Chemical Age

incorporating
PETROCHEMICALS and POLYMERS

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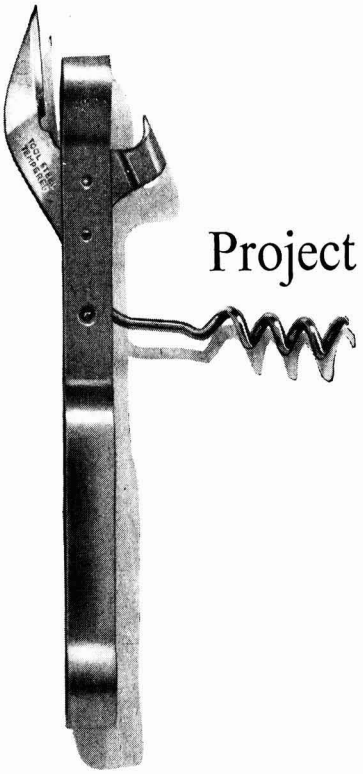
THE WEEKLY NEWSPAPER OF THE CHEMICAL INDUSTRY



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INDEX TO ADVERTISERS

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

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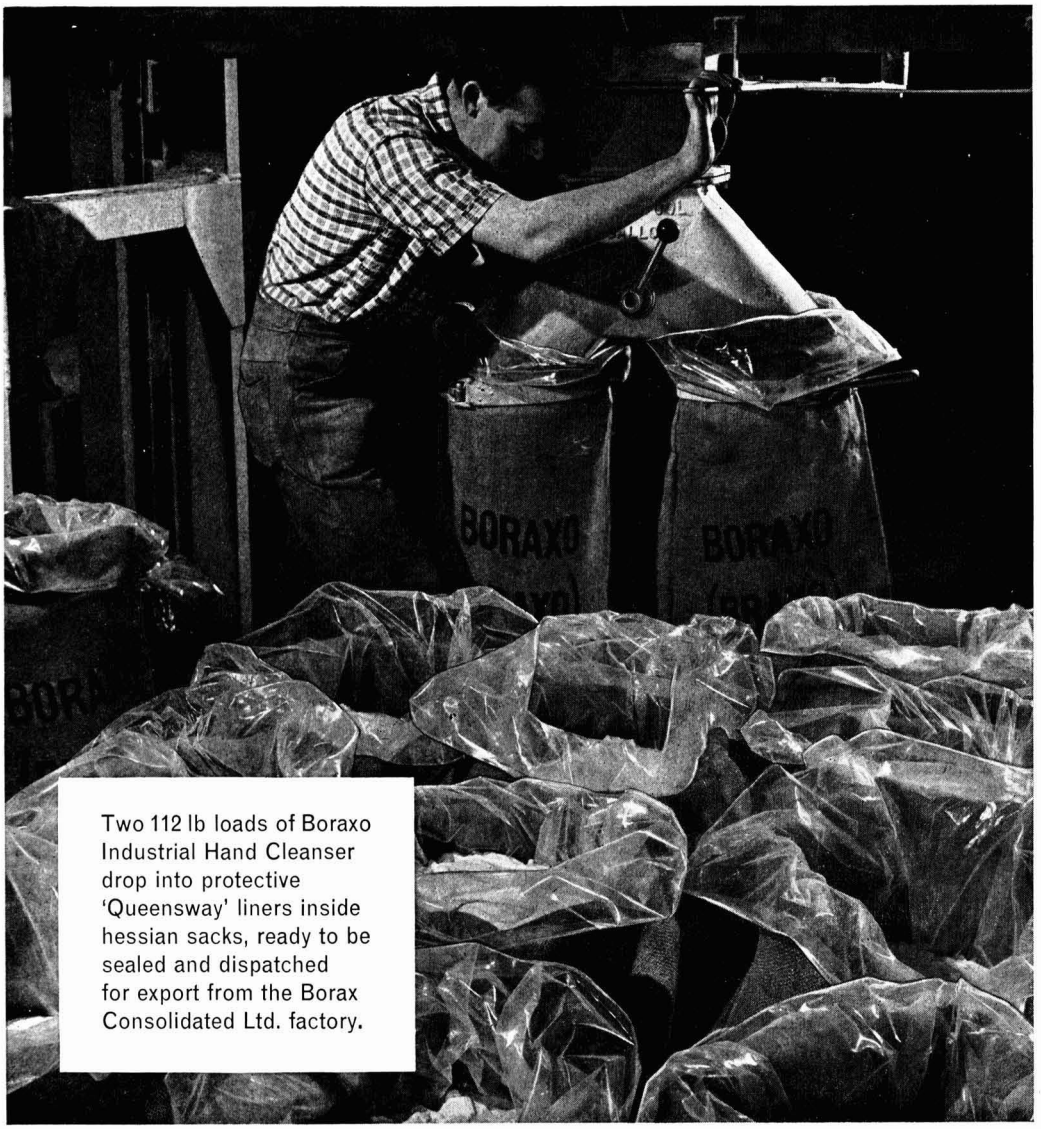

