics and solvents, U.S. competition hitting polythene. Quantitative sales of Hostalen plastics rose sharply, though prices fell. Sales of Frigene rose considerably.

Waxes from the Gersthofen plant showed considerably higher sales; export share of turnover was very high in this sector. A new aldehyde plant was brought

into operation at Knapsack.

Pharmaceutical preparations were particularly successful in 1961; sales of antibiotics rose despite price pressure. A large part of exports went to Hoechst's foreign processing plants.

Sales of Trevira synthetic fibres continued to show an increase; production was much higher than in 1960 and Trevira units are being further extended.

Industrial gases remained satisfactory, oxygen turnover having developed well.

Business of Friedrich Uhde GmbH, Dortmund, in whom Hoechst have a large holding, was satisfactory.

Also reported is formation of Hütten-sauerstoff GmbH, with Gesellschaft für Linde's Eismaschinen AG, and Ticona Polymerwerke GmbH, with American Celanese, both of which have been reported on in recent issues of CHEMICAL AGE.

B.A.S.F. speaker says vertical integration may be forced on German plastics makers

VERTICAL integration is likely to be forced upon the German plastics industry by the ever decreasing profit margins, according to Dr.-Ing. Adolf Schwarz of Badische Anilin- und Soda-Fabrik. Addressing a meeting of Plastics Institute on Tuesday of this week on the subject of 'Recent developments in the German plastics industry', Dr. Schwarz showed how substantial reductions in price have allowed plastics to be used in many new fields and a continued reduction in price is necessary for increased types of applications. Decreasing profits have led raw material manufacturers to produce plastics and processors to go into polymer manufacture. Reduction of profits is providing more than ever before the incentive to carry out as many of the steps as possible in one firm. Integration of this type has already taken place particularly in the U.S. and is being considered in other countries.

The rapid growth of the plastics industry in Western Europe and in West Germany is shown by the fact that of the 1.5 million tons of plastics that were produced in the world in 1950, 23% was produced by Western Europe and 8% by West Germany, but of the 7 million tons that were produced in 1961, the corresponding percentages were 40% and 16%. Of the total production of the three main thermoplastics—p.v.c., polystyrene and polyolefins—Western Europe was responsible for the production of 24% in 1950 and 50% in 1961, while West Germany accounted for 16% in 1950 and 40% in 1961. Production of plastics has increased to such an extent that they

Methoxyhexanone, new solvent from D.C.L.

A NEW medium-high boiling solvent—methoxyhexanone—has been introduced by the Chemical Division of the Distillers Company. It is expected to find uses in surface coatings based on polyurethanes, nitrocellulose, acrylic and methacrylic resins, epoxy resins and vinyl copolymer resins.

The cost of the solvent ranges from £185 10s to £194 10s depending on the size of order, delivered in 40/45-gall. drums, and is £229 (one can) or £219 (two cans or more) in 5-gall. Robbicans.

Current production is sufficient to provide semi-commercial quantities, and larger quantities will be available in the near future.

Further information is available from The Distillers Co. Ltd., Chemical Division, Devonshire House, Mayfair Place, Piccadilly, London W.1.

Will

Mr. Lindsay Scott, managing director of Frickers' Metal and Chemical Co. Ltd., Burry Port, Carns., who died on 28 October, left £39,272 net (duty paid £9,452).

have taken their place among the conventional raw materials. Per capita consumption of plastics materials in West Germany in 1961 was 14 kg., higher than that in the U.S.

Germany, like other countries, is turning more and more to oil as a raw material for plastics production. The plastics industry has therefore become more closely linked with the petroleum industry. In many cases oil companies have become partners with polymer manufacturers in joint companies but at the same time the chemical industry has been seeking means of extracting their own raw materials. Some companies, for example Bayer and Hoechst, have developed their own cracking processes so that the chemical industry have been able to tap this important source of raw material without having to sell petrol and oil as well.

Humglas organise joint U.K. stand at Leipzig

BRITAIN'S largest stand at this year's Leipzig Trade Fair (6 March to 13 March) will be shared by a consortium of 12 British engineering companies. Humphreys and Glasgow Ltd., London, have organised this joint venture. Covering 5,000 square feet of the Fair's Chemical Hall, the stand will display chemical and industrial equipment of interest to East Germany and other East European countries.

Last year, Humphreys and Glasgow organised a similar collective stand of eight other British companies.

Project News

แผนกห้องสมุด กรมโลหวิทยา
กระทรวงอุตสาหกรรม

Algerian methane and butane for enrichment of Coleshill Lurgi gas

ALGERIAN methane and butane will be used for the enrichment of gas produced at the **West Midlands Gas Board's** high pressure gasification plant under construction at Coleshill. As indicated in *CHEMICAL AGE*, 11 November, 1961, page 758, methane will be piped to the Coleshill site and it is anticipated that 12 million cu. ft./day will be used for cold enrichment. In the case of butane, it is planned to store 2,350 tons at low temperature; this it is believed is the first installation in the U.K.

Work started some 18 months ago on the Coleshill project and the plant is due in production in the latter part of 1963. Main contractors are **Woodall-Duckham Construction Co. Ltd.** Gas making capacity will be between 40 and 50 million cu. ft./day of town gas that is free of sulphur and with a CO content below 5%. The gas will be at a pressure of some 250 p.s.i. Overall consumption of coal will be some 1,000 tons/day.

The gasification process will be carried out using oxygen, to be made on a 300 tons/day oxygen plant, and high pressure steam, which will have been generated at 2,250 p.s.i., expanded through a turbo-alternator and then reheated and delivered at 425 p.s.i. to the gasifiers.

Gas will be dealt with in two streams, each capable of purifying 55% of the output of the plant. After conversion of CO into hydrogen, the gas will be cooled and washed to recover the benzole fraction. It is then treated for removal of H₂S in an Alkacid plant as well as in tower purifiers. Bulk of the H₂S recovered will be burnt and recovered in the form of ultra-pure sulphur, being stored and sold in the molten state.

Gas will be treated for the removal of CO₂, ballasted with nitrogen, dried and enriched either with butane or Algerian methane.

Other processes will include the recovery of phenols and ammonia from effluent.

C.J.B. win major pipeline contract

● ANOTHER large contract—worth £4,476,303—won by **Constructors John Brown Ltd.** is not in the chemical industry, but is of interest because it signifies the important role this company is now playing in pipeline construction. The contract is for the 40-mile aqueduct of the Yorkshire Derwent scheme from Elvington, near York, to Hooper, between Sheffield and Rotherham.

Believed to be the first long-distance welded steel pipeline of large diameter

to be constructed in the U.K., the project calls for diameters of 3 ft. 6 in. down to 3 ft.

One of the recent major C.J.B. pipeline jobs has been construction of Esso's ethylene pipeline from Fawley to Severnside, site of I.C.I.'s new ethylene oxide facility.

L. A. Mitchell and Indian barium project

● THE Manchester chemical engineering firm of **L. A. Mitchell Ltd.** with **Barium Chemicals Ltd.**, set up a concern for the production at Tiraputi, in the Chittoor district of India, of barium salts. With an initial annual output of some 6,000 tons of various barium salts, the plant will come into operation in the latter part of this year.

New fluor flotation plant under consideration

● LARGE additional reserves of fluor have been located at the mines of **Blanchland Fluor Mines Ltd.**, a subsidiary of Colvilles Ltd. The fluor is believed to be of excellent quality and a flotation plant for the production of high-purity fluor is now under consideration in view of growing world demand.

Equipment contracts

U.K. drying plant for Polish fibre project

● CONTRACT valued at £35,000 has been obtained by **Dunford and Elliott Process Engineering Ltd.** from Polimex of Warsaw for the supply and commissioning of rotary louver drying plant for Terylene cubes.

Poland has a licence to use I.C.I.'s Terylene process and has plans to produce polyester fibre of this type under the name Elana. As reported in *C.A.*, 25 February 1961, p. 323, the semi-product for this fibre will be produced at Blachownia.

Dracone containers for B.P. Australia

● Two Dracones—nylon and rubber sea transport containers—are on order in the U.K. for delivery to **BP Australia**. This method of bulk transport will be used for the first time in Australia, to supply the new BP depot on Flinders Island in Bass Strait. Delivery of the two Dracones is expected in May.

Construction of the £30,000 new depot will be started this month by **Constructors John Brown Pty. Ltd.** When com-

pleted the depot will receive its supplies of motor spirit in the Dracones which will be towed behind a 'mother ship' from Hobart.

U.K. fat rendering plant for Germany

● COMMISSIONING and successful operation of a Sharples low temperature fat rendering plant at a plant of Wurtz, Fettschmelze in Stuttgart, which handles shop fat and produces high quality lard and dripping, is reported by **Sharples Centrifuges Ltd.**, Camberley, Surrey. Equipment installed includes a Sharples P-2000 Super-D-Canter and a DG-2 Autojector.

Fisons to close Bo'ness fertiliser factory

PLANS to close down their fertiliser factory at Bo'ness, West Lothian, at the end of September have been announced by Fisons Fertilizers Ltd. This is because of the trend towards larger economic units; the site at Bo'ness makes the factory unsuitable for large-scale development.

Construction is proceeding on the company's new manufacturing, bagging and storage block at Leith (C.A., 8 April 1961, p. 577) which the company believes will provide a better service to meet the increasing demands for its products in Scotland.

ALUMINIUM FABRICATION



A welder operating in the down-hand position—a sequence from 'Aluminium pipework' a new colour film produced by the I.C.I. film unit for Marston Excelsior Ltd. The new film deals mainly with the production of aluminium pipe-work and fittings—part of a major contract for the Belgium Government's second nuclear reactor at Mol. The film shows the rolling, welding and assembly at the Wolverhampton works as well as installation by Marston Excelsior welders



★ COURTAULDS' conversion to the value of public relations appears to have been swift and decisive. Certainly their new series of advertisements, designed to explain the company's standpoint in I.C.I.'s acquisition bid, has the hallmark of genius. First in the series comes straight to the point in the opening statement—"Whose hand shall guide the affairs of Courtaulds is vitally important" for 180,000 stockholders, for 60,000 employees, for hundreds of textile companies and for customers.

The main point is aptly put, "Courtaulds alone can make the most of the man-made fibres." After stating that last year Courtaulds alone produced over 75% of all U.K. man-made fibres (thus establishing an air of supremacy), the advertising copy adds that Courtaulds can make man-made fibres pay; "Tricel pays, Courtelle pays, Rayon and acetate pay" (the implication of unprofitability on the part of others is obvious).

"Courtaulds is the most advanced name in research and development. They have shown that they know how to anticipate the ever-changing demands of the fashion and textile industries and at the same time keep prices low. Courtaulds have a highly profitable future—alone."

For good measure, the company adds: "Their resources should not be used to bolster the more problematical interests of the chemical industry."

★ An informative article by Mr. Ian Walker of Albright and Wilson's development department in the company's current house journal pinpoints some of the Common Market companies which compete directly with the A. and W. Group.

These include the Bayer subsidiary Haarmann and Reimer (perfumes and aromatics); the Hoechst subsidiary Knap-sack-Griesheim (thermal phosphorus, phosphoric acid, sodium tripolyphosphate, etc., and carbon tetrachloride); Goldschmidt (silicones); Wacker Chemie (silicones); Huls (CTC); Benckiser (Calgon); Pechiney-St-Gobain (CTC, tripolyphosphate, silicones); Kuhlmann (CTC, tripolyphosphate); Coignet (phosphorus); Pierrefitte (phosphorus); Montecatini (thermal and wet phosphoric acid, tripolyphosphate); 'Naarden' of Holland (essential oils, synthetic perfumes, etc.).

Mr. Walker, who sees good prospects for A. and W. in Europe, also discusses the chemical industry of E.F.T.A. In a comparison of sales by major European companies in 1960, the following results are given: I.C.I. (£558 million); Bayer (£280 m.); Hoechst (£229 m.); B.A.S.F. (£220 m.); Montecatini (£187 m.); St-Gobain (£181 m., inc. glass); Pechiney (£145 m., inc. aluminium); Rhône-

Poulenc (£119 m.); CIBA (£93 m.); A. and W. (£43 m., not inc. W. J. Bush).

Mr. Walker shows that chemical production in Britain rose at the slow rate of 5.6% compound interest per annum between 1953 and 1959, compared with 11.9% for W. Germany, 11.4% for France 13.1% for Italy and 11.5% for all Common Market countries.

★ OUTSPOKEN comments on Soviet scientists and their relations with the State have been made surprisingly from within the Soviet Union. Writing in *Izvestia*, Prof. Igor Tamm complains that when a student is recommended for a research post, his talents and success in research work is subordinated to third place in relation to all kinds of other considerations. Often the student is thought to be involved in insufficient social activity even when the reason for this is not lack of political consciousness but is rather an absorption in scientific work.

Professor Tamm said that more research work should be carried out in universities, because the successful training of research workers could only be achieved by scientists who were themselves engaged in research. University research work has fallen into decay in the U.S.S.R. since the war because of the setting up of a large number of specialised institutions attached to the Academy of Sciences.

The professor has suggested that attention should be given to the possibility of setting up a system to select particularly talented students in secondary schools for training as research workers. Until now any kind of aptitude testing has been frowned upon in Russia.

★ IN ANOTHER report on education and professional employment in the U.S.S.R., N. DeWitt of the Russian Research Centre of Harvard University, reveals that in the 1960's, the U.S.S.R. plan to accelerate their programme to produce the number of scientists and engineers. They expect to graduate 250,000 scientists and engineers annually—more than double the projected rate for the U.S.

At present the U.S. graduates 90,000 scientists and engineers in each year, compared with the 190,000 in the U.S.S.R. Of all graduates at bachelor level in the U.S.S.R. in 1959, 57% were scientists; the corresponding figure in the U.S. was 24%.

The report goes on to discuss the type of scientific education in the two countries. It maintains that, whereas the goal of education in the U.S. is to teach the

individual how to think and act, how to develop and perform a skill of his own choosing for his own benefit, the object of the U.S.S.R. educational system is the service of the collectivist state, and it is only within the confines of choice determined by the state that the individual may develop his personal abilities.

★ WHAT'S in a name? U.S. polypropylene producers, Avisun Corporation—whose new 100 million lb./year polypropylene resin plant is now in full production at New Castle, Del.—have decided to change theirs. The new name—Avisun Corporation. The capital 'S' has been dropped "in the interests of consistency in maintaining Avisun's corporate identity".

The change of name may herald a new era in U.S. polyolefin sales for according to Avisun, sales are booming and new markets for polypropylene resin and polypropylene film are developing rapidly.