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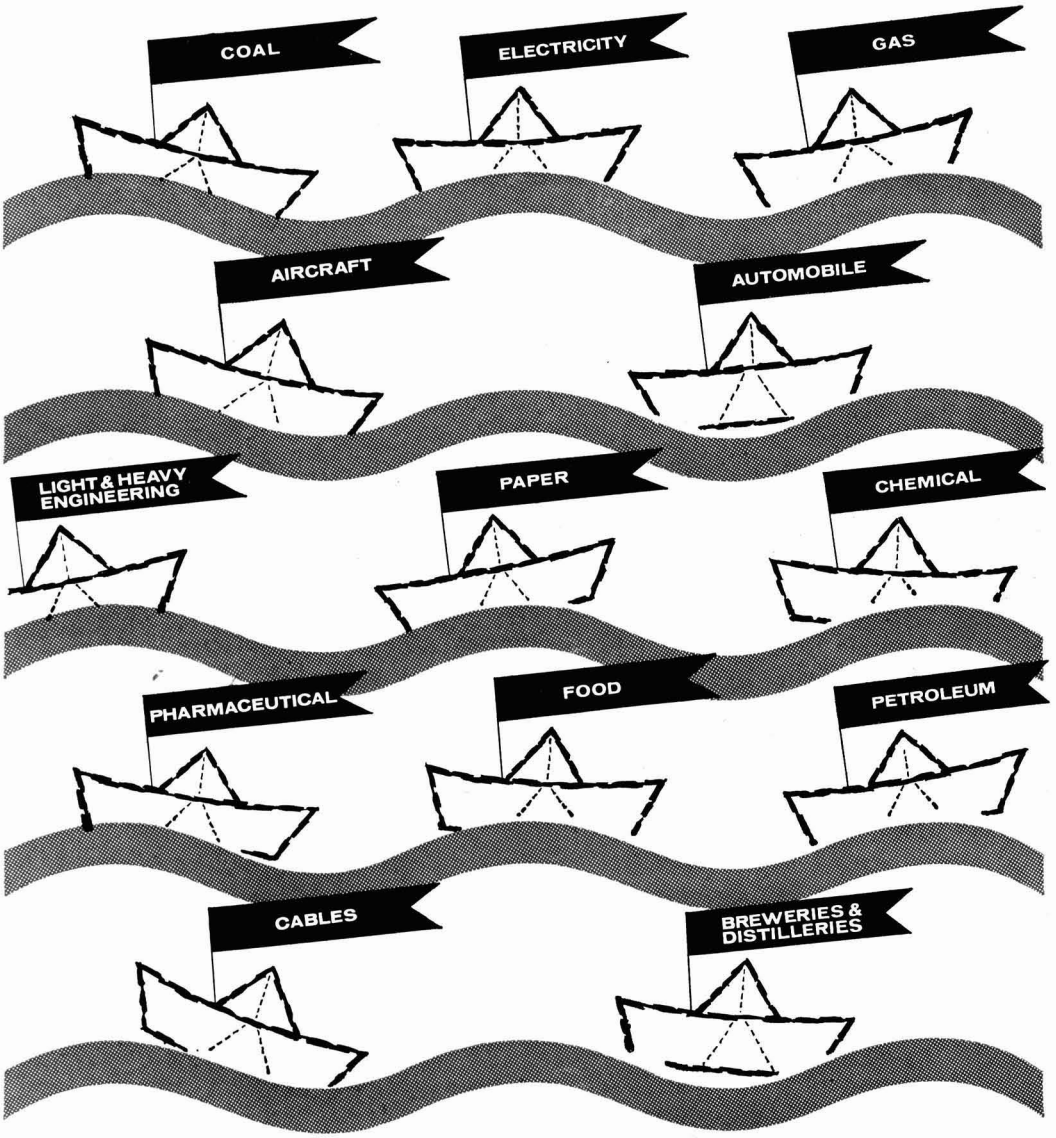

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IN THIS ISSUE

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Chemical Age
incorporating
PETROCHEMICALS and POLYMERS

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COLLECTIVE CAPITALISATION

BRITISH science and technology has always been in the forefront in inventiveness. Unfortunately many new ideas that have stemmed from British skill have been commercially developed in other countries, often due to lack of finance.

This is particularly true of discoveries or advances initiated in the universities or Government research stations. To take such technical developments from the research stage into commercial production often involves larger amounts of capital and greater risks that private investors are able or willing to take independently.

In the past much useful work has been done by the National Research Development Corporation in bringing new inventions and processes to the attention of possible potential developers, but, of course, it was never the task of N.R.D.C. to provide what might be termed 'risk capital'. The Radcliffe Committee suggested that an Industrial Guarantee Corporation should be set up with Government backing to ensure that the benefits of inventions should not be lost to the country because of lack of funds on the part of the inventor.

In the spring of last year, impressed by the rapid expansion of insurance funds, Sir John Benn suggested that Life Offices should form such an organisations themselves without imposing further liability on the public purse. Sir John thought that objections which could be made if an insurance company were to engage in risk-taking investment independently could, be overcome by what is termed "a bold venture in collective capitalism".

After months of negotiation and a careful study of a similar organisation in the U.S.—the American Research Development Corporation—the new company, Technical Development Capital Ltd., has been set up in London. Main object of the new company is to help inventors and small promoters of new ideas and developments.

Close liaison will be maintained with N.R.D.C., who welcome the new venture, but T.D.C. will be entirely indepedent and their projects will mostly come from other sources. There will be a working arrangement with the Industrial and Commercial Finance Corporation which will afford the new company the benefit of its specialised services and know-how.

Since basic research is already well provided for, T.D.C. will not normally investigate projects in their initial or research stages. The company will usually come in at the stage of producing a full size plant or process, making the product on a commercial scale and getting it on to the market. Success of such a venture will largely depend on the initial selection of projects and in this respect, T.D.C. have been fortunate in securing the services of a full-time technical director with considerable experience of industry. He is Mr. E. Hawthorne who was formerly managing director of Hawker Siddeley Nuclear Power Co. Ltd. Mr. Richard Morgan will be commercial executive and I.C.F.C. will act as secretaries.

What was conceived as mainly an insurance venture has widened to include merchant banks and other financial institutions in the City. So far 33 subscribers have agreed to take up shares in T.D.C., who open their

(Continued on page 128)

I.C.I. TO GO AHEAD WITH MERGER

I.C.I. announced as "Chemical Age" went to press, late on Wednesday evening, that they are going ahead with plans for a complete merger with Courtaulds. They have increased their offer to four I.C.I. shares for five Courtaulds' shares.

Courtaulds had announced earlier in the day that it had proved impossible to conclude any proposals that were acceptable to both sides. In view of this I.C.I. now intend to go straight to Courtauld's shareholders.

As previously announced in "Chemical Age" (23 December 1961), the main objective of the I.C.I. move is the consolidation of the U.K. man-made fibre industry.

U.K. chemical industry spending approaches record level

UNLESS a decline is later revealed for the fourth quarter, fixed capital spending in the chemicals and allied industries in 1961 will top the record levels of 1958. Past experience has shown that capital spending in the last quarter of the year is usually higher than in previous periods.

For the third quarter of 1961, capital spending in the U.K. chemicals and allied industries totalled £50.1 million, making £143.7 million for the first nine months. This compares with nine months totals for 1960, 1959 and 1958 of £112.9 million, £121.1 million and £143.4 million, respectively.

The following is an extract of Board of Trade statistics, giving revised estimates for the third quarter of 1961:

In £million

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Year
1958 ...	48.7	48.4	46.3	53.6	197.0
1959 ...	44.5	42.7	33.9	43.1	164.2
1960 ...	37.5	37.1	38.3	43.8	156.7
1961 ...	44.2	49.4	50.1		

Pfaudler bid for Henry Balfour Group

DIRECTORS of Henry Balfour and Co. Ltd. are to recommend a £1.56 million cash offer for the share capital of their company made by Pfaudler Permutit, U.S. Balfour and Pfaudler already have a link through their joint ownership of Enamelled Metal Products Corporation (1933) Ltd., fabricators of glass-lined vessels and other process equipment.

Directors of both these chemical engineering groups consider that the proposed amalgamation and strengthening of the existing relationship will provide substantial benefits and enable both to expand more rapidly with resulting growth in Scottish industry.

The business of Balfour will be continued as a separate entity, its goodwill will be maintained and the interest of employees will be fully safeguarded, states the U.S. company.

On the basis of preliminary unaudited figures, the directors of Henry Balfour anticipate consolidated profits, after depreciation but before tax to total about £120,000 (£144,177). The order book is at a higher level than ever, but since the shortage of capacity will not be overtaken until August 1962, little financial benefit will accrue during the current year to 31 October 1962.

A second interim dividend of 11½% is to paid on ordinary in lieu of a final. Pfaudler Permutit agree that present stockholders should retain this. Terms of the offer are 22s for each of the 1.4 million ordinary 5s shares, 17s 6d for each of the 6,000 5% £1 preference and 20s for each of the 19,000 6% A £1 preference.

Cornelius review oils and fats industry

LAST year might be regarded very much as "a mixture as before" with prices for a wide range of commodities unchanged state E. G. Cornelius and Co. Ltd. in their annual survey of the oils and fats industry. It is stated that wide fluctuations did occur with a few items, notably groundnut oil and soya bean oil.

Cornelius regard it as significant that oils have generally become relatively cheaper than the seeds or nuts from which the oils have been produced and this can be explained, it is felt, only partly by the higher feeding stuff prices.

The high price of linseed oil reflects the shortage of linseed caused by poor North American crops. There might be some relief, however, in the next six months or so if the Argentine crop comes up to expectation.

There is probably an oversupply of most oil and fats, but their impact is not likely to be felt until the second half of this year. Apart from laurics, Cornelius see no reason why prices should rise much above their present level. Long-term, a gentle decline is expected.

Chemistry master dies in laboratory fire

A chemistry master, Mr. D. B. Davies of Pentre Grammar School, Pontypridd, Glamorgan, died on Monday after being carried from the school laboratory which was filled with smoke. A pupil and the assistant chemistry master were taken to hospital.

There was no explosion. A small fire started in the laboratory and an extinguisher was used.

Polymer to build butyl plant in Belgium

A LARGE butyl rubber plant is to be built a Antwerp, Belgium, by a newly formed, wholly owned Belgium subsidiary of the Polymer Corp. The new subsidiary will be known as Polysar Belgium Ltd.

The capacity of the plant will be 30,000 tons a year and it should be in operation towards the end of 1962.

Polymer were at one time investigating the possibility of producing butyl in the U.K., but the patent situation would make it difficult for Polymer to further any plans in this direction.

Laporte at Leipzig Fair

THE Laporte Industries Ltd. Group are participating for the first time in a trade fair in E. Germany. They will be exhibiting at the Leipzig Spring Fair (4-13 March).

For some years the Elektrochemische Werke München AG of Hollriegelskreut, near Munich, who last year became part of the Laporte Group, have exhibited at the Fair.

Works extensions for Sharples

Contracts for the construction of additional offices and works areas which will approximately double the size of the facilities at their Camberley factory have been signed by Sharples Centrifuges Ltd. Part of the new capacity at Camberley will be used for the production of the Sharples-Kason Vibroscreen vibrating screen separator (see C.A., 16 Dec., 1961, p. 966), while another part of the plant will be used for manufacturing the Gravitrol-1000 centrifuge.

Collective capitalisation

(*Continued from page 127*)

doors for business on 1 February with a capital of £2 million.

Sir John Benn, who is chairman of the United Kingdom Provident Institution and a director of Benn Brothers Ltd., proprietors of CHEMICAL AGE and other journals, writing in *The Statist* of 12 January, hopes that the new company will serve to stimulate more interest in technology among investors generally. He admits that in the City, with some notable exceptions, the possibilities being opened up by the new sciences are only just beginning to be appreciated. By the same token, not many scientists are fully conversant with financial factors and there is a need to exchange information and ideas.

If T.D.C., while financing particular projects, can also act as a catalyst in bringing science, industry and the City in closer relationship, it should be doubly useful.

Project News

Three gas plant contracts for Humglas

● THREE contracts for Onia-Gegi catalytic oil gas plant have been obtained by **Humphreys and Glasgow Ltd.** One is for the **Northern Gas Board** at their Middlesbrough works, the other two for the **Osaka** gas concern in Japan. Onia-Gegi plants are designed to produce gas for both domestic and industrial use.

Civil engineering for British Oxygen extensions

● EXTENSIONS at the Corby, Lincs., works of **British Oxygen Ltd.** are the subject of a contract worth £100,000 awarded to **A. Monk and Co. Ltd.,** civil engineering contractors of Padgate, near Warrington, Lancs. The project, including the erection of a 200 tons/day oxygen plant, is expected to take eight months.

£4,000 order for Baird and Tatlock

● ORDERS to a value of £4,000 have been received by **Baird and Tatlock Ltd.,** London, from their American agents—the Torsion Balance Co. of New Jersey—for the B.T.L. desalting apparatus, which is among a range of apparatus for chromatography and electrophoresis manufactured by B.T.L.

Kestner pickling plant for R.T.B.

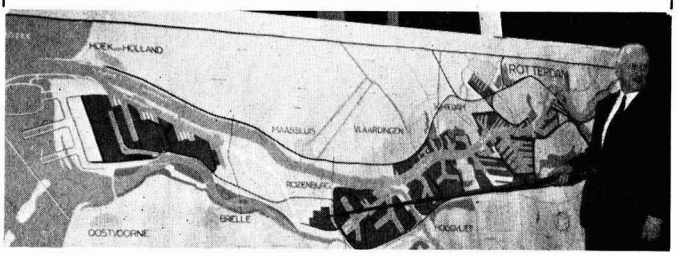
● NEW mixed acid spray plant for pickling silicon strip, specially designed and installed by the **Kestner Evaporator and Engineering Co. Ltd.,** London, has been added to the Brierley Hill plant of **Richard, Thomas and Baldwins Ltd.** This is the third Kestner pickling line to be installed there; in the previous two the strip is passed under the acid in the tanks, in this latest plant it is sprayed as it passes through. The installation includes tanks, pipes, ducting and fans in Keebush plastics.