★ BEING blessed with a secretary who adorns the office walls with pictures of lakeside scenery—more conducive to dreaming about summer holidays than to the sober business of the day—I was heartened that Canadian Industries Ltd. are now supplying their executives with original Canadian oil paintings, prints or sculpture.

These will be acquired from leading Canadian artists and will be exhibited to the public before they go into C.I.L.'s new office building in the spring. But first, a private screening is being held for the company's 175 executives, each of whom will choose a work to decorate his private office. Others will be allocated to the library, lounge, reception rooms, etc.

★ Two U.K. pipe manufacturers are in the news this week with ventures in the plastics field.

The U.K.'s largest producer of cast-iron rainwater and soil pipes and fittings, the Allied Ironfounders Group, have started production of similar goods in p.v.c. supplied by British Geon and I.C.I. The group have been developing and testing p.v.c. pipes and fittings for some years and are now starting production at a new plant at Atcham, Shropshire. Provision has already been made for transferring to larger facilities if demand expands as anticipated.

The other company already in the plastics pipe field is to build plant at Porto Vesme, Sardinia, for the production of epoxy resin and acrylic resin pipes. This is a joint Anglo-Italian venture with Bristol Aeroplane Plastics Ltd. and Compagnia Generale per la Ricostruzione. The pipes will be exported to the Middle East for the construction of oil pipelines. The plant will cost some 6,000 million lire.

Alembic

I.C.I. financial statement

EXPORTS AND PRODUCTION WERE AT RECORD LEVELS IN 1961

RECORD levels for exports and production in 1961 were reported by Mr. S. P. Chambers, chairman of I.C.I., in his statement issued on Thursday after CHEMICAL AGE had gone to Press. The fall in profits last year—the actual figure was not available at the time of writing—had been halted before the end of the year.

Statements to this effect, have been made in public by Mr. Chambers in recent weeks. He has also declared his intention of strongly rejecting comments of Courtauld's directors on problems facing the U.K. chemical industry. I.C.I. agree that 1961 had proved a year of overcapacity, but only for a limited range of chemicals. This has happened before and will happen again. The company is not now just beginning to run into overcapacity difficulties, as has been alleged, but is now moving out of this phase. Temporary overcapacity in some products can be ignored because of I.C.I.'s wide base of operations.

The statement will stress that the world demand for chemicals shows a very firm upward trend—a situation that tends to create temporary overcapacity until demand can catch up. Evidence of rising world demand for chemicals comes from the fact that both the chemical industry in general and I.C.I. had their highest ever totals in 1961. The industry total, as stated in CHEMICAL AGE last week, was up nearly 3%.

Record exports in 1961

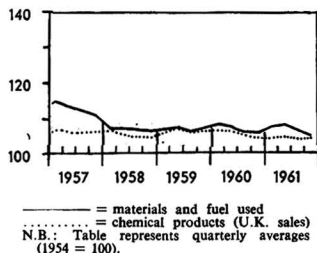
Mr. Chambers has already stated that I.C.I.'s exports were a record in 1961. The published figure for the first half of last year totalled £49 million, £300,000 down on the last half of 1960, but £1.7 million up on the first half of 1960. Since 1960 was a record export year for the company, with overseas sales valued at £96.6 million, the 1961 performance would appear to be a notable achievement in view of price cuts without which the 1961 total would have been some £ millions greater.

Group sales in the first half of 1961 were worth £287 million, £3 million below the last half of 1960 and £1 million lower than the first half of 1960. The 1960 total was £558 million and Mr. Chambers has indicated that actual sales volume last year was an all-time record, but that the value of sales was about the same because of lower prices.

Net income in the first half of 1961 was £19.2 million, £6.5 million below the first half 1960, but only £300,000 down on the second half of 1960. Thus it seems that the decline in profits was halted in the first half of last year—according to Mr. Chambers' recent statements the latter part of the year saw a decided upturn in profitability.

A pointer to I.C.I.'s 1961 profit per-

formance appeared in the Board of Trade's wholesale price index for that year and published in the *B.o.T. Journal* of 2 February, p. 207. The table reproduced here—and based on a B.o.T. table—shows that by the end of 1961, the gap between the chemical industry's raw material and fuel costs and the price of its manufactured products had narrowed considerably to the benefit of the industry:



Mr. Chambers will doubtless be heartened by the fact that chemical profits, which have been in temporary recession throughout the world, have now been showing a turn for the better. This is true of France, where as stated in 'Overseas News' the last quarter of 1961 was particularly good, of West Germany in the latter part of the year and of the U.S., where final quarter

results have generally shown an upward tendency.

Mr. Chambers has indicated that his statement would refute charges that Terylene is on the wane. On the contrary sales are rising, production was a record and profits are "also progressing." In 1961, nearly 50% of Terylene was exported to Europe, a 25% rise on 1960.

At the turn of the year it was stated that I.C.I.'s Wilton make of nylon polymer had increased by nearly 50% over 1960—last week Mr. Chambers pointed out that the company had nearly always sold nylon polymer to British Nylon Spinners at below the world price.

The future for synthetic fibres is seen to be very bright and in I.C.I.'s view, the fact that patent protection is coming to an end is relatively unimportant. Expiry of patents will not disclose the vital know-how and chemical skills that were developed from years of research and production.

I.C.I. also look to polypropylene fibre to capture the market from Courtauld's Cellophane.

Some price cuts have been forced on I.C.I., but many reductions have been made as part of a deliberate policy in order to prepare for Britain's entry into the Common Market. In a range of products the company is already selling at below Continental companies—nylon polymer and soda ash—are examples. Mr. Chambers says it is obviously easy to pick out some chemicals from the many hundreds made by I.C.I., that are currently either higher priced or lower priced.

He is confident that the future of the British chemical industry will see an even more marked growth rate than has been the case in the past. This belief is based on careful study of all aspects likely to affect actual growth.

Courtauld's statement to Members of Parliament

IN their statement sent recently to all Members of Parliament, Courtauld's claimed that their group was the largest single producer of man-made fibres in the world. Its production was said to be more than 20% greater than Du Pont or Rhône Poulenc.

Production of man-made fibres in the U.K. totalled 590 million lb. in 1960. This was shared as follows:

Courtauld's (inc. all present subsidiaries), 83%; I.C.I., 13%; others 4%.

The breakdown between fibres was given as follows:

Viscose rayon, 20%
 Acetate and triacetate, 40%
 Acrylics, 20%
 Nylon, 26%.

The statement also referred to Courtauld's 'outstanding research achievements,' leading to Courtelle, Tricel, Courleone polyolefin fibres, Alginate, and SC.28, a high modulus cellulose fibre—a new fibre of enormous potential. Courtauld's were also responsible for development of viscose tyre cord, now used in 70% of all tyres produced in the U.K.

Courtauld's declared that their main

interests were in man-made fibres and textiles and that their fortunes were directly related to those of their customers in all branches of the textile industry.

In spite of a takeover, I.C.I.'s interests would still be predominantly chemical. Consideration of chemical raw material supply would dominate policies, fibre making being in effect a tied market. A restriction in the variety of man-made fibres would be a strong possibility for the future.

Courtauld's stated that I.C.I. held an exclusive licence for Du Pont patents on Orlon acrylic fibre, but that by 1955 had decided against production. By the nature of those rights other U.K. manufacturers were prevented from producing Orlon and it was left to Courtauld's to go ahead and develop and market Courtelle, the first British acrylic fibre.

Paint interests. Paint interests of Courtauld's—Pinchin Johnson and Associates acquired in 1960—have now been re-organised. Each of the former P.J.A. Group companies has been converted into a division of what is described as a fully integrated organisation.

SHELL'S NEW PLASTICS SERVICE WILL RATIONALISE COLOUR PRODUCTION FOR POLYOLEFINS

A NEW service that will give advice on colour problems encountered in the design of new plastics products has been instituted by Shell Chemical Co. This service is aimed to help not only the company's customers, the actual buyers of raw materials, but also its customers' customers—the producers and users of plastics articles and components.

In preparation for the introduction of the new service, Mr. Faber Birren, an American colour research consultant of international repute, has worked with the company for about two years in a consulting capacity.

With two major new polyolefin plastics plants now being completed at Carrington—individual sections of them are already being commissioned—the new Shell colour service can be seen as a move to keep a jump ahead of competitors in the crowded polyolefins market. To be operated by Mr. D. P. H. Tudor-Williams as an extension of the Shell plastics advisory service already established under Dr. E. S. Narracott, the colour service gets at the roots of consumer preference by studying colour trends objectively, as well as the functional and emotional implications of colour, the aim being to give customers positive assistance in choosing colours with the maximum sales appeal. In so doing, of course, Shell will be able to optimise their own production costs by stabilising the range of colours produced in quantity.

Range of 46 colours

To start with, a new range of Shell 'researched' colours is being introduced for polyolefins—Carlona high and low density polyethylene and polypropylene. These colours consist of two groups, the first of which is a range of 20 'stock' colours (where delivery will be from stock) together with black, white and natural, and all of these have been established as having the widest application and greatest demand in household, industrial and functional thermoplastic mouldings. To complement them, there are 26 'custom' colours, which will be supplied to order. The colours will be reviewed periodically and, whenever the prevailing trends show the need, the Shell colour range will be revised accordingly.

Although the colours were selected particularly for polyolefin applications, they can also be supplied in polystyrene. Special matches can be made to meet demand for colours outside the 'researched' range.

Before deciding on their plans for the production of coloured polyolefin plastics, Shell took a close look at their experience with polystyrene. This material has, of course, high colour

possibilities but Shell found that since production was started over 6,000 individual colour formulae have been developed and in one year as many as 2,000 of these formulae can be called for, the quantities required varying from as low as 50 lb. to as high as 50 tons. Consideration of the impossible task of offering a similar colour range across three additional major plastics led to the decision to select a range of colours dictated not by individual caprice but by some really sound knowledge of the relationship between colour and consumer acceptability.

U.K. production and consumption of sulphuric acid down in 1961

PRODUCTION and consumption of sulphuric acid in the U.K. last year were down by 1.7% and 2.2% respectively. Production totalled 2,761,945 tons, compared with 2,701,374 in 1960, while consumption totalled 2,678,445 tons, compared with 2,738,150 tons.

Prominent among trade uses which showed declines in 1961 were iron pickling; oil refining; industrial phosphates; plastics; rayon; and titanium oxide. On the other hand, higher consumption was recorded for organic and miscellaneous acids; dichromate; bromine; clays; drugs; and superphosphates.

Production in the last quarter of 1961 totalled 681,887 tons, while U.K. consumption totalled 677,252, compared with 691,229 in the last quarter of 1960.

In the following tables, based on the summaries published by the National Sulphuric Acid Association, Govern-

SULPHURIC ACID AND OLEUM PRODUCTION—1961

	(100% H ₂ SO ₄ new acid)		
	Contact	Chamber & tower	Total
Stock (1.1.61) ...	76,392	23,597	99,989
Production ...	2,261,957	399,999	2,661,956
	2,338,349	423,596	2,761,945
Stock (31.12.61) ...	97,569	22,880	120,449
Apparent use ...	2,240,780	400,716	2,641,496
Total capacity represented (tons/annum) ...	2,604,560	544,200	3,148,760
Capacity in use %	86.8	73.5	84.5

RAW MATERIALS—1961

	Sulphur		Pyrites	Spent oxide	Anhydrite	Zinc concentrates
	Imported	Recovered, H ₂ S and filter cake				
	Tons	Tons	Tons	Tons	Tons	Tons
Stock (1.1.61) ...	53,232	5,628	132,524	69,935	15,760	58,101
Receipts ...	...	76,865	340,549	251,320	698,097	215,020
Use ...	...	395,689	75,861	337,378	235,062	704,386
Adjustments† ...	...	10,674	-205	11,078	4,016	-1,243
Stock (31.12.61) ...	...	58,198	6,837	124,617	82,177	10,714

Acid made from above raw materials:						
Tons per 100% H ₂ SO ₄ ...	...	1,114,200	214,700	441,900	315,400	424,000
(Total 2,661,900 tons)	...	...	...	...	...	151,700
Per cent of total ...	...	41.9	8.1	16.6	11.8	15.9
† Overall effect of stock adjustments, transfers and uses for purposes other than sulphuric acid manufacture.						5.7

U.K. chemicals for export to Rumania

THE Anglo-Rumanian trade agreement referred to in CHEMICAL AGE last week, p. 212, effective until 30 September 1962, includes the following U.K. exports:

	£'000
Essential oils, essences	10
Toilet preparations and aromatics	5
Chemicals, including but not limited to phenol, pharmaceuticals, dyestuffs, paints, pigments, liquid gold and platinum, gelatine, glue, plastics, catalysts, fatty alcohols, fatty acids, 85% magnesia, nickel compounds, and lead alkyl compounds	400
Rubber goods, including synthetic rubber	100
Man-made fibres	100
Factories and plant, including chemical and oil refining plant	2,800
Instruments	100

Rumanian exports include the following:

	£'000
Calcium carbide	300
Chemicals (subject to type)	100
Pharmaceutical chemicals (subject to type)	120
Aluminium oxide	60

ment plants are excluded from figures relating to acid production, raw materials and trade uses.

U.K. CONSUMPTION

	1961	1960
(Tons—100% H ₂ O ₄)		
Acids—organics & misc. ...	39,175	37,608
Accumulators ...	12,897	13,660
Agricultural ...	11,499	13,864
Bromine ...	25,752	23,464
Clays (Fullers' earth, etc.) ...	14,055	12,293
Copper pickling ...	2,860	2,404
Dealers ...	12,547	13,423
Dichromate & chromic acid ...	25,134	22,687
Drugs & fine chemicals ...	21,483	20,417
Dyestuffs & intermediates ...	92,483	104,485
Explosives ...	9,967	9,493
Export ...	7,924	9,554
Glue, gelatine & size ...	433	532
Hydrochloric acid ...	52,650	53,418
Hydrofluoric acid ...	23,979*	14,707
Iron pickling (inc. tin plate) ...	117,953	137,395
Leather ...	4,103	3,882
Lithopone ...	14,847	13,457
Metal extraction ...	2,632	2,608
Oil refining & petroleum products ...	71,499	77,057
Oils (vegetable) ...	9,129	9,281
Paper, etc. ...	10,177	9,494
Phosphates (industrial) ...	1,941	4,081
Plastics, n.l.c. ...	55,464	65,267
Rayon & transparent paper ...	248,187	278,087
Sewage ...	13,775	12,572
Soap, glycerine & detergents	122,038	124,828
Sugar refining ...	831	831
Sulphate of ammonia ...	290,894	291,112
Sulphates of copper, nickel, etc. ...	17,231	20,670
Sulphate of magnesium ...	133	181
Superphosphates & other phosphatic fertilisers	665,628	621,451
Tar & benzole ...	20,164	23,837
Textile uses ...	15,074	16,310
Titanium dioxide ...	458,112	467,745
Unclassified ...	185,799*	202,977
Total ...	2,678,445	2,738,150

* Adjustments in allocations to these items have been made since July 1961 by one member and they are not comparable with previous annual figures.