Nickel over-capacity heightens competition

NICKEL production in the 'free world,' excluding Cuba, reached a record of more than 625 million lb/year in 1961—15% more than the 1960 capacity—according to the year-end review of the chairman of the International Nickel Company of Canada Ltd., Mr. Henry S. Wingate. This figure exceeds 1961 consumption of nickel by about 125 million lb., bringing about increased competition.

Contributing substantially to the increase in capacity is International Nickel's new nickel plant at Thompson, Manitoba, at which commercial production was begun before mid-1961. The Thompson plant is in full operation with an annual capacity of over 75 million lb. of nickel.

I.C.I.'s Common Market Stake



Dr. S. B. Cormack points out the position of the new I.C.I. factory at Rotterdam

THE reasons why I.C.I. decided to build a manufacturing complex in Europe are explained by Dr. S. B. Cormack, technical director of I.C.I.'s European Council in an article in the latest issue of *Wilton News*.

The European Economic Community has a population of 170 million but the population of the European Free Trade Area is only 90 million, including the 50 million of the U.K. The major market is therefore within E.E.C., which is not only the largest market but is also showing the highest growth rate. Present rate of growth for chemicals in the Common Market is 7% per annum so that the consumption will double in 10 years. This means that the demand by 1970 for all chemicals and associated products will increase by £4,000 million. This is roughly 11 times I.C.I.'s home turnover and seven times their world turnover.

At present by exporting from the U.K., I.C.I. have only a small share of the Common Market. If we are to continue as a major company, said Dr. Cormack, we must seek a bigger share in this large, important and rapidly growing market which is so close to us and will materially effect our economy whether we join or not.

Dr. Cormack went on to say that if I.C.I. are competent and resolute they will get a share of the market if they ship from the U.K. but they will get a further share if they manufacture on the spot. Even 22% of the expected increase in consumption would amount to £100 million per annum and would involve an investment og £150/200 million—that is another Wilton or another General Chemicals Division.

Shipments from the U.K. and manufacture in Europe are complementary. The factories in Europe are to supplement not supplant those in the U.K. Apart from the actual volume of production there will also be technical benefits from manufacturing under different operating conditions.

Dr. Cormack then explained the work of I.C.I.'s European Council. The Council was formed to do two major things. Firstly to undertake, in conjunction with the U.K. operating Divisions, the strengthening of the existing I.C.I. selling forces in Europe. This will be done by recruiting more staff for the European companies and more staff for the selling forces of the Divisions. The second objective of the Council, again in conjunction with the U.K. Divisions, is to organise the selection of suitable manufacturing sites in Europe followed by the construction and operation of plants.

Throughout the whole programme of the European Council, the emphasis is on conjunction with the manufacturing Divisions in the U.K. The object is eventually that the distinction between 'U.K.' and 'Europe' should disappear altogether.

The reasoning behind I.C.I.'s decision to manufacture in Europe on a large scale is the same whether or not the U.K. enters the Common Market. If the U.K. does not join then it will be advantageous to have manufacturing units inside the Common Market in view of the increasing tariff barriers that will operate against exports from theU.K., and if the U.K. does join, then it will become a trader in the Common Market.

The pattern of sales will change, said Dr. Cormack, because the pattern of industry will change. Some industries will benefit by membership of the E.E.C., but others, which are not sufficiently efficient and competitive, will suffer adversely.

U.S. chemical labelling regulations amended

Amendments made to the U.S. regulations on the labelling of hazardous substances include the definition of substances that generate pressure; special labelling needs for methyl alcohol, turpentine, petroleum distillates and mixtures containing those substances; laboratory chemicals; placement and conspicuousness of label information. Further information about the regulations can be obtained from the Export Services Branch (Tariff Section), Board of Trade, Lacon House, Theobalds Road, London W.C.1.

New sub-section of R.I.C. formed

A proposal put forward at a specially convened meeting of the Royal Institute of Chemistry held at Hatfield College that a new sub-section of the Institute should be formed was unaminously supported. Dr. J. Haslam, former chief analyst of I.C.I.'s Plastics Division was elected chairman and Dr. R. F. Robbins, secretary. The name of the new subsection is to be the Lea Valley Sub-Section.

★ WHERE so-called monopolies or cartels are concerned, it seems that many of the world's leading chemical industry personalities are thinking along similar lines. In the past year I have questioned many chemical executives in the U.K. and on the Continent about their views on the build-up of ever-larger units.

All have felt that in the highly competitive post-war period, dominated by the need for high investments to build plants of optimum economic size, that only the big groups would survive and compete efficiently. Last May, Montecatini's managing director told me that the time had come for inter-European agreements aimed at the most economic use of raw materials, transport and distribution facilities.

The bogey of 'cartel' and 'monopoly' has largely been discredited—certainly it has no reflection in the way that the modern industrial giants conduct their businesses. Last week Mr. Chambers, I.C.I.'s chairman, gave support to these views by saying that some competition could be a gross misuse of resources; much of modern industry was bound to be concentrated into big units by virtue of present-day pressure. He felt that legislation against large concentrations of economic power, necessary 50 years ago, was now out of date. Modifications of ideas were needed. Perhaps that was why he welcomed the Government's planning proposals—competition would remain, but, the worst blunders of putting up excessive capacity would be eliminated.

★ MEMBERS of the Institution of Chemical Engineers have been having some fun trying to synthesise a word to describe someone attending a scientific conference or symposium—'delegate', 'representative' and other terms being rather limited in scope. The Institution's *Diary* this month comments on some suggestions put forward. 'Symposter' is regretfully turned down as being rather suggestive that the symposter attends a symposium in the morning and Ascot in the afternoon, other bright but unusable ideas including 'boffex' (a boffin with an expense account) and 'confrère', which could be particularly useful for describing an individual attending a conference of French trade unionists.