Chemicals in Canada

BETTER PROSPECTS, BUT SIGNS OF OVERCAPACITY IN BENZENE, TiO₂

OUTPUT of Canada's chemical industry rose about 4% in 1961, a growth rate well below the postwar average, said Mr. P. C. Allen, president of Canadian Industries Ltd., in a New Year's comment. There were signs, however, of a more rapid advance as the year progressed.

The moderate increase concealed wide variations within the industry and among individual companies. In the consumers goods sector, for example, demand for synthetic detergents rose sharply, but shipments of paints, varnishes, medicines and pharmaceutical preparations declined or showed little change. Increased output of chemical pulp and a high level of activity in the steel industry strengthened demand for some industrial chemicals, but the continuing decline in uranium had a depressing effect on sulphuric acid production. Exports of chemical products advanced only slightly in 1961 compared with the sharp increase of the previous year, but higher sales abroad were of particular importance to producers of fertilisers and plastics.

Domestic consumption

Although domestic consumption of chemicals advanced only slightly, the share obtained by imports rose as rising overcapacity in other countries exposed Canadian producers to intensive import competition. The wave of capital expansion in recent years has also created much excess capacity in Canada for a broad range of chemicals. Competition leading to price cuts was largely responsible for a decline in profits in the early part of last year compared with 1960, despite a substantial increase in investment. There are indications that profits improved in the last half of 1961. Despite a drive to lower costs and improve productivity the industry has a long way to go in solving the critical problem of obtaining a level of profit on new investment adequate to provide for healthy development of the industry.

If the economic recovery in Canada and the U.S. extends well into 1962, sales of chemicals in Canada this year should rise at a faster rate than in 1961. Competition from imports, based on growing world capacity for chemicals and on the inadequate protection provided by the Canadian chemical tariff, will continue to be a serious threat.

Despite the unsatisfactory outlook for return on investment, capital expenditure may be close to a record level again in 1962. Unlike last year, when very few new products were manufactured for the first time in Canada, several projects for chemicals new to Canadian manufacture are underway or planned for 1962 for products such as isocyanates, cyclo-

hexane, lithium, chloride and metal, all of which involve replacement of imported chemicals. The emphasis, however, will continue to be on new or expanded plants for established products such as caustic soda and chlorine, phosphates and urea. Over-capacity may be a problem with benzene, titanium oxide and pentachlorophenol as more than one new plant for each of these chemicals

has come on stream within the last year or will be producing in 1962.

As examples of the increasing interest in plastic films, additional polythene film capacity is under construction and several companies have begun extrusion of polypropylene film. Another significant trend is the growing participation of oil companies in the chemical field, either through direct production or by a tie-in with a chemical company as in the case where a major oil company will supply naphtha for ethylene, propylene and acetaldehyde operation in Quebec. In western Canada the number of new major projects is falling off; expenditures on plants for recovering sulphur will be down sharply this year, as the majority of the new natural gas plants were completed in 1961.

Canada's chemical production last year was worth \$1,370 m., should rise in 1962

AN increase in Canadian chemical production in 1962 is forecast by the Chemical Institute of Canada. The institute bases its prediction on rising production among industries using chemicals, increased stocks among such industries and the advantage given domestic chemical producers by the devaluation of the Canadian dollar.

It added that the Canadian chemical market might reach \$1,700,000 during 1962. The C.I.C. believes that the chemical industry "has no reason to panic, at least not during 1962, over the Common Market developments in Europe." It does not elaborate on this comment.

The Canadian chemical industry after expanding by 72% in production between 1952 and 1959, grew more slowly in 1960—by 2%. In 1961 output appears to have increased by 1 or 2%, to a total value of about \$1,370 million.

Latest product analysis, for the first nine months of 1961, indicate that substantial gains in a few products, such as mixed fertilisers, formaldehyde,

ammonia, and oxygen, were largely offset by declines in demand for hydrochloric acid, ammonium sulphate polystyrene and other chemicals.

Some authorities, encouraged by improved shipments in the second half of 1961, are predicting an increase of 8% in total output in 1962. Profit margins in the industry remain depressed, it is stated, and industry executives see little hope of improvement in margins this year. Major cause of the squeeze on profits has been price weakness, resulting from excess capacity for some products, and a strengthening of import competition.

Unsatisfactory performance of the industry in the first half of 1961 caused chemical firms to cut back capital spending plans for the year to \$147 million. This was a decline from proposed spending of \$155,400,000, scheduled at the beginning of 1961. The figure remains up substantially, however, from capital investment of \$11,300,000 in 1960.

I.C.I. reorganise Nobel Division sales

FROM 1 March the export sales, home sales control and technical services departments of the I.C.I. Nobel Division will be reorganised into two new departments for chemicals sales and explosives sales.

Mr. R. J. Bown, division director responsible for the export sales department, will be responsible for explosives sales and technical service and Dr. J. S. Flanders will be responsible for the new chemicals sales department and technical service of all chemicals, excluding silicones.

Mr. J. C. B. Carnegie will be home sales manager, explosives, Mr. I. H. Paterson, overseas sales manager and Dr. R. Westwater, technical service manager.

Dr. A. C. Hutchison, head of the I.C.I. technical department in London, will become manager of sales and technical

service for chemicals. Mr. C. B. Thom will become assistant manager for sales and technical service (cellulose derivatives) and Dr. T. Broadhurst, now with I.C.I. (New York) will be assistant manager for sales and technical service (nitrocellulose and pentaerythritol). Mr. G. K. Leitch will continue as assistant manager and will be responsible for sales and the technical service (acids and miscellaneous chemicals) and for general advice on chemical export problems.

Output of synthetic rubber up

World output of synthetic rubber for October, 1961, increased by 22,500 tons over the previous month to 185,000 tons. Consumption increased to 177,500 tons from the revised figure for September of 165,000 tons.

CHEMICAL MARKET RESEARCH

A light-hearted look at the methods and validity of market research in chemicals—by an anonymous but well-known market researcher



SURVEY OF SOAP CONSUMPTION—"add all degree students and deduct Aldermaston marchers"

ONCE upon a time when senior executives still wore starched cuffs, market research consisted of the figures scribbled on them during board meetings called to decide the size of the new plant, or rather to decide whether the old pot in the corner of the yard could be used again or if there was now a genuine case for buying a new and bigger pot. Decisions reached by such methods proved remarkably accurate—which was either a question of luck or of genuine foresight. Science was not involved, and therefore it took no blame.

Nowadays, with starched cuffs no longer in vogue, the tendency is to apply more profound procedures to the problems of forecasting, and it might be rewarding to examine the methods and validity of the modern approach (in so far as it affects the chemical industry).

Within the last decade, more and more chemical firms have started doing serious market research through specialised full-time staff in their own employ, following the general American practice. A market research department fulfils really two entirely individual functions which are indeed so divergent that they call for a different approach and different calibre personnel with different training and qualifications.

The first function is to prepare market estimates usually for a year or two ahead, to assist in the drafting of sales estimates and budgets and to allow the proper planning of a production programme. This function may be extended to include investigation into the location of markets. The second function is that of advising management of long-term prospects to assist in the formulation of forward planning policy, either with regard to the future of an existing product or the possible chances of a new one.

The first of these functions, which we will call 'short-term market research', requires a knowledge of elementary mathematics, good listening ability and tact. The second one, which we will call 'long-term market research', requires a sense of humour and sound technical knowledge as well.

Short-term market research. This involves both field work and statistics. The researcher is required to do three things:

(a) Consult the sales manager to get an idea of what he expects to sell in the coming year.

(b) Construct graphs of sales over the past year and extrapolate to the following year. Here it is always useful to give the corresponding graph for the U.S. which, as is well known, follows our pattern five years ahead. If the two results coincide, this constitutes definite proof of a correct market estimate, and no further work will have to be done at all. If they do not coincide, the difference has to be explained—by one or more of the following reasons:

Foreign dumping, the unusual weather, inaccuracy of U.S. statistics, and/or bad arithmetic.

(c) Consult customers and prospective customers regarding their requirements in the coming year. This involves not only knowing beforehand that they will not tell the truth, but also an assessment of whether they put their estimate too high in order to create a good impression as an expanding business, or too low in order to show that reduced business will result from suppliers' excessive prices. Having co-ordinated all these findings, the figures have to be tabulated and presented, duly corrected, to coincide with the sales manager's expectations. It is as well to prepare in advance a list of possible reasons why the forecast was not met last year; and a choice exists among the following:

- (1) Failure of the plant to produce the right quantity and quality.
- (2) Failure of the sales department to make an all-out effort.
- (3) General and acknowledged unfair practices by competitors.
- (4) Stock disposal in the U.S.
- (5) Stockpiling in the U.S.
- (6) The Government's shortsighted policy.
- (7) The unusual weather.

A basic principle

In any case, the market researcher can only estimate the total market available to a product, not his company's share. The latter is the sales department's function. We meet here, logically, the basic principle of all market research, which will become more apparent and fundamental when we consider long-term forecasting. It may be stated as follows:

"A statistically derived market forecast is never quantitatively wrong, only the time element is likely to have been misjudged."

The figures, as long as they follow straight-line graphs, must eventually be accurate unless one takes the totally pessimistic view that civilisation is at a standstill, or, more unforgivable still, that one's top management is no longer progressive. This principle is universal. The unforeseen, which we either fear or we use as excuses for past errors, should not be taken into account; but as it is bound to happen, all possibilities should be enumerated and it is then up to top management either to draw the wrong conclusion or to make an independent forecast of the future. Top management is, of course, far better qualified in this respect being composed of political and economic experts, psychologists and dis-

tinguished warriors, as well as having the right contacts at top level—which facilitates the gathering of information from other top managements.

Timing can, in fact, be forecast by no method which is scientifically defensible. Even assuming an absolutely normal course of events—which is basically a wrong assumption—one cannot even forecast what orders the next post will bring. In the chemical industry, orders are of very varying sizes and the acquisition or loss of a single new customer can make an enormous difference. Over as short a span as one year, the bank rate and, consequently, short-term stock policy is bound to vary at least once, but more normally three times; severely upsetting sales at least temporarily, without necessarily upsetting ultimate consumption.

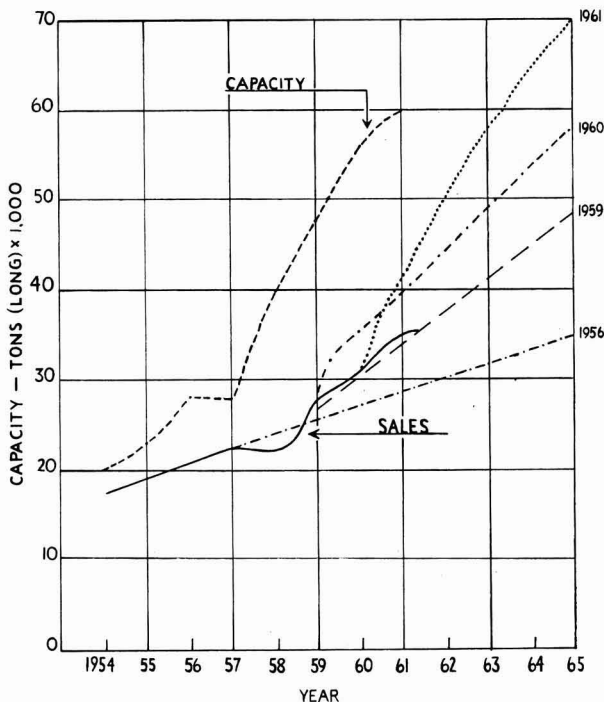
One may consider the case of a chemical manufacturer who sells a product for printing ink, specialising in newsprint industry. If he assumes things to stay absolutely normal and uneventful, he must also assume sales of newspapers (other than racing ones) to drop to a level far below normal, with consequent disastrous effect on his business.

If we take, for instance, the case of a manufacturer of sodium bicarbonate

for medicinal purposes, his short-term market research should include the following considerations:

During the coming year 900,000 babies will be born, and among these will be roughly 10,000 business executives. These will consume, on average, 100 indigestible business lunches per annum, bringing the total increase of business to 1,000,000 doses of sodium bicarbonate at 5 grammes each = 5 tons. Against this has to be offset the increasing culinary standards of our restaurants, pressure on expense accounts by the Government, and the rate of death. The latter factor can possibly be ignored, owing to the increasing reluctance of business executives to retire and the likely invention of drugs, even more powerful than sodium bicarbonate, keeping more people alive.

If we take the case of a soap manufacturer or a manufacturer of ingredients for soap, the calculation cannot be based on the birth rate. We can assume that consumption of soap is a function of the standard of living, or the standard of education, which amounts to the same thing. The market researcher, therefore, must compute the number of boys passing 'A' level G.C.E. each year, ignoring, of course, the 120 boys who pass in Russian, add all degree students and



HIGHER PHTHALATE PLASTICISERS—showing capacity, actual sales and annual sales forecasts made by the market research department of a major chemical company

"Tabulated and corrected to coincide with sales manager's expectations"

"Dig a nice big hole for someone else to fall into"

deduct Aldermaston marchers. The figure thus arrived at will give an exact rise in soap consumption, and if sales fall below such a forecast, a TV advertising programme is a swift remedy.

It will be obvious that short-term market research is really rather elementary, and does not require special skill and knowledge.

Long-term market research requires the steadfast consideration of a great number of factors. Here, the task may be twofold. Firstly, the estimation of a future market for a product of one's own company or, alternatively, a competitor's or a foreign associate's product, with a view to working out the capacity of a projected plant. Secondly, a market survey for a newly discovered product not yet manufactured anywhere on a commercial scale.

Chemicals falling in the first of these two categories are sometimes directed towards a definite industry, but more normally they are intermediates. Considering that more than 80% of the chemicals produced in this country are sold to other chemical manufacturers, this is not surprising. In addition, when a chemical is first manufactured, its suggested use is always as an intermediate, in the hope of finding someone who has a research department with spare staff and facilities and is willing to work for someone else's profit.