Most serious support, however, came for 'members', this being considered to have the merits of covering delegates, representatives and private individuals, while ambiguity can be overcome by the use of a small 'm'.

I wonder. Anyway, I have my own suggestion to offer; since conferences, symposia, etc., are meetings, and since many scientists and technologists attend them just as much for the purpose of meeting others as for listeners to the papers and discussion, why not call them 'meetniks'?

★ THE tie-up of Saint Gobain, France's oldest and largest chemical producers with Greek interests to help establish two large fertiliser complexes in Greece is aptly timed. It follows France's ratification of the treaty associating Greece with the Common Market.

As stated in 'Overseas News', it brings together the largest Greek bank, the largest Greek industrial corporation on the one hand and the vast Saint Gobain group on the other. Thus, it seems that the successful development of Greece's chemical and fertiliser industry is well assured.

Saint Gobain will participate in the capital of a new joint company and provide credits for the purchase of equipment and supplies. In addition they will also make available their technical assistance and advice as well as many of the processes they have developed in France and elsewhere.

★ ALTHOUGH with our present coinage the problem of expressing 6s 8d in decimals is likely to be a 'recurring' one, there seems to be a great deal of 'point' in translating export prices into decimals, as Quickfit and Quartz have done in their latest laboratory glassware price lists. Many firms who are not prepared to go that far at present view with favour the idea of a complete changeover to decimal currency, and will await with interest the report of the committee which has now been formed by the Treasury to decide how it can best be done.

Typical attitude among industrial firms is that of I.C.I., who are "broadly in favour" although they calculate that the switch to decimals would set them back at least £500,000—or perhaps I should say £0.5 million. I.C.I. think the change would ease clerical work (particularly on wages), simplify manual and machine calculation, reduce errors and make life easier on the export front. Savings stemming from these advantages are estimated at "something less than £100,000 a year".

Biggest slice of the initial cost would be taken by alterations or replacements for many hundreds of account and business machines, ranging from electronic calculators to cash registers and ticket issuing machines used in works canteens. Obviously I.C.I., in common with other chemical manufacturers, are not so badly off in this respect as the big retail concerns, chain restaurants and other 'consumer' businesses.

★ NORWAY'S major fertiliser nitrogen producers, Norvegienne de l'Azote have good reason to fear Swedish plans to boost output of nitrogenous fertiliser (see 'Overseas News'). As stated in CHEMICAL AGE, 25 November, p. 857 and 9 December, p. 927, Svenska Salpeterverken plan 10,000 tons of ammonium sulphate at Kvarntorp, plus 50,000 tons of ammonia and 66,000 tons of nitric acid at Koping.

The Swedish project is based on oil and is linked to the West Coast petrochemicals project at Stenungsund, which through Svenska Esso, Stockholms Superfosfat Fabriks, Union Carbide and Mo och Domsjo, will give Sweden a vast olefin, ethylene oxide, polyolefin and synthetic detergent industry.

Currently Sweden has capacity for some 100,000 tons of nitric acid, 30,000 tons of ammonia and over 30,000 tons of nitrogenous fertilisers (expressed as N) which covers only one-third of consumption. Traditionally, Sweden is a far bigger producer of phosphatic fertilisers, with output well in excess of 500,000 tons of superphosphates.

★ AMONG the less well known of those convenient accidents without which, it seems, no natural law can be discovered (remember Newton and the apple. Archimedes and the bath) was that which led to the discovery of the principle of froth flotation. In this particular instance it was a grape falling into a glass of champagne at a banquet that did the trick—to the surprise of the diner concerned, the grape rose slowly to the surface, stayed there for a second and then sank again.

Dr. R. R. Booth, head of mining chemicals research for Cyanamid International, described what happened to an American audience recently. By fingering the grape the man had changed its surface characteristics. The champagne bubbles were able to cling to the grape and carry it to the surface where the bubbles popped and left the grape to drop again under its own weight.

The secret and the principle of chemical flotation had been discovered. Its 50th anniversary has just been celebrated by the American Institute of Mining, Metallurgical and Petroleum Engineers. I assume that the celebrations included champagne and grapes.

Alembic

Manchester Chamber of Commerce report on chemicals

Chemical export figures show growing importance of European market

"A REASONABLY encouraging year" for the chemical industry is the verdict on 1961 in the annual report of the Chemical and Allied Trades Section, Manchester Chamber of Commerce. The report notes that production has soared to half as much again as it was in 1954 and that the 4.2% uplift achieved this year compares very favourably with the 0.8% rise in production for Britain's manufacturing industries as a whole.

Salient points of the report provide a useful background to the summary of chemical industry trends contained in the C.A. special survey last week. Although the industry has managed to maintain a satisfactory level of production, the pressure of demand has eased in the last six months and profit margins have narrowed in the face of keener competition. Plant has been operating below maximum capacity, particularly because of the new plant which has become available, and although the industry is confident that this capital expenditure will be justified when the economy as a whole recovers from the present state of uncertainty, demand has not been high enough to ensure a satisfactory return on recent capital outlay.

Overseas markets

Export pattern. During the 10 months January-October the industry's overseas business earned a total of £270.34 million —a 4.2% uplift on the £259.26 million attained in the corresponding period of 1960.

An important feature has been the overall steadiness in the trade with individual countries. The Commonwealth has continued to be the largest market; although Australia remains the best customer, shipments over the period under review fell sharply to £17.2 million against £20.1 million imported in 1960. This decline is attributed to their lower level of industrial activity during the year as a direct result of the credit squeeze. However, it is hoped that the improvement in the Australian balance of payments position in the latter half of the year will lead to an early improvement.

Further industrial expansion in Ghana, the Irish Republic, Indonesia and Japan has led to substantial increases in chemical exports to those markets while a disappointing drop in purchases by the U.S.S.R. and China has been partially offset by higher takings from Poland.

The growing importance of European markets is evidenced by the combined exports to the European Economic Community and the European Free Trade Area which in January-October reached £76.6 million or 28% of the total chemical exports.

Industrial activity throughout Western Europe has continued at a high level and the chemical industry can view its export performance to that area with some degree of satisfaction. However, although the U.K. industry's trade with E.F.T.A. continued to rise to £31.9 million (£28.9 in 1960) a slight fall in total purchases from the six Common Market countries to £44.7 million (£45.4 million in 1960) is evidence of the increasing influence exerted by the latest tariff moves within the two trading blocs. Further testimony to this is that the first move towards the E.E.C. Common External Tariff made early in the year has been already reflected in lower exports to Germany and Benelux, whose low tariffs had to be raised, and increased purchases by France whose high tariffs were lowered.