The first premise of this type of forecasting is that the plant will not come on stream at the time envisaged. In fact, it is an empirical but nevertheless well-proven law that when the plant comes on stream the market has disappeared; and when the market is at the originally estimated level, the plant is having difficulty. This provides an automatic safety margin to the market forecaster.

The procedure to be applied can

follow a stereotyped pattern. Any departure would only lead to embarrassing questions. As the questions that are going to be asked are known beforehand, they may as well be answered in advance. Say that a company wishes to start the manufacture of a really original product or perhaps increase its present capacity.

We collect the facts leading up to justifying the proposal, for such is our brief. Should we come to the unexpected conclusion that the proposal is not a good one, we must never say so—but unearth so many facts and figures, and consider so many eventualities, that either the proposer has forgotten all about it by the time we have finished our report, or the Board is provided with material for committee meetings and discussions for sufficient time to cool down. In any case, we may be sure that someone on the Board has been in the industry for more than three years or has, by a few minutes' consideration and apparently by intuition, already come to the same conclusion as the market researcher. He will, of course, lose no opportunity of "rubbing it in".

Let us take as an example of a product no chemical manufacturer should be without, phthalic anhydride. Phthalic anhydride is used in alkyds, polyesters, plasticisers and, let us never forget, as an intermediate for dyestuffs and pharmaceuticals. Literature search for the latter is not necessary; everything is used for this purpose, and the amount used is established by the difference between the computed figures and the figure first thought of as representing economic production, which we have to justify.

As the U.S. Bureau of Statistics kindly supplies us with very accurate figures of production over there and, as already stated, we are five years behind (corrected for population rate), we can

readily and accurately estimate consumption over the next five years. In addition, published forward production plans in America, where they are far more advanced in market research, shows us the increase anticipated over the following five years, making ten years in all. We ignore, of course, completely unorthodox and unprofessional statements which only confuse the issue, such as the view that there is already 100% overcapacity for this particular product.

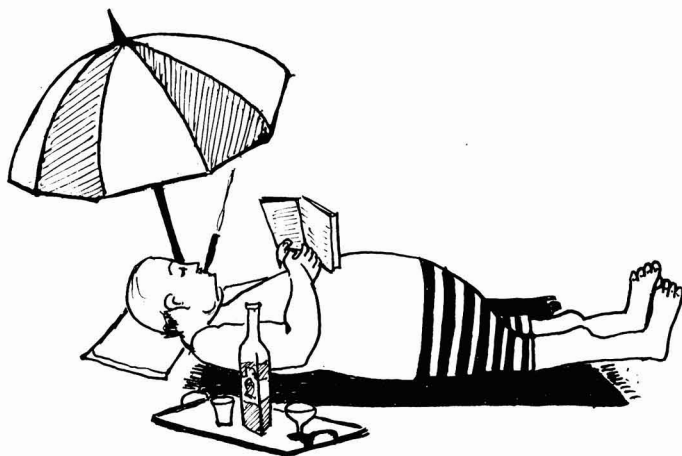
We turn next to the estimation of 'our share' of the market. This means roughly all that is not captive. As the market researcher does not have to go out to sell and, in fact, may not like the sales manager, here is his opportunity to chuckle to himself, get out the old spade and dig a nice big hole for someone else to fall into. In practice the first thing to do is to consult a sample of prospective buyers, hinting that the new phthalic anhydride production will be below market price. The buyer is naturally keen to have yet another supplier to help him spread his business and to enable him to play one against each other. He is, therefore, classified as a friend.

A visit in disguise

Next, we go and see our competitors to get an idea of their productive capacity and competitive position. For this purpose it is wise to don dark glasses and a false beard and to have cards printed with the name of a company in Bulgaria, or preferably the Middle East. The best person to see is the sales manager. He will indicate that although business conditions at the moment are unfavourable, he still manages to sell his total output. Prices are also going to rise in the near future, but that is strictly confidential. We then have a look at his plant. No one has ever seen anything as antiquated and dirty; its efficiency cannot possibly be as stated, and it probably is not.

We now have amply substantiated our figures for an available market and must turn to the raw materials. Naphthalene is in falling production and prices are likely to rise, but *o*-xylene is an alternative and very attractive raw material. Numerous publications show that this will eventually replace naphthalene altogether. The fact that there are no publications referring to a single phthalic anhydride plant anywhere in the world that operates totally on *o*-xylene in an economic fashion is obviously due to secrecy and delay in publication. In case this one is not swallowed, naphthalene can be made and is being made from oil; therefore the raw materials situation is amply covered. These days we must not ignore the possibility of Britain joining the Common Market, and this eventuality must be considered. Of course, Britain has the finest position in coal-derived raw materials and coal-tar naphthalene therefore will always be cheaper and more readily available here.

The Common Market prospect is one that, in any case, must be investigated, and an extended tour of the Continent is essential. We must, of course, do some genuine research before departure; the



"The Common Market prospect . . . must be investigated and an extended tour of the Continent is essential"

address of that little restaurant on the Left Bank, the best hotel in Dusseldorf, and the best route to take if we go by car. (Particularly important is the maxim that the best connection between two points in Europe is not, as is commonly assumed, a straight line but actually runs via the French Riviera and the Swiss Alps.)

Phthalic anhydride is, in fact, as a result of this thorough investigation, a most attractive proposition for any company as a new venture. Profitability is still high, several processes and packaged plants are offered, and the market is widely dispersed and stable. This is borne out by the fact that almost every market researcher has come to the same conclusion simultaneously and the capacity is steadily going up in this country, at the moment. There is also the fact that the falling price will perhaps induce someone to find a really new use for it as an intermediate. Recommended fields of research are ore flotation and fuel additives.

New projects. When market research has to deal with projects of an entirely new character, i.e. a new invention or a new material with a market in its own rights, the approach is so different and the data required so much harder to obtain, that it becomes a function of another department, usually either product development or research, and is staffed with different personnel altogether. Actually the most successful person to do this kind of work has first-hand experience of every type of processing and fabrication industry; he should be allowed to make a guess.

A management risk

The difficulty is that the approach has to be fertile, as compared with the utterly sterile approach of the statistical market researcher. Only too rarely do we come up against the problem of planning the manufacture and introduction of a product not yet produced in any other country—where we cannot lean on any other experience, however irrelevant. The basic principle, which must be accepted is that the operation involves a risk which management must take. The market researcher can only be aimed at reducing this risk.

In turn the market researcher must be aware of the fact that risks involve decisions and that management is naturally reluctant to make these; if the report can be deferred due to a typing error or a missing comma, it will usually suffer that fate. It is, therefore, wise to include a few deliberate errors to allow more time for thinking and to enable a gathering of first reactions. It must also be appreciated that a report is never rejected or deferred due to obscurity of technical language or lack of basic data, as this would involve an admission of ignorance and, *ipso facto*, loss of face by top management.

Such market research requires a thorough understanding of the chemical properties involved, as well as the requirements, i.e. the unsolved problems, of all branches of industry. When a now well-known and well-established man-

made fibre was first projected for production, it was recognised that its future would be largely in the field currently held by wool. The total wool market was therefore estimated and it was decided that 3% of this market could be captured at a price parity. Nothing except experience and ability to make a decision went into this estimate. It proved correct, and expansion from there followed the pattern outlined above. This led to over-production at one time and under-production at others, making the fibre virtually non-profitable to produce.

Another well-known polymer was originally invented with the fanfare of publicity in Germany. Patent rights were sold all over the world on the strength of the outstanding properties attributed to this material. A careful estimate, by each individual licensee, of the market available based purely on statistical evidence, and assuming the total replacement of the more traditional corresponding material led to an impressive production capacity and to a patent situation which proved extremely profitable both to the inventor and generations of patent lawyers. The situation was partially relieved by the unforeseen advent of the hoola-hoop, for which the new resin was indeed the material of choice.

In Parliament

Notification scheme to cover all chemicals

WHEN asked this week to introduce legislation to compel manufacturers of toxic materials to obtain prior approval before marketing them, Mr. C. Soames, Minister of Agriculture, replied that under the existing voluntary notification scheme no toxic chemical could be put on the market until it had been cleared by the Government's Advisory Committee. They were now extending the scheme to require all new chemicals to be notified and not only those which, in the manufacturers' opinion, could constitute a hazard. At the moment he had no plans for making notification compulsory.

First private U.K. radiation processing unit

The first permanent radiation processing plant under private ownership in the U.K. will be used at Slough to sterilise packaged surgical and pharmaceutical materials to exceptionally high standards, stated Mr. Denzil Freeth, Parliamentary Secretary for Science, last week.

Cadmium industry may come under Alkali Act

Asked when cadmium fumes and cadmium installations were to come under the supervision of the Alkali Inspectorate,

It is therefore painfully obvious that there is no set pattern of standard procedure. Markets must not only be estimated by existing potential, but also by future developments in other fields, such as engineering, to see how the new product will fit into existing fabrication equipment, and by new needs that may arise in, say, the building industry and any ultimate field of consumption.

The pioneers of our industry had vision and courage; neither quality can be replaced by market research. Where a project involves pioneering, knowledge and experience in their proper perspective help to reduce any risk and increase profitability. The alternative is an application of market research which will possibly reduce the risk from, say, 50% to 49% and probably the profitability to 5%. In fact, why not wait until somebody else has tried the product out on the market, or, better still, three manufacturers in America have done so, because published statistics would then be available.

It would be a useful and commendable exercise to work out the increase in the detergent market that would result from the re-introduction of market forecasts scribbled on shirtcuffs during Board meetings.

The Parliamentary Secretary to the Ministry of Housing, Mr. Geoffrey Rippon, said that fumes containing cadmium and its compounds emitted from zinc works had been covered by the Act since 1939. Since then a small but important cadmium industry had developed and the Minister was considering the desirability of bringing it formally under the Act.

New Bill gives powers to act on "cruel poisons"

The Animals (Cruel Poisons) Bill, which had its second reading in the Lords last week would give the Home Secretary powers to designate certain poisons as cruel. Any person using such a poison would then be committing an offence; the Bill makes no distinction between wild or domestic animals. Poisons mentioned during the second reading in the House of Lords last week, included red squill and strychnine.

Joint venture for Reckitt and Colman

Reckitt and Colman Holdings Ltd. have formed Magi-Dyes Co. Ltd. with Magi-Dyes Co. Inc., of the U.S. Magi-Dyes Co. will manufacture leather dyeing finishes and plastics and vinyl dyes in countries outside the U.S. and Canada.

A.B.C.M. labelling should be used for dangerous chemicals

THE recent alarming increase in the number of industrial accidents occurring to young people under the age of 18 has led H.M. Chief Inspector of Factories to take the unusual step of publishing an edition of 'Accidents' devoted entirely to accidents occurring in this age group, in the hope that attention will be drawn to the situation. 'Accidents at factories, docks, building operations, and works of engineering construction' is available from H.M.S.O. at 1s 3d.

In the section devoted to accidents in the chemical industry, attention is drawn to the necessity of adequate precautions in the use of dangerous chemicals by the description of an accident which occurred to a 17-year-old girl, who sustained severe burns while handling hydrofluoric acid. The girl—a laboratory assistant in a large factory—was instructed to prepare a solution of 10% sulphuric acid and 1% hydrofluoric acid. She found it was necessary to fill a small cylinder eight times with hydrofluoric acid, which was kept in an unlabelled plastics bottle, in order to complete the operation. Although there was no noticeable spilling, she later experienced tingling in three fingers, and four days later had to have the nails removed.

Apart from the lack of suitable training and supervision of this young person, there were many unsatisfactory aspects of the case. Dangerous chemicals should be handled by responsible persons only. Workers of any age should be fully instructed in the dangers attendant upon the handling of such chemicals and the

precautions that should be taken. Where practicable, less concentrated stock solutions should be used. Protective clothing, together with goggles and visors should be worn as a matter of routine.

On no account should dangerous chemicals be kept in unlabelled bottles. The system of labelling should follow the recommendations of the Association of British Chemical Manufacturers. These give an indication of the dangers involved and the precautionary measures necessary.

A supplement to the publication gives a breakdown of the accidents which were notified to H.M. Inspector of Factories during the quarter ended 30 September 1961. In the chemical industry, 10 people were killed and 2,228 injured.

Glaxo's Teheran factory nears completion

THE largest and most up-to-date pharmaceutical factory in the Middle East, being built by the Glaxo Group in Iran, 12 miles from Teheran, is now nearing completion. The factory is the result of an agreement signed between Allen and Hanburys and the Iranian authorities in 1958. The factory has involved a £1.5 million investment. Manufacturing and power plant, equipment and structural steel have been supplied almost entirely from the U.K.

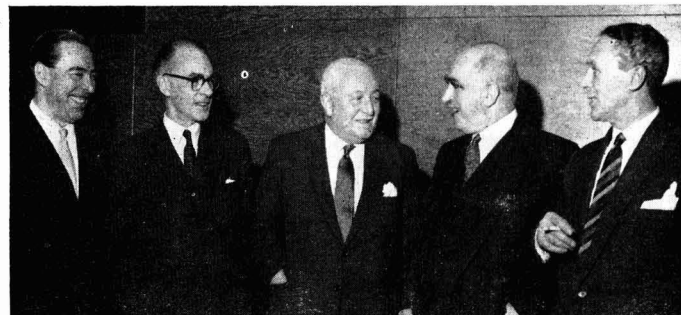
Mr. Peter Hanbury, brother of Allen and Hanburys' chairman, left for Teheran this week to become general manager of the new factory.

CIBA Clayton's annual staff dinner

THE importance to the company of the team spirit particularly in view of the U.K.'s likely entry into the Common Market, was dwelt upon by Mr. G. H. Carnall, managing director of CIBA Clayton Ltd., at the company's staff dinner in Manchester on 2 February. He paid tribute to the company's technical service department which, as revealed

earlier by Mr. J. C. Grundy, chief colourist, had answered over 100,000 technical problems on behalf of customers during the past 10 years, and had given over 300 lectures to learned societies.

Sir Arthur Vere Harvey, chairman of the company, was unable to be present, being abroad on Government business.



At the staff dinner of CIBA Clayton Ltd. in Manchester on 2 February are, l. to r.: H. G. Ashworth (secretary), R. Renwick (commercial manager), G. H. Carnall (managing director), J. G. Grundy (chief colourist) and W. G. B. Grant (director)

Du Pont U.K. labs for isocyanates

THE elastomers research laboratory of Du Pont Co. (U.K.) at Hemel Hempstead is to be expanded to provide technical service and sales research facilities for Hylene organic isocyanates. Last year, the company announced that a large plant to manufacture isocyanates would be built at Londonderry, N. Ireland, with operation to begin in 1963.

According to D. J. B. Coulter, manager of the elastomers research laboratory, the new facilities allow for experimental work over the whole range of application of Du Pont isocyanates in the production of polyurethane foams, elastomers and coatings. Equipment will include machinery for making and slitting foam slab, foam moulding and foam spraying. Extensive facilities for testing foams will also be included. The laboratory addition will also provide technical information and assistance to customers on the use of isocyanates. Close liaison with the Du Pont research and technical laboratories in the U.S. will be maintained.

Building work will start immediately and the laboratory is expected to be in operation by mid-1962.

New farm chemicals from I.C.I.

Two new agricultural chemicals have been announced by I.C.I. One, called Preegone, it is claimed, will eventually change the whole concept of husbandry. It is a weedkiller based on diquat, already known as a potato haulm killer. Tests have shown that in a new formulation diquat can be used to kill weed seedlings before the crop plant has emerged. The compound has been approved by the Ministry of Agriculture, Fisheries and Food.

The second product—not yet fully approved—is an organo-phosphorus compound called menazan. It is sold in two forms, Saphyzon D. P. and saphicol. It is a systemic insecticide which has a high rate of kill on greenfly and allied insects.

MEKP involved in Midlands explosion

DAMAGE estimated at £80,000 was caused and 28 people were injured—six seriously—when a lorry carrying a load of hydrogen peroxide and methyl ethyl ketone peroxide exploded in West Bromwich on Tuesday.

The lorry, which belonged to the Blackburn firm, Jacks Motors, was carrying the load for Laporte Chemicals. The cause of the explosion has not yet been determined.

Will

Mr. Fred Ellison, a director of Yorkshire Tar Distillers and managing director of Killgerron Co. Ltd., Cleckheaton, who died on 18 November, aged 81, left £342,953 net (duty paid £217,623).

Overseas News

NEW MARKETS FOR RARE EARTH OXIDES MAY FOLLOW AGREEMENT

NEW markets for rare earth oxides may be the result of a long-term agreement recently concluded between Molybdenum Corp. of America and the Davison Chemical Division of W. R. Grace and Co. M.C.A. will supply rare earth concentrates made at their Mountain Pass, Calif., plant to Davison, who will refine them into cerium oxide glass polishing compounds.

Cerium oxide is now used as a polishing compound for optical products. It could win a major market, however, if it were accepted by the plate-glass industry. Such acceptance would depend upon the price of the oxide. Davison have not revealed the price of their projected products.

In M.C.A.'s process the ore (bastnasite containing predominantly cerium, lanthanum, neodymium and praseodymium) is concentrated by flotation, leaching and roasting. Davison have not revealed how they will further refine the concentrate nor have they specified the exact polishing compounds they propose to make.

U.S. phenol producers cut prices

Following the recent reduction in benzene prices (see CHEMICAL AGE, last week, p. 205), the price of phenol in the U.S. has been cut by $\frac{1}{2}$ cent a lb. The new prices are 14 cents a lb. for tank cars, 16 cents for carlots and 18 cents for less than carlot quantities. This is the third cut in phenol prices since March 1961.

The price cuts were initiated by Hercules Powder, closely followed by Monsanto. Union Carbide also intend to meet the new prices. Other producers are still studying the situation but say that they will probably remain competitive.

The cut in the price of benzene announced last week was 3 cents a gall, and not 3 cents a lb. as stated.

TEL plant for new Indian company

Next year will see the start of production at plant to be opened by a specially-formed subsidiary of the Indian Commercial Corporation Ltd., of Bombay. The plant, to be built with the technical and financial support of the Soc. Lavorazioni Organiche Inorganiche, Italy, will produce annually some 3,000 tons of tetraethyl lead, 2,050 tons of ethyl chloride, 540 tons of ethylene dibromide and 600 tons of ethylene dichloride. The plant will be the first in India to manufacture tetraethyl lead.

Tokyo Gas to use Lurgi aromatics extraction process

Tokyo Gas Co. are to use the Lurgi process for the separation of pure aromatics in the 160-tonne-a-day plant they are to construct at their Yokohama factory.

This will be the first time the process has been used in Japan. Tokyo Gas expect to complete construction by the end of 1962. The project involves an investment of 340 million yen. DM 200,000 will be paid for technical and design fee and a further DM 300,000 for licensing, including the cost of know-how and technology.

German firm to make Allied Chemical fluorocarbons

An agreement has been concluded between Allied Chemical Corp., New York, and the West German company, Kali-Chemie AG, under which Kali-Chemie may manufacture and market Allied Chemical fluorinated hydrocarbons. The plant for the manufacture of the products, which are sold under the name of Genetron in the U.S., will be built at Bad Wimpfen/Neckar.

I.M.C. stake in world's largest phosphate mine, quit potash association

International Minerals and Chemical Corp. have become a partner in the world's largest high grade phosphate mine operation, near Dakar (Senegal) West Africa. An agreement has been signed between the Banque de Paris et des Pays Bas, representing the French interest who with the Senegalese government own the Compagnie Senegalaise des Phosphates de Taiba.

The mine has an output of 500,000 tons a year and has been in production for more than a year. It is a major factor in the Senegalese government's four-year plan to broaden and develop the economy of the country.

From 1 July, International Minerals and Chemicals will resign from the U.S. Potash Export Association and handle their own overseas sales. The company's new mine at Esterhazy, Saskatchewan, is due in production by the middle of the year with an initial output of 420,000 tons/year. By the beginning of 1963 this will be increased to 1,200,000 tons. Other members of the association are American Potash, National Potash and U.S. Borax.

German terephthalic process for Japanese companies

Henkel and Cie. GmbH, Dusseldorf, have granted licences to the two Japanese companies, Mitsui Petrochemical Industries Ltd., and Mitsubishi Chemical Industries Ltd., both of Tokyo, for the production of terephthalic acid by the Henkel process.

France plans to increase chemical output by 41.7%, exports by 45% and imports by 46%

General aim of France's fourth chemical plan is a production rise of 41.7%, or an average of 9.1% per annum between 1962 and 1965. Production is scheduled to increase as follows: Inorganic chemicals 6.9%; organics, 11.2%; auxiliaries, excluding perfumeries, 6.6%. The industry's expansion will thus be less than during the last four years, when expansion was exceptionally rapid and which was maintained owing to the unexpected rise of the last quarter of 1961. The 1965 aim represents a 5.5% greater increase than for French industry in general.

French chemical exports are to increase by 45% and imports by 46% over the period ending 1965, figures for the target year to be of some Fr.2,623 million and Fr.2,481 million, respectively. Investments will reach an annual rate of Fr.1,570 million by 1965, or 87% above the 1960 figure.

Two chloralkali projects for India

Some 50 million rupees are to be invested in a new caustic soda plant, preliminary work on whose erection has now begun near the Rihand Dam in the

Mirzapore area of India. The project, further details of which are to be announced later, is backed by private capital.

At the same time, caustic soda will be on the production programme of the 60 million-rupee chemical project planned by the Bengal Chemical and Pharmaceutical Works Ltd. and India Alkalies Ltd. in the steel centre of Durgapore. To be built for operation by 1964 and in co-operation with Krebs et Cie., Paris, the unit will also produce 6,600 t.p.a. phenol, 3,300 t.p.a. phthalic anhydride, 990 t.p.a. pentachlorophenol and quantities of chlorine and other organic chemicals.

Linde partner in German oxygen concern

The second parent company of the oxygen concern which has been formed in Germany (see CHEMICAL AGE, 6 January 1962, p. 13), is Gesellschaft für Linde's Eismaschinen-AG. The new company, Hüttensauerstoff, is owned equally by Linde and Hoechst, the latter acting through their subsidiary, Knapsack-Griesheim.

Overseas News

NORTH AMERICA SPENDS TOO MUCH ON OVERCAPACITY, TOO LITTLE ON RESEARCH

SOME North American companies had spent too much in duplicating plants and the creation of redundant profitless capacity, and too little in the exploitation of profitable new inventions. This was stated by Mr. P. W. Blaylock, vice-president of Shawinigan Chemicals Ltd., in an address to the Shawinigan section of the Chemical Institute of Canada.

The number of inventions originating in North America was not in proportion to the large sums being spent on research. Mr. Blaylock said that research and development budgets were too often used for testing, refining and perfecting rather than for work on an inventive or pioneering nature.

Mr. Blaylock suggested that the answer was to find the proper balance between the commercially-oriented company, which put its emphasis on methods, and the scientifically-oriented company which stressed men and ideas, rather than methods.

It was difficult to measure total value of all inventions listed in the name of Shawinigan Chemicals, but three alone had yielded royalties exceeding \$6,300,000. In addition, they had provided a basis for substantial captive operations in the U.S. and Canada.

Italian firm to raise output of boric acid

Larderello of Italy are planning a considerable expansion of capacity of borax and boric acid, utilising a new process which will lead to a big cut in costs. The company's output of boron derivatives has been tripled during the past four years, but the Italian market is ready to receive additional quantities.

In 1955, Larderello's output of chemicals totalled 1,000 tonnes a month. By September 1960 this total reached 2,000 tonnes and by September 1961 as much as 6,500 tonnes.

M.C.A. gives evidence in alkali Anti-trust case

In its investigations of the U.S. alkali industry, a Federal grand jury recently heard evidence from the Manufacturing Chemists' Association. Alleged price-fixing is said to be based on complaints of identical bids submitted in connection with the purchase of chemicals used by local authorities for water treatment.

B.A. Oil to have Canada's first cyclohexane Unit

British American Oil are to have Canada's first cyclohexane plant. Site will be their Montreal East refinery and construction by Foster Wheeler of Canada will start in the spring, with completion scheduled for late-1962. Output will be sold to Du Pont of Canada for nylon production at Maitland, Ont.

New Hungarian process for recovery of ammonia

A new process for the recovery of ammonia from gas liquor without additional heat consumption has been de-

veloped in Hungary. In current practice the use of separate strippers makes the cost of the recovered product greater than that of synthesised ammonia.

With the new process, it is claimed, ammonia is recovered almost without additional expenditure, without any special steam consumption, and the stripping efficiency of the free ammonia approaches that obtained by the steam method. No details of the process are given, but it has already been put into use at the Budapest Gas and Coke works.

Glycerol can increase yield of polycarboxylic compounds

U.S. patent 2,970,164 describes a process for the partial oxidation of hydrocarbons whereby a petroleum wax or an oil from which the aromatic hydrocarbons have been removed is contacted in the liquid phase by free oxygen-containing gas at 200 to 400°F and less than 400 p.s.i.g. in the presence of 5 to 50 vol. % of an aliphatic polyhydric alcohol, e.g., glycerol. The latter increases the yield of polycarboxylic compounds which react with polyhydric alcohol to yield polyester resins.

Reconstituted nylon opens way to new family of 'plastics alloys'

FOR the first time the commercial production of reconstituted nylon from nylon scrap, ends and wastes is to be undertaken. Long Island Plastics Corp., Long Island, N.Y., have announced the development of an exclusive formula and process that permits the reconstituted nylon to be blended with polypropylene.

The reconstituted nylon, developed and perfected over six years at a cost of about \$100,000, is indistinguishable from virgin nylon and in some important respects is superior to any nylon now available, the company claim. Unlike other nylons, it can be chemically pulverised down to micron size and blended with any other plastic to provide more serviceable end products. The result is a custom blended plastic alloy that imparts to any product made from it the additional advantages inherent in nylon. These include improved mouldability, higher tensile strength, increased toughness and durability, and high abrasion- and wear-resistance.

The reconstituted nylon is being made currently from scrap nylon fabrics and waste fibrous stocks, although the process works equally well with solid nylon parts and ends in other than fabric or

Fall in U.S. output and use of pentaerythritol

U.S. pentaerythritol production last year was down by about 3 or 4% from 1960 and 1959, when output in both years exceeded 64 million lb., reports the *Oil, Paint and Drug Reporter*. Consumption was lower by 6%, but these losses are expected to be made up during 1962, since water-thinned paints are not the threat to alkyd resins (the big, single market for pentaerythritol) as is generally assumed.

Inroads made by latexes into paint markets were expected to hit pentaerythritol, but it is estimated that between 10 and 20% of styrene-butadiene and polyvinyl acetate paints on the market today are alkyd-fortified to increase heat resistance and provide greater durability. Growing threats are seen to be imports (notably from Sweden and Japan) and glycerine. Since no other big use is likely to develop in the near future, output is not expected to rise above 65 million to 67 million lb. this year, compared with capacity for 109 million lb.

Holland frees imports of caustic soda

The Dutch Government has informed the secretariat of the G.A.T.T. organisation that it has removed import restrictions on caustic soda.

Laboratory and chemical apparatus and plant, synthetic and colloidal graphite, plastics, synthetic resins and synthetic stones are among items whose import into Austria has been freed of restriction under G.A.T.T.

fibrous forms. At the present time industry generates about 100 million lbs. a year of waste nylon.

The chemical breakthrough came about through the perfection of a chemical formula that is not only compatible with the nylon but permits the waste to be reconverted to the virgin state.

The waste material can be bought for less than 30 cents a pound. By contrast, the current market price of the heaviest denier nylon fibre is about 98 cents per lb., while nylon moulding powder sells for about 98 cents per lb.

U.S. polyester fibre prices equalised

Du Pont have equalised their Dacron polyester fibre, tow and fibre fill prices at \$1.14 a lb. This means that the price of 1½ denier remains unchanged but prices of other deniers have dropped 10 cents. Du Pont believe that a standard price will enlarge the market for the heavier denier products. Celanese and Eastman have already decided to meet Du Pont's new prices and other producers are also expected to do so.

● **Lt.-General Sir John G. Cowley, K.B.E., C.B.**, who retired as Master-General of the Ordnance on 6 February, has been appointed a director of the British Oxygen Co. Ltd. from 9 February. General Cowley, who is 56, was appointed Chief of Staff, Headquarters, Eastern Command, in 1953, and three years later became Vice Quartermaster-General. He moved to the Ministry of Supply in 1957 as Controller of Munitions and in 1960 returned to the War Office as Master-General of the Ordnance.

● **Dr. B. H. Wormsley** has joined Petrocarbon Developments Ltd., 76 Jermyn Street, London, S.W.1, as commercial manager and assistant to **Mr. J. H. Brandler**. Dr. Wormsley, who studied both chemical engineering, under Prof. D. M. Newitt at Imperial College, and economics under Prof. R. S. Edwards at London School of Economics, has many years of practical experience in the contracting and chemical process industries.