Plastics sales increase

Plastics sales. Sales by U.K. manufacturers of primary plastics materials in 1961 increased by about 7% over 1960 and reached nearly 600,000 tons. Consumption in the home market did not increase appreciably over the 1960 level and is estimated to have been about 21 pounds per head.

The most marked increases in sales were made by polyolefins and polystyrene. Polyolefin sales were about 130,000 tons in 1961 and domestic consumption about 78,000 tons. Polystyrene sales increased by 22% to 52,000 tons, exports were about 16,000 tons and imports 3,500 tons, showing that consumption in the home market (39,500 tons) fell by some 7% compared with the previous year. Consumption of p.v.c. was much the same as in 1960 at 120,000 tons. The increase in sales of p.v.c. was balanced by an increase in exports and decrease in imports. Sales of other thermoplastics including polyvinylacetate, cellulosics, and polyamides, remained at about the same level as in the previous year but home consumption of these materials is believed to have fallen slightly.

Thermosetting sales decreased only marginally. Alkyds and polyester sales increased but not sufficiently to counteract a slight decrease in sales of phenolics and aminos.

As a result of a considerable fall in prices brought about by fierce competition in all markets, the value of United Kingdom exports showed little change from 1960. The value of imports decreased by a smaller percentage than did the tonnage; thus, the average realisations for imports were increased while those for exports were decreased. The reason for this was that imports of the lower priced materials such as polystyrene and p.v.c. decreased while polystyrene and polythene (which both suffered a considerable fall in price) were largely responsible for the increase in exports.

Organics. Though 1961 saw a fall in profit margins and prices of organic chemicals, progress continued unchecked. New facilities for the production of essential basic organic chemicals have been declared to an extent that over capacity may be evident in the next two or three years—caprolactam and phthalic anhydride being typical examples.

Demand for organic chemicals of all types increases but particularly for the production of plastics materials—polythene, polypropylene, polystyrene, polyvinyl chloride and polyisocyanates are all advancing and lower prices may widen the spheres of usefulness of all these products.

Pharmaceuticals. The year has seen a number of reductions in the prices of widely used medical products, and the appearance of several important new drugs including new penicillins, mental health drugs and anthelmintics for veterinary use. The higher prescription charge seems to have reduced the number of prescriptions written by about 10%. It has, however, led to the prescribing of larger quantities of drugs per prescription in some cases and this, together with the fact that many doctors advise patients to purchase items costing less than 2s has contributed to a higher average cost per prescription item.

In March, the Minister of Health announced that in the face of prices for certain patented wide spectrum antibiotics and diuretics which he regarded as unreasonably high, he proposed using Section 46 of the Patents Act 1949, to invite quotations for hospital supplies, irrespective of whether those tenderings had a United Kingdom patent or not. After consideration of tenders for these drugs, contracts were, in fact, awarded to U.K. imports of drugs coming from Italy and from, or through, Denmark.

Exports in 1961 rose by some 11% over the 1960 total. This increase was spread over most of the main product groups, with proprietary medicines again achieving an expansion above average. Other groups with appreciable increases included penicillin and "other antibiotics" because of the introduction of new products, while alkaloids recovered after their decline in this group in 1960. The successful development of new discoveries was also the main reason for a

substantial rise in exports of anaesthetics and hormones. Sulpha drugs underwent a setback, exports of the newer products being insufficient to offset the severe depression of world prices for the older sulpha drugs.

A feature of the world trade in pharmaceuticals was the increasing tendency on the part of Governments to impose price control, in some cases in such a form as to present a serious obstacle to normal trading.

Fibres. The use of synthetic and man-made fibres extended during the year with a subsequent rise in the use of dispersed and modified basic dyestuffs and it is forecast that the use of these fibres will be further extended in 1962.

Dyestuffs. The repeal of the Dyestuffs Act and the substitution of an import duty on contentious dyes previously prohibited under the Act has continued to encourage competition from overseas particularly Continental countries and this is likely to increase as the diminishing rate of duty takes place during the 10-year period stipulated in the Treaty of Rome.

The dyestuffs industry faced increased costs during 1961 and profit margins tended to become lower although the dye manufacturers have continued to maintain an excellent technical and commercial service to the textile trade in general. The prospects for 1962 can only be viewed with some apprehension under the cloud of the closure of more firms in the textile trade and the somewhat obscure political situation which makes forecasting very difficult at the present time.

Lubricating oils. Figures relative to the quantity and value of world production of oils for lubrication purposes point to an abundance rather than a diminution of supplies. Imports of lubricating oils into the United Kingdom during 1961 show a small drop compared with 1960. Similarly, the export of oils during 1961 was of a slightly less value than in the year 1960, although the value of such exports are still reckoned in millions of pounds.

Figures showing the output of lubricating oils from home refineries are not to hand but there is every reason to believe that production increased during the year. Research and equipment developments have led to further progress in the production of specialised lubricants. Increased import duty, freight charges, labour and general overhead costs have necessitated increases in consumer prices.

New British Standards for lab. apparatus

A NUMBER of revised British Standard Specifications for various types of scientific and laboratory apparatus include the following:

Lunge-rey weighing pipettes (B.S. 2058:1961, 4s). When B.S. 2058 was first published in 1953 under the title it included, in addition to the Lunge-rey pipette, an additional pattern of weighing pipette with two bulbs and three stopcocks suitable for the analysis of ammonia solutions. However, because of the lack of demand this second type has been omitted in the new edition. The specification of the Lunge-rey pipette remains substantially unchanged except for a smaller ground joint and cover tube.

Reference thermometers for field use (B.S. 2736:1961, 4s). This new edition covers thermometers graduated to the Celsius (centigrade) scale as well as the Fahrenheit scale of temperature. The standard, intended to cover both Service and commercial requirements, specifies requirements for reference thermometers for ordinary and tropical use suitable for determining the scale errors of other thermometers by comparison in a water bath. It also requires that a wooden case should be provided with each thermometer.