● **Mr. D. R. Mackie**, who resigned the managing directorship of Monsanto Chemicals Ltd. in September last, will retire from the board and leave the company at his own request on the occasion of the annual general meeting at the end of March. Mr. Mackie joined the company as a junior salesman in 1924, became general manager of sales in 1950 and was elected to the board in 1952. He became commercial director in 1953 and managing director in 1956.

● Soc. Italiana Resine Gulf (S.I.R.G.) of Milan now have the following directors: **Avv. Blasco Morvillo, Dr. Nino Rovelli, Mr. Oscar Zuccolotto, Mr. John Winteler, Mr. William K. Whiteford, Mr. Alexander Lewis, Jr., and Avv. Nicolo' Pignatelli Aragona**. Previously the company was called Industria Chimica Sarda. Its aim is erection and operation of chemical and mining plants in Sardinia.

● **Mr. Wilfred Clark** has been appointed general works manager of Midland Tar Distillers Ltd., in succession to the late Mr. W. F. Dines. He is taking up his duties forthwith. The position of manager of the refinery division and Four Ashes Works will be taken by **Mr. K. Griffiths**.

● **Mr. Frank Sowerbutts**, regional dyestuffs sales manager for the I.C.I. Birmingham sales office since 1942 has retired. He joined the technical service department of the British Dyestuffs Corporation, later to become the I.C.I. Dyestuffs Division, in 1928.

● Directors of Fisons Ltd. have invited **Mr. H. P. P. Hodgkins**, joint managing director of Howards of Ilford Ltd., to become chairman and managing director of Genatosan Ltd. and a member of the board of Benger Laboratories Ltd. Mr. Hodgkins has accepted this invitation and will be taking up these appointments not later than 1 May. He will succeed **Mr. P. S. Needham** who, at his own request, has resigned from Genatosan and will be leaving at the end of

PEOPLE in the news

March. Mr. Hodgkins became marketing manager of Genatosan in August 1951 and later was appointed a director of that company. In July 1954 he became a director and commercial general manager of Fisons Pest Control Ltd., appointments which he held until October 1956.

● **Dr. Ralph Landau**, executive vice-president of Scientific Design Co. Inc., New York, is on an extended tour of Europe, India and Japan, where he is to confer with leaders in the chemical industry and Government officials. In England and France he met with members of the S.D. Group—S.D. Plants Ltd. in London, and Soc. Française des Services Techniques in Paris. He was guest of honour at a luncheon in Bombay on 6 February, given by Mr. J. P. de Sousa, publisher of *Chemical Age of India*. Dr. Landau is to give four papers in India—'The role of American engineering companies in the chemical process industry'; 'Recent advances in the oxidation of olefins'; 'Intermediates for synthetic fibres'; 'The newer synthetic rubbers'.

● Two directors of Laporte Industries Ltd., who are visiting Australia this month are **Mr. H. E. Farmer**, the company secretary, and **Mr. William Woodhall**, managing director of Laporte Titanium Ltd. Purpose of the visit is to discuss the future development of the titanium oxide plant now under construction at Bunbury, Western Australia, 115 miles south of Perth, and on other matters concerning Laporte progress in Australia. The two Laporte companies in Australia are Laporte Chemicals (Australia) Pty. Ltd., manufacturing

hydrogen peroxide and percompounds at Botany, N.S.W., and Laporte Titanium (Australia) Pty. Ltd., formed last year to operate the £A4 million titanium oxide plant at Bunbury, which is due for completion by the end of 1963.

● Among 200 guests at a dinner held at Wrexham on 1 February given by the directors of Monsanto Chemicals Ltd. were 49 men and one woman, who received awards from **Sir Miles Thomas**, chairman, for 25 years' service. Two hundred and forty men and women have been with the company for a quarter of a century or more, and their combined service totals over 7,500 years. **Mr. J. H. Matthews**, in his fiftieth year with Monsanto, proposed a toast to the company, to which its managing director, **Mr. J. C. Garrels**, replied.

● **Mr. E. A. Bingen**, a deputy chairman of Imperial Chemical Industries Ltd., has been appointed to the board of Remploy Ltd., the non-profit making organisation which employs the severely disabled.

● **Mr. S. R. Hogg**, a chartered accountant, has been appointed a director and chairman of Wm. Butler and Co. (Bristol) Ltd. Mr. Eric W. Butler, the former chairman, will continue as a director. As stated in *CHEMICAL AGE*, 20 January, p. 136, the South Western Gas Board, who already hold a 25% interest in Wm. Butler, are to purchase the remaining 75%.

● **Viscount Knollys** has been elected a director of International Nickel Co. of Canada Ltd. He also becomes a member of the advisory committee of the International Nickel Co. (Mond) Ltd. Lord Knollys is chairman of Vickers Ltd. and of English Steel Corporation Ltd., and a director of Barclays Bank Ltd.

● **Dr. Rolf Sammet** and **Dr. Jürgen Schaafhausen** have been appointed deputy directors of Farbwerke Hoechst AG, Frankfurt-on-Main.

● Five employees of A. Boake Roberts and Co. Ltd., were presented recently with inscribed gold watches to mark the completion of 25 years' service with the firm. The presentation was made by the chairman, **Mr. Bertram White**. Since the first presentation, 10 years ago, 183 watches have been presented; 118 of the employees who received them are still with the firm.



L. to r.: B. White, J. Anglum, L. Siggers, C. Mundy, E. Pople, F. Matthews (back to camera)

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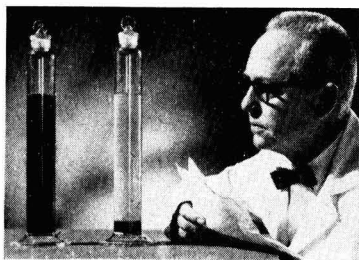
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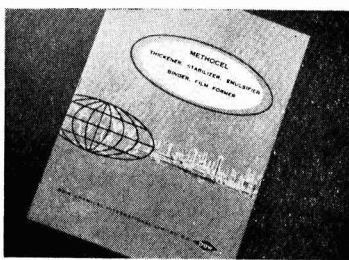
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Commercial News

Allied Chemical

Allied Chemical and Dye Corporation announce for 1961 a net profit of \$47,200,000 or \$2.35/share (\$51,300,000, or \$2.57/share). Net profit in the fourth 1961 quarter was, however, higher than that for the corresponding 1960 period, being \$11,200,000 (\$9,700,000) or 55 cents/share (49 cents).

Anilor

Administrative board of Anilor (Soc. pour la Production d'Aniline et ses Dérivés), a new company with capital of Fr.7 million mainly subscribed by Kuhlmann through their subsidiary Française des Matières Colorantes, has an administrative board representing the Kuhlmann company, Immobilière Chimique (an investment company), the French coal board and Houillères du Bassin de Lorraine. Objective is the production of aniline via catalytic hydrogenation, nitrobenzene, etc. The plant will be located at Karling, Moselle, with production based on coal-tar derivatives.

Aquitaine

Gross turnover for 1961 of Soc. Nationale des Pétroles d'Aquitaine, will total some Fr.500 million (Fr.348 million). Last year production of crude oil amounted to 554,000 tonnes. Production in 1961 at Lacq totalled (in tonnes):

	1961	1960
Propane	45,700	36,800
Sulphur	1,105,000	790,500
Butane	62,875	47,530
Sulphur derivatives	480	347

A total of 731,000 tonnes of sulphur were despatched from Bayonne port—153,000 tonnes to other French ports and 578,000 tonnes to foreign ports. In addition some 199,000 tonnes were sent by rail to French customers.

In the last half of 1961, crude gas extraction from Lacq Profond started at the rate of 20 million cu.m./day. New units to be added here will produce benzene (70,000 tonnes/year); ethylene (20,000 tonnes); cyclohexane (20,000 tonnes); styrene (25,000 tonnes); polystyrene (10,000 tonnes).

Bioquimica

The Portuguese Government has, with the Dutch chemical company Nederlandse Gist- en Spiritusfabriek NV, Delft, formed a company with the name of Soc. Industrial de Bioquimica. The new concern will open a plant in Oporto for the production of antibiotics later this year.

Du Bois-Vestal

Vestal Laboratories Inc., St. Louis, will on 1 March merge with Du Bois Chemicals Inc., New York. The assets of Vestal will be taken over in return for 362,500 Du Bois shares.

Mo Och Domsjö

Production of chemicals by Mo Och Domsjö of Sweden in 1960-61 totalled

- \$4 m. net profit drop for Allied Chemical
- Aquitaine S output at Lacq tops 1m. tonnes
- Turnover, profit rises for Monsanto, U.S.
- S.B.A. results will show small profit in 1961

108,000 tonnes, the same as in the previous year. Wood pulp production totalled 413,000 tonnes (396,000). A boiler for burning sodium sulphite waste liquor, is to be installed at Domsjö, following expansion of the sulphite mill. The Husum sulphate mill has been expanded. The Domsjö alcohol plant is being extended and a new water electrolysis unit was put into operation at the chlorine/caustic plant. Acetaldehyde capacity was expanded considerably. Construction has started at the Stenning-sund plant for ethylene oxide.

Monsanto

Monsanto Chemical Co., St. Louis, in 1961 recorded turnover of \$932,900,000 (\$890,100,000). Net profit, after tax of \$58,300,000 (\$58,800,000), was \$68,280,000 (\$67,800,000) or \$2.44/share (\$2.39).

Pfizer (Taiwan)

Pfizer Pharmaceutical Co. (Taiwan) Ltd. is the name of a new company formed in Nationalist China by Chas. Pfizer, New York. The company is to open a £260,000 pharmaceutical plant at Tamsui, Taiwan.

National Distillers

National Distillers Products Corporation, U.S., recorded last year net profit of \$23,300,000, or 67 cents/share (\$24,400,000 or \$1.81/share). Sales were valued at \$748,100,000 (\$722,300,000). In the last 1961 quarter, net profit was at a relatively higher level, however, reach-

ing \$7,400,000 (\$5,500,000), sales being \$204,400,000 (\$185,800,000).

S.B.A.

Operations last year would show a small profit compared with a loss of BF.33 million in 1960, state Soc. Belge de l'Azote et des Produits Chimiques du Marly (S.B.A.), Liège. To compensate for accumulated losses, the capital stock of BF.650 million is to be reduced by about BF.70 million and will later be increased to BF.712.5 million. It is anticipated that dividend payments—suspended since 1953—will be resumed in 1963.

Union Carbide

Net sales of the Union Carbide Corporation, U.S., in 1961 totalled \$1,563,358,000 (\$1,548,168,000). Earnings were equivalent to \$4.73/share (\$5.25).

Ugine

Soc. d'Electro-Chimie, d'Electro-Métallurgie et des Acières Electriques d'Ugine announce turnover of some Fr.1,040,300,000 for 1961, or about 10% higher than that for 1960.

INCREASES IN CAPITAL

PROGIL, chemical producers, France. Capital is to be increased to NF.60 million by the issue of 320 new shares of Fr.62.50 each.

MOBIL CHIMICA ITALIANA S.p.A. Naples. Capital is to be increased from 1,250 to 4,000 million lire.

Market Reports

MORE ACTIVE ENQUIRIES FOR FERTILISERS

LONDON Home trade demand for industrial chemicals has been steady with no marked expansion in new business reported in any particular section. However, the intake against contracts continues to cover good volumes. The routine soda products are attracting fair attention with sodium sulphide in good request on the advance of 10s/ton in makers' prices, while there has been a steady call for supplies of sodium chlorate and sodium hyposulphite. The prices of a number of solvents have been reduced, and the schedule prices of butyl acetate have been reduced by £10/ton, and of isobutyl acetate 80% by £8/ton (bulk) and by £7 10s (drums).

Reports indicate a more active enquiry for fertiliser materials, and some increase in demand can be expected in the weeks ahead.

MANCHESTER For the most part prices have maintained a steady front.

Following the firming up of the copper sulphate price last week, more price cuts have been announced in the range of industrial solvents, which are meeting with a fair demand. Home outlets for potash, soda and ammonia compounds, as well as for refined glycerine and borax and boric acid, continue to call for reasonably good deliveries. Business in fertilisers has shown a further improvement after the year-end dullness.

SCOTLAND There has been little alteration in market conditions although in some sections of industry a little improvement can be reported. Buying has been mostly centred on immediate requirements with quantities nominal. Prices have been reasonably steady although there have been some changes; reductions in the prices of methyl ethyl ketone, methyl isobutyl ketone and methyl isobutyl carbinol have been welcomed.