Ampoules (B.S. 795:1961, 8s 6d.). Six new types of flat bottom ampoules have been included and it has been found expedient to eliminate the moulded flat and round bottom straight stem ampoules, with and without cutting ring. Requirements for the shape of the shoulder of ampoules have also been deleted, but in order to control the shape a new dimension for the height to the centre of the constriction has been added. Requirements for the five other types of ampoules covered in the 1953 edition of the standard have been brought up to date.

Copies of these standards may be obtained, at the prices shown, from the British Standards Institution, Sales Branch, 2 Park Street, London W.1 (postage extra to non-subscribers).

E. German plants and processes for sale in U.K.

PATENTS and industrial know-how developed in East Germany are to be offered in for sale in the U.K., according to an East German spokesman in London last week.

It has previously been reported that Humphreys and Glasgow Ltd. have acquired rights to all the main chemical processes used in East Germany (C.A. 24 December, 1960, p. 1047) and that Humglas will offer plant based on East German synthetic fibre production and spinning processes as the first concrete result of the agreement (C.A., 22 July, 1961, p. 124). From the latest statement by the East German spokesman it would appear that the U.K. agency for all other East German industrial plant and products—textile machines, gas turbines, machine tools, etc.—will be handled by the London firm, Anglo-Austrian Trading Co.

Lederle drugs in Australia

In the 23 December, 1961, issue of CHEMICAL AGE (p. 1001) we referred to the Lederle drug, Declomycin. The product, however, is sold under the name of Ledermycin in the U.K. and Europe.

Lead and arsenic limits in yeast

A REPORT by the Food Standards Committee reviewing the limits for lead and arsenic in yeast and yeast products has been made to the Ministry of Agriculture, Ministry of Health, Department of Health for Scotland and the Home Office. The Committee recommend no change in the limits for yeast and yeast products laid down in the Arsenic in Food and Lead in Food Regulations. They think that yeast tablets ought not to be regarded as 'food' but as 'drugs'.

Publication of the report does not commit Ministers and before deciding whether or not to accept the recommendations, they consider any representations made by the interests concerned. Such representations should be sent to the Assistant Secretary, Food Standards Division, M.A.F.F., Great Westminster House, Horseferry Road, London S.W.1, to arrive not later than 9 March 1962.

Textile chemists to meet in Holland

The International Federation of Associations of Textile Chemists and Colourists is to stage a congress in Noordwijk, Holland, from 25-27 April 1962, on the invitation of the Dutch textile chemists' body Nederlandse Vereniging voor Textielchemici. The Federation holds such a congress once every three years. Chemists from practically every country in Western Europe, from the U.S., Japan and Iron Curtain countries will take part.

POLYTHENE BAGS FOR PASTE

Bags made of Diothene polythene film are now being used as 7 lb. packs for the benzoyl peroxide paste supplied by Laporte Chemicals Ltd. Previously, this paste was packed in a lightweight polythene bag inside an internally lacquered tin; eight such tins were sometimes packed in a wooden case to form a 56 lb. lot. Now, economy is achieved by using the heavy gauge Diothene bag, closed with a p.v.c. string tie and despatched in six units to a corrugated fibreboard outer. The bags are supplied by the Metal Box Co. Ltd.

I.C.I. chairman welcomes planning council

WOULD KEEP COMPETITION BUT AVOID OVERCAPACITY BLUNDERS

A WARM welcome for the Chancellor of the Exchequer's proposals for a National Economic Development Council to co-ordinate information and plans was given by Mr. S. Paul Chambers, chairman of Imperial Chemical Industries Ltd., speaking last week at a meeting of the American Chamber of Commerce in London.

Mr. Chambers declared that as decisions became more concentrated and industry more highly capitalised, the blunders of surplus capacity would grow worse without some form of planning and forecasting. They were vital if private competitive enterprise was to survive.

The new council would not mean, he said, that there would be no competition or that resources would be allocated to a particular firm or industries. As he saw it, there would be greater opportunities for efficient business to expand confidently and with better knowledge of potential demand. The improved information and better knowledge of the growth, or decline, of demand for particular products could provide a better answer to problems of world trade.

Competition in putting up surplus productivity capacity in ignorance of the facts was not conducive to efficiency.

He considered it to the good if dying or inefficient sections of industry could be winkled out. That would mean more of Britain's limited resources being made available to newer and more progressive sectors. Competition would remain under a Government planning council, but the worst blunders of putting up excessive capacity would be eliminated. That was, added Mr. Chambers, a far cry from State planning.

Anti-dumping legislation

On the question of dumping, Mr. Chambers doubted if anti-dumping legislation was the most satisfactory answer in the long run. The answer lay, he believed, in discarding outmoded economic ideas on such matters as monopoly and monopolistic competition. Some competition could amount to a gross misuse of resources. Much of modern industry was bound to be concentrated into big units as the needs of capital, research and development increased the optimum size of the economic unit. Legislation against large concentrations of economic power necessary 50 years ago was now out of date. Modifications of ideas were needed, but Mr. Chambers felt that industry must itself do something better than present a spectacle of blindfolded giants blundering all over the place.

Further reference to the proposed National Economic Development Council was made by Mr. Selwyn Lloyd, Chancellor, in a letter last week to the chairman of the T.U.C. economic committee. Mr. Lloyd stated that the council would provide a great opportunity for both sides of industry to influence policy, to tackle in co-operation with the Government the obstacles to sound growth and to consider the availability and use or misuse of resources.

When established, he would place before the council papers on the prospects of the U.K. economy for the next five years and on the problems of economic growth and national efficiency. He would suggest that as one of its early actions, the council should instruct its staff, in collaboration with the main industries, to examine the long-term prospects of those industries, their needs for investment and skilled manpower and their expectations as to production and exports.

The results would be correlated with each other and with the Government's plans for the public sector, to provide a basis for future action.

C.M. chemicals tariff translated into English

THREE further parts of the common external tariff of the European Economic Community have now been translated into English and published by the Board of Trade. In the following list, chapter headings are those of the Brussels Nomenclature:

Chapters 25-30—Mineral products, chemicals (inorganic and organic), pharmaceuticals. Price 4s 6d (by post 4s 11d).

Chapters 31-40—Fertilisers, dyes, soaps, explosives, photographic and cinematographic goods, artificial resins and plastics materials, rubber and synthetic rubber. Price 3s 6d (by post 3s 11d).