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NEW PATENTS

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

ACCEPTANCES

Open to public inspection 14 March

Process for the production of a therapeutic preparation. Blaszcak, J. W. **891 459**
Polyester resins containing phosphorus and process for their manufacture. Farbwerke Hoechst AG. **891 704**
Methane sulphonic acid esters of polyols. National Research Development Corporation. **891 466**
Compositions having redox functions. National Research Development Corporation. **891 467**
Polymers. Minnesota Mining & Manufacturing Co. **891 469**
Condensation products derived from carboxylic acids. Unilever Ltd. **891 470**
γ-Carbolones and process for their manufacture. Ciba Ltd. **891 157**
Benzothiadiazine compounds. Merck & Co. Inc. **891 471**
Process for the production of high molecular weight copolymers. Montecatini. **891 472**
Liquid, surface-active amine salts of organic acid sulphates and their preparation. Chemische Fabrik Andron N.C. **891 631**
Process for the manufacture of water-soluble dyestuffs containing propionyl radicals. Farbwerke Hoechst AG. **891 248**
Thiamorpholines. Belleau, B. **891 477**
Transparent polyethylene films and method for production thereof. Phillips Petroleum Co. **891 651**
Process for the manufacture of fibres or filament of cellulose triacetate. Celanese Corp. of America. **891 250**
Production of acetylene. Buss AG. **891 168**
Steroid compounds and their preparation. Merck & Co. Inc. **891 594**
Steroid compounds and a process for their manufacture. Schering AG. **891 595**
Method of producing chlorinated silane. Licentia Patent-Verwaltungs-GmbH. **891 532**
Manufacture of manganese carbonyl. Ethyl Corp. **891 596**
Pigment dyestuffs derived from urea and process for their manufacture. Ciba Ltd. **891 231**
Isocyanatoaryl esters and amides of phosphoric and thiophosphoric acids. Farbenfabriken Bayer AG. **891 654**
Coating and adhesive compositions comprising polyisocyanato-aryl esters and amides of phosphoric and thiophosphoric acids. Farbenfabriken Bayer AG. **891 655**
Tertiary amine salts and a method of setting hair with them. Soc. Monsavon-Oreal. **891 600**
Aromatic diamines. Imperial Chemical Industries Ltd. **891 234**
Process for the production of plastics. Farbenfabriken Bayer AG. **891 656**
Water-soluble pyrimidinylamino dyestuffs and processes for dyeing therewith. Imperial Chemical Industries Ltd., Heslop, R. N., Price, R., and Poole, V. D. **891 601**
Method for the production of 6-amino-penicillanic acid. Abildgaard, K. [trading as Lovens Kemiske Fabrik Ved A. Kongsted.] **891 173**
Carbonisation of coal. Nehezgyepari Kutató Intezet. **891 343**
Hydrogenation of aromatic nitriles. California Research Corp. **891 176**
Manufacture of olefinically unsaturated compounds. Farbwerke Hoechst AG. **891 178**
Curing vinylidene fluoride hexafluoropropene copolymers. Du Pont de Nemours & Co., E. I. **891 546**

Penicillins. Abildgaard, K. [trading as Lovens Kemiske Fabrik Ved A. Kongsted.] **891 174**
Process for carbon dioxide absorption. Fluor Corp. **891 551**
Organic sulphur halogen compounds. Imperial Chemical Industries Ltd. **891 552**
Tris-(dialkylaminoalkyl) phosphates and a method for their preparation. Smith Kline & French Laboratories. **891 413**
Process for preparing a synthetic resin for use as an anion-exchanger. Cerny, J., and Wichterle, O. **891 504**
Process for the manufacture of 4-hydrazinouracil. Imperial Chemical Industries Ltd. **891 553**
Process for the production of nitriles. Shell Internationale Research Maatschappij N.V. **891 420**
Method of manufacturing synthetic fibres of polyvinyl alcohol. Kurashiki Rayon Kabushiki Kaisha. **891 557**
Stabilisation of halo-hydrocarbons. Columbia Southern Chemical Corp. **891 242**
Process for extracting sulphur dioxide from gas which contains it. Nobel-Bozel. **891 422**
Esters of the yohimbane series and process for their manufacture. Ciba Ltd. **891 674**
Method of producing phenol having a high degree of purity. Phenolchemie GmbH. **891 561**
Process for the production of granular ammonium nitrate. Soc. Belge de l'Azote et des Produits Chimiques du Marly. **891 562**
System for the multi-stage hydrotreating of hydrocarbon oils. Shell Internationale Research Maatschappij N.V. **891 565**
Polymerisation of vinyl compounds. Grace & Co., W. R. **891 566**
Vucanisable organopolysiloxane compositions. Dow Corning Corp. **891 199**
Production of chloroalkyl esters of acrylic acid and its substitution products. Badische Anilin- & Soda-Fabrik AG. [Addition to 886 649.] **891 638**
Process for the production of water-insoluble nitrogenous polymers. Cassella Farbwerke Mainkur AG. **891 268**
Fluorinated carbamates. Abbott Laboratories. **891 567**
Production of water-soluble quaternary ammonium salts of monoazo dyestuffs. Badische Anilin- & Soda-Fabrik AG. **891 515**
20α Yohimbane compounds and their preparation. Laboratoires Francais de Chimiotherapie. **891 516**
Process for preparing thermoplastic (e.g. polyethylene) film. Phillips Petroleum Co. **891 652**
Glycolic acid esters of N-substituted-2-pyridylcarbinols. Lakeside Laboratories, Inc. **891 569**
Process for the preparation of normally gaseous olefins. Shell Internationale Research Maatschappij N.V. **891 271**
Process and apparatus for carrying out chemical reactions by means of a molten salt. Shell Internationale Research Maatschappij N.V. **891 272**
Composition containing diallylidene pentaerythritol. Hercules Powder Co. **891 206**
Composition containing bis(3-methoxypropylene)-pentaerythritol. Hercules Powder Co. **891 441**
Biguanides and process for their manufacture. Ciba Ltd. **891 443**
Process for the manufacture of esters of diandiol-terephthalic acid. Ciba Ltd. **891 640**
Production of polyethylene and catalyst therefor. Grace & Co., W. R. **891 575**
Production of expandable polyamides. Badische Anilin- & Soda-Fabrik AG. [Addition to 858 105.] **891 579**
Pharmaceutical compositions comprising sulphonamidothiadiazole derivatives. Horner Ltd., Frank W. **891 445**
Terpene containing polymers. Kendall Co. **891 642**
Production of free-flowing anhydrous sodium sulphate. Badische Anilin- & Soda-Fabrik AG. **891 580**
Pressure-sensitive adhesives. Kendall Co. **891 643**
Process for the production of mono-percarboxylic acids from acid anhydrides and hydrogen peroxide. Deutsche Gold-Und Silber-Schneidanstalt Vorm. Roessler. **891 211**
Isolation of chlorinated polymers of ethylene and articles formed from chlorinated polymers of ethylene. Du Pont de Nemours & Co., E. I. **891 450**

Production of cast films from polyvinyl chloride or vinyl chloride copolymers. Badische Anilin- & Soda-Fabrik AG. **891 218**
Process for the manufacture of potassium fluoride, hydrogen fluoride and silica from potassium fluorosilicate. Fertilisers & Chemicals Ltd., Stern, G., and Harel, S. **891 276**
Polymerisation of olefins. Montecatini und Ziegler, K. **891 646**
Herbicide compositions. Columbia-Southern Chemical Corp. **891 649**
Method for preparation of the solutions of acrylonitrile polymers. Toho Rayon Kabushiki Kaisha. **891 284**
Process for the catalytic desulphurisation of hydrocarbon oils. Shell Internationale Research Maatschappij N.V. **891 382**
Thiamorpholines. Belleau, B. [Divided out of 891 477.] **891 478**
Steroids. Olin Mathieson Chemical Corp. **829 632**
5-Benzene-sulphonamido-1-phenyl pyrazole derivatives. Farbenfabriken Bayer AG. **865 341**

DIARY DATES

MONDAY 12 FEBRUARY

C.S.—Birmingham: Chemistry Department, The University, 4.30 p.m. 'Calabash—curare alkaloids' by Prof. H. Schmid.
C.S.—Durham: Science Labs., The University, 5 p.m. 'Polymer formation and stability' by Prof. F. S. Dainton.
C.S.—Oxford: The Inorganic Chemistry Lab., 8.30 p.m. 'Stereochemistry in reactions of cyclic compounds' by Prof. H. B. Henbest.

TUESDAY 13 FEBRUARY

C.S.—Bristol: The Chemistry Department, The University, 5.15 p.m. 'Stereochemistry in the reactions of cyclic compounds' by Prof. H. B. Henbest.
C.S.—Hull: Chemistry Department, The University, 5 p.m. 'Some problems in phosphorus chemistry' by Dr. F. H. Pollard.
C.S.—Newcastle upon Tyne: The Chemistry Department, King's College, 5.30 p.m. 'Alkaloid biosynthesis' by Dr. A. R. Battersby.
C.S.—Nottingham: The Chem. Dept., The University, 5 p.m. 'Calabash—curare alkaloids' by Prof. H. Schmid.
Plas. Inst.—Glasgow: Kenilworth Hotel, 7.30 p.m. 'Rubber-based adhesives' by A. L. Wragge.
R.I.C.—London: Sir John Cass College, Jewry St., E.C.3, 7 p.m. 'Metal-metal bonds in inorganic chemistry' by Prof. R. S. Nyholm.
S.C.I.—London: 14, Belgrave Sq., S.W.1, 6.30 p.m. 'The new elastomers' by E. W. Madge.

WEDNESDAY 14 FEBRUARY

C.S.—Portsmouth: College of Technology, 7 p.m. 'Liquefied gases' by Dr. S. A. Miller.
C.S.—Reading: Large Chemistry Lecture Theatre, The University, 6 p.m. 'Free radical polymerisation in the solid state' by Dr. C. H. Bamford.
Plas. Inst.—Cardiff: Angel Hotel, 7 p.m. 'Some aspects of processing rigid polythene'.
S.A.C.—Birmingham 15: The University, 6.30 p.m. 'Automatic methods in the analytical laboratory' by Dr. I. D. P. Wootton & Dr. G. Mattock.

THURSDAY 15 FEBRUARY

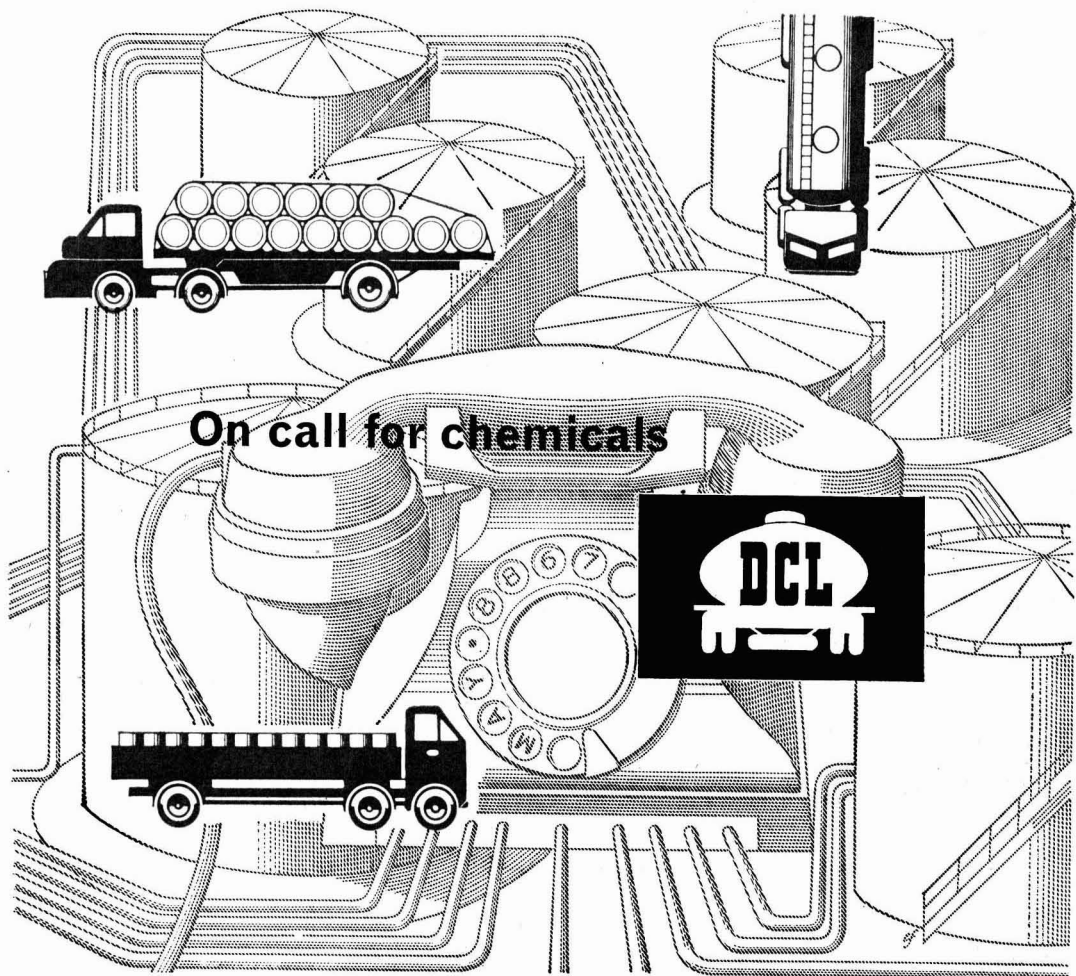
C.S.—London: Large Chemistry Lecture Theatre, Imperial College of Science & Technology, South Kensington, S.W.7, 7.30 p.m. 'Calabash—curare alkaloids' by Prof. H. Schmid.
C.S.—Southampton: Institute of Education, The University, 5 p.m. 'Resonance—alive or dead' by Prof. C. A. Coulson.

FRIDAY 16 FEBRUARY

C.S.—Cambridge: The University Chemical Lab., Lewisfield Rd., 8.30 p.m. 'New fluorine compounds in nature; their biochemical & pathological effects' by Sir Rudolph Peters.
C.S.—Glasgow: Chemistry Department, The University, 4 p.m. 'Atomic orbitals in molecules' by Prof. D. P. Craig.
Plas. Inst.—Birmingham 3: James Watt Memorial Institute, Gt. Charles St., 6.30 p.m. 'Die castings are preferred to plastics' by M. W. Parnham, H. J. Sharp, R. Mather, H. W. Fairburn & L. A. J. Lodder.

Monsanto Chemicals Ltd.

Monsanto Chemicals Ltd. are not a wholly-owned subsidiary of Monsanto Chemical Co., St. Louis, as stated in C.A., 27 January, p. 175. The U.S. company's holding is of 66½%. Monsanto Chemical's holding in Sicedison Milan, is 40%, not 50%.



The service organisation behind the 200,000 ton annual production of DCL Bisol solvents, intermediates and plasticisers is as modern and efficient as the factories producing them. Delivery from a nation-wide network of supply depots is fast and dependable, and the well equipped Technical Services Laboratories are always ready to help customers with their manufacturing problems.

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Plant engineers seek adhesive for high-temperature work

FOR some time a British firm that manufactures drying equipment for the chemical and pharmaceutical industries has been seeking a suitable adhesive with a wide range of properties. So far this search has been unsuccessful. Readers who feel they know of an adhesive that would meet the stringent requirements listed below are requested to send details to the Manager, CHEMICAL AGE, 154 Fleet Street, London E.C.4.

For construction purposes, the adhesive sought should be capable of withstanding a temperature of 450° continuously, or withstand cyclic heating and cooling without reduction in bond strength.

The adhesive should be capable of effecting bonding combinations of the following materials:

Sheet steel, galvanised sheet steel, sheet aluminium; asbestos cement board; foam glass and similar cellular materials; glass fibre, Rockwool, etc.

Preferably, the adhesive should be:

- Cold setting.
- Applied directly to one or both surfaces without prior mixing.
- Capable of forming a bond with little or no joint pressure.
- Capable of filling small gaps in slightly irregular surfaces.

The company has failed to find any

adhesive which would fulfil all these requirements and only a few which would fulfil some; they were so expensive as to be commercially unacceptable.

Saran fabrics to be promoted in U.K.

Dow Chemical Co. are to promote sales of fabrics incorporating Saran monofilament in the U.K. The fabrics are intended mainly for out-of-doors furniture. Saran is Dow's trade name for vinylidene chloride copolymers.

Oil and colour technical exhibition

THE official guide to the 1962 14th Technical Exhibition of the Oil and Colour Chemists' Association is now available. The exhibition, to be held on 26 February to 1 March, is the largest yet staged and will occupy both the Old and the New Halls of the Royal Horticultural Society. The theme will be the presentation of technical advances in those industries supplying the paint, varnish, printing ink, linoleum and other allied industries.

Further information and copies of the official guide may be obtained from the General Secretary, Wax Chandlers' Hall, Gresham Street, London, E.C.2.

Change in base year of production index

BASE year for the production index of Central Statistical Office has been changed from 1954 to 1958. The index now takes account of the detailed results obtained from the full census of production of 1958.

Although the change has made no significant difference to the general picture of the trend of U.K. industrial

output, there are slight variations for some industries due to differences of weighting and to the use of improved series. A detailed account of the changes will be published in the March issue of *Economic Trends*.

The following table shows the differences caused by the change so far as the chemical industry is concerned:

Index of industrial production

	1959		1960		1961*	
	Old	New	Old	New	Old	New
Manufacturing industries ...	107	106	115	115	118	117
Chemicals and allied industries ...	114	111	126	123	132	127

* First half of year.

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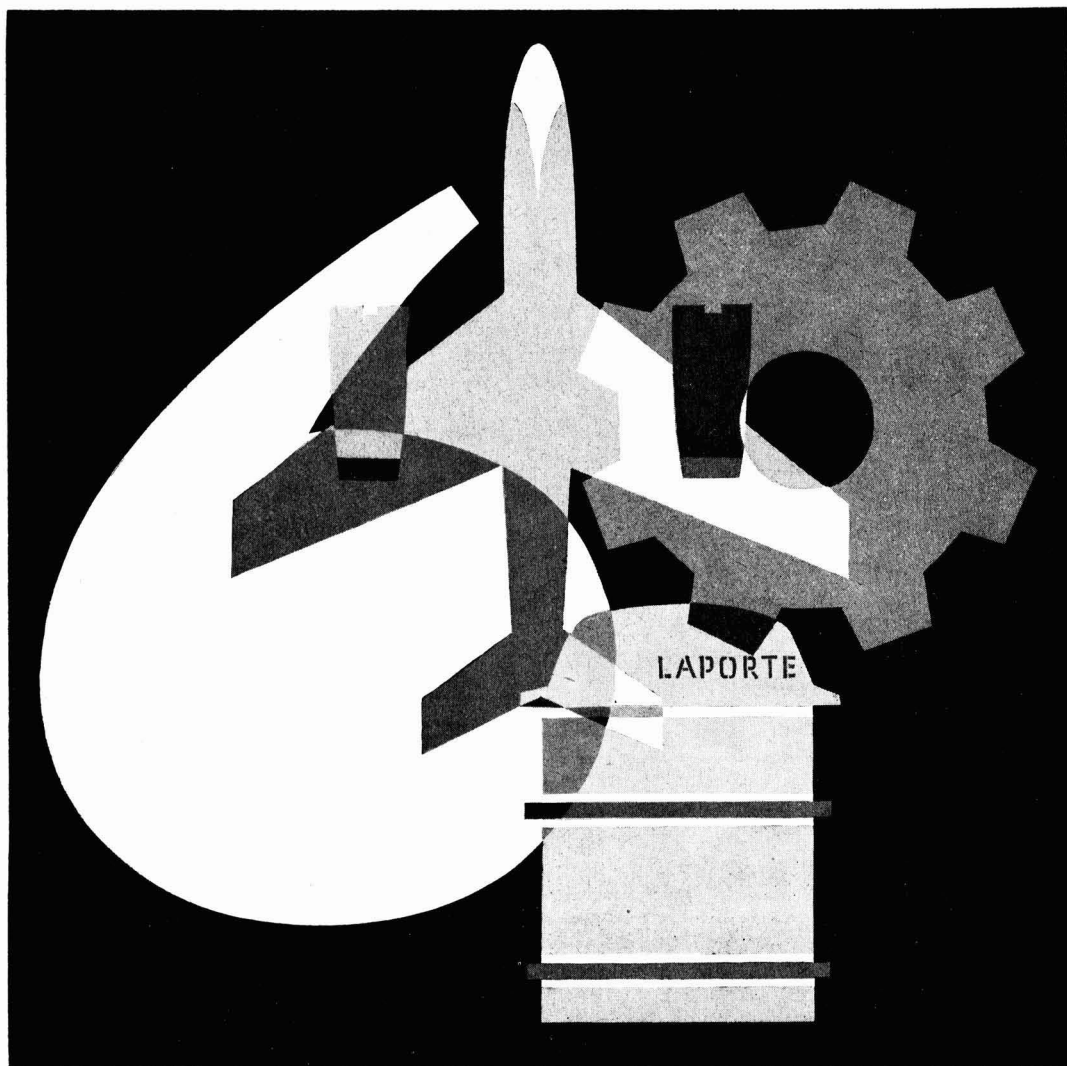
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TRADE NOTES

Synthesis intermediate

Robinson Brothers Ltd., Ryders Green, West Bromwich, have issued a 16-page technical bulletin giving data on N-methylbenzylamine, chief use of which is in chemical synthesis, for introducing a methylamine grouping. The N-benzyl-methylamino group is first added and the benzyl group is then removed by hydrogenolysis. One example of a drug made by this reaction is phenyl ephrin.

P.v.c. colouring pigment

The Vynamon range of pigments marketed by the Dyestuffs Division of I.C.I., for use in the coloration of vinyl resins by mass pigmentation, is strengthened by the introduction of a new red of attractive shade and high strength, Vynamon Claret YS. Samples and full technical data on the pigment's properties and use are available from the Division.

Micron silver

A new silver powder, micron silver CS 2, supplements flake silvers produced by Johnson, Matthey and Co. Ltd., 73-83 Hatton Garden, London E.C.1, and used primarily in metallising preparations. Applied in conjunction with flake silver it provides thick, extremely dense deposits and its small size renders

it particularly suitable for spray-gun application. It is expected that other uses will be developed for this new material.

The new powder is supplied dispersed in kerosene as a wet cake, and is remarkable in that it consists of extremely small discrete spherical particles that can be very readily dispersed in organic media.

Revertex products

Products described in technical bulletins issued by Revertex Ltd., 51-55 Strand, London W.C.2, include: Revacryl 1A, which are aqueous emulsions of copolymers of acrylic and/or methacrylic esters; Emultex Beta 853, a vinyl acetate/maleic copolymer emulsion; and Reversol A/MV and Reversol N, aqueous solutions of acrylic acid and acrylamide polymers. All these have uses in surface coatings, etc.

Heat exchanger agreement

Daniels (B.B.A.) Ltd. of 62/63 Fenchurch Street, London, specialists in heat exchanger and steam accumulator design, have announced an agreement with AB Rosenblads Patentor of Stockholm by which the BBA/Rosenblads plate-type heat exchanger will be built in Britain by T. H. and J. Daniels Ltd., Stroud, Glos. For some time Daniels (B.B.A.) Ltd. have been Rosenblads' U.K. representatives for this type of equipment but

it has hitherto been imported complete from Sweden.

Laporte telephone number

New telephone number of the head office of Laporte Industries Ltd., Hanover Square, London W.1, is Mayfair 6603 and not Mayfair 6003 as stated in C.A., 27 January, p. 182.

New Interkey catalogue

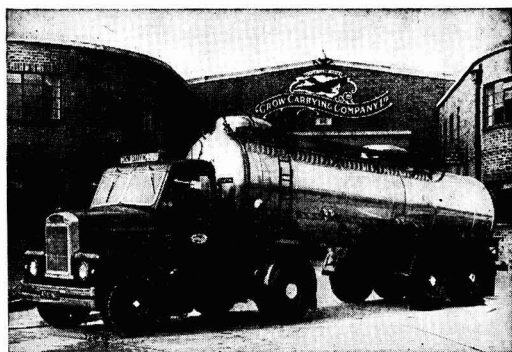
G. Springham and Co. Ltd., Harlow New Town, Essex, have issued an enlarged catalogue of their Interkey stop-cocks and apparatus. Springham have also introduced p.t.f.e. Interkeys, a leaflet on which is available. As with the glass apparatus, all keys are fully interchangeable.

Distillers price cuts

Price cuts effective on despatches on or after 5 February have been announced by the Distillers Co. Ltd., for butyl acetate and isobutyl acetate 80%. The new butyl acetate prices are £10 a ton off schedule prices, and those of isobutyl acetate 80% are cut by £8 a ton.

Transparent epoxy resins

A new series of transparent, almost water white epoxy resins known as Stycast 1263 and Stycast 1264, manufactured by Emerson and Cuming, U.S., are now available in the U.K. from the Electronics Division of Microcell Ltd., a subsidiary of B.T.R. Industries Ltd., Herga House, Vincent Square, London S.W.1. Adhesion is said to be exceptional.



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THE INSTITUTION OF CHEMICAL ENGINEERS 38th (1962) Examination

Examination Centres have been arranged in the United Kingdom, Holland, Canada, U.S.A., India, Pakistan, Ceylon, South Africa, Australia and New Zealand and may be arranged in other countries.

The Examination for Parts 1 and 2 will be held on September 4th, 5th, 6th and 7th and for Part 3 during October and November. Entrance Forms may be obtained from the Assistant Registrar (E), The Institution of Chemical Engineers, 16 Belgrave Square, London, S.W.1. The last date for receipt of completed entries for Parts 1 and 2 is June 1st, 1962.

MISCELLANEOUS

AS AN ADVERTISER YOU ARE READING THIS TO SEE WHAT OTHERS ARE ADVERTISING. As a proprietor of this journal, I hope you are a satisfied advertiser. If so, please give a thought to those advertising men and women less lucky than yourself, and send me, as President of the National Advertising Benevolent Society, a contribution for my 1961/62 Appeal. Any amount, however small, will be most welcome. Please state whether you would like the money to go to the General Benevolent Fund, now caring for 233 adults, the Education Fund, paying for 65 children, or the new Elderly People's Homes project, or whether you prefer to leave it to my discretion.—Glanvill Benn, 154 Fleet Street, London, E.C.4.

PUBLIC APPOINTMENTS

EXPERIMENTAL OFFICER (unestablished) required by R.O.F. BRIDGWATER, SOM., for plant control work on ACIDS and EXPLOSIVES, also some development work. Min. age 26. Salary £1,087-£1,336. Qualifications Pass Degree (Science) H.N.C. (Chemistry) or equivalent. Experience of gas chromatography and infra-red spectrometry advantageous. Forms from Ministry of Labour, Technical and Scientific Register (K), 28 King Street, London, S.W.1, quoting F25/2A.

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Within an expanding organisation employing at present over twenty chemical personnel, a vacancy has arisen for a Senior Water Chemist.

Applications are invited from persons of suitable qualifications with experience of Water analysis and treatment. The post offers considerable scope for a person with initiative and ability. Modern analytical instrumentation available within combined central laboratory organisation.

Commencing salary within the range £1,310-£1,480 dependent upon qualifications and experience.

Application forms obtainable from and returnable to: City Analyst, Shortley Road, Coventry, preferably not later than one fortnight after the date of this advertisement.

PATENTS & TRADE MARKS

The proprietor of British Patent No. 661470, entitled "Apparatus for effecting self-regulated partial condensation of condensable vapours", offers same for license or otherwise to ensure practical working in Great Britain. Inquiries to Singer, Stern & Carlberg, 140 So. Dearborn Street, Chicago 3, Illinois, U.S.A.

The proprietor of British Patent No. 803123, entitled "Starch Product", offers same for license or otherwise to ensure practical working in Great Britain. Inquiries to Singer, Stern & Carlberg, 140 So. Dearborn Street, Chicago 3, Illinois, U.S.A.

The proprietor of British Patent No. 646916, entitled "Improvements in or relating to sulphur", offers same for license or otherwise to ensure practical working in Great Britain. Inquiries to Singer, Stern & Carlberg, 140 So. Dearborn Street, Chicago 3, Illinois, U.S.A.

The Proprietors of British Patent No. 718,413 for "Improvements in and Relating to the Continuous Distillation of Tars" desire to enter into negotiations with a firm or firms for the sale of the Patent or for the grant of Licences thereunder. Further particulars may be obtained from Marks & Clerk, 57-58, Lincoln's Inn Fields, London, W.C.2.

SITUATIONS VACANT

Applications are invited for the post of Chemical Engineer with a small Research Company engaged in the examination of coal carbonisation and its by-products. Previous industrial experience in pilot plant work and full-scale design essential. Age group 30-40. The applicant will be expected to live in the Midlands area. A superannuation scheme is in operation and as the Research Company is associated with an expanding organisation there are excellent prospects of future advancement. Box No. 3776.

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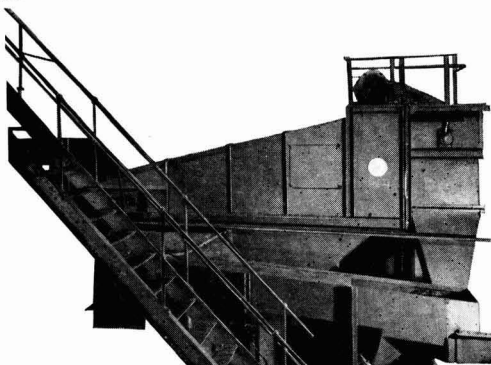
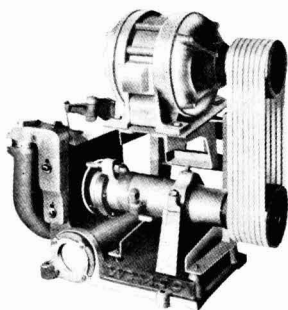
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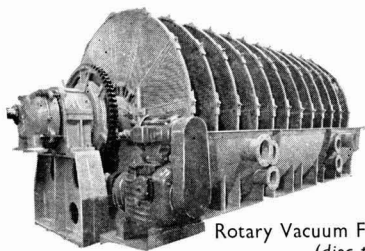
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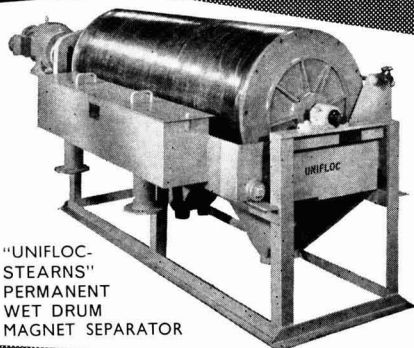
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