Chapters 41-49—Including paper-making materials (available 23 January). Price 3s (by post 3s 5d).

These translations have been prepared by the Board of Trade with the permission of the E.E.C. Commission. The text has not been cleared by the Commission, however. First part of the translation covering machinery, electrical equipment, vehicles, etc., is available price 4s (by post 4s 5d).

Copies of all these translations may be obtained from H.M.S.O., Kingsway, London W.C.2, and are available for inspection at B.o.T. regional offices.

I.C.I. olefin tankers will use galvanised steel and polyurethane foam

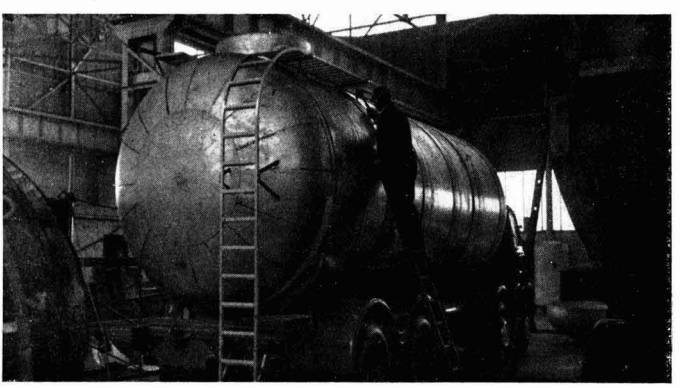
FOR the first time galvanised sheet steel has been chosen by I.C.I. as the outer cladding of a fleet of chemical road tankers ordered by their Heavy Organic Chemicals Division. The 10 tankers will transport olefins and olefin derivatives from I.C.I.'s Wilton and Severnside works to plants all over U.K.

The insulating material between the stainless steel tank and the galvanised outer envelope is lightweight I.C.I. polyurethane and this was foamed while in the cavity. Galvatite, continuous hot-dipped galvanised steel, gives the accurate forming necessary to ensure foam proof joints during insulation and weatherproof joints during the vehicle's life.

The tankers are mounted on Foden chassis and have an overall length of 39 ft. Width is 7 ft. 10 in. at the front and 7 ft. 8 in. at the rear, overall height is 12 ft. 10 in.

The cladding for the tankers has been fabricated and fitted at the Crayford (Kent) works of Frederick Braby and Co. Ltd. Galvatite is produced by John Summers and Sons Ltd., steelmakers, at their Shotton works, Chester.

Summers pioneered the manufacture of continuously hot-dipped galvanised steel in this country and recently brought into operation a fourth hot-dip galvanising line to increase production to help meet world demand for galvanised products.



Finishing touches being put to sheet metal work of the tankers

Sulphate of Ammonia Federation's report

For first time N, P, K usage approaches ratio of 1:1:1

COMPOUND fertilisers in 1960-61 continued to account for about two-thirds of fertiliser nitrogen used in the U.K. The annual report of the British Sulphate of Ammonia Federation states that the tonnage of compounds delivered in that year was greater than ever before.

Despite increasing use of other forms of nitrogen in the manufacture of granular compound fertilisers, about the same quantity of ammonium sulphate was used for that purpose last year as in 1959-60, when consumption was a record.

For the first time in the history of British agriculture, usage of nitrogen, phosphates and potash approximated closely to the ratio 1:1:1 in terms of N, P and K.

To meet the special needs of compounders in their granulation processes, experimental work on crystal size has continued, the report states. It has now been found possible to make suitable manufacturing alterations to meet compounders' request.

Discussing the propaganda efforts of the federation's agent, I.C.I., it is stated that of the three principal plant foods, the greatest scope for expansion in use was still with nitrogen, particularly for grassland. The impressive progress made in the production and utilisation of grass for feeding livestock in recent years was proof of the success achieved by many years of development work initiated by I.C.I.

U.K. production of ammonium sulphate in 1960 totalled 1,086,000 tons (1,015,000 tons in 1959). Deliveries in the U.K. in the fertiliser year 1960-61 totalled 931,000 tons, compared with 941,000 tons in 1959-60 and 923,000 tons in 1958-59.

Ammonium sulphate exports in 1960-61 totalled 155,213, substantially down on 1959-61 when the total was 240,936 tons.

World production and consumption of fixed nitrogen

'000 *of metric tons*

Production	1959/60	1960/61
Ammonium sulphate ...	3,087	3,146
Calcium cyanamide ...	331	304
Sodium nitrate	227	185
Nitrate of lime	424	465
Ammonium nitrate for fertiliser use	1,375	1,602
Lime ammonium nitrate types	1,728	1,858
Ammonia and solutions ...	1,524	1,668
Urea for fertilisers	597	780
Other forms of N	3,037	3,335
Total production	**12,312**	**13,343**
Increase per cent on prior year	9.1	8.4
Consumption	1959/60	1960/61
World total (all forms) ...	12,382	13,132
Increase per cent on prior year	11.1	6.1
World total in agriculture ...	10,327	11,010
Increase per cent on prior year	10.3	6.6
Use in agriculture:		
Europe, inc. U.S.S.R. ...	4,764	5,021
America	2,920	3,164
Asia	2,269	2,243
Africa	325	339
Oceania (inc. Hawaii) ...	49	63

PRODUCTION OF NITROGENOUS FERTILISERS IN U.K.

Long tons of 2,240 lb.

	England & Wales	Scotland	Ulster	Total	Ammonium sulphate as such.
1956	1,459.3	164,400	1,600	1,554,000	1,061,100
1957	1,388.0	180,500	1,800	1,641,600	1,109,500
1958	1,495.7	171,400	1,600	1,632,700	1,098,000
1959	1,626.1	151,400	1,700	1,779,200	1,015,000
1960	1,911.4	154,100	1,700	2,067,200	1,086,000

Production is shown in terms of standard material containing 25% ammonia (20.6% nitrogen). Ammonium sulphate is shown produced with N content varying from 20.6% to 21.1% N.

U.K. DELIVERIES FOR AGRICULTURAL CONSUMPTION

All N fertilisers Metric tons*

	Ammonium sulphate (Long tons)	Ammonium sulphate†	Other	Total nitrogen
1956-57	930,044	198,446	108,399	306,845
1957-58	883,344	188,481	126,281	314,762
1958-59	923,000	196,900	148,800	345,700
1959-60	941,000	200,700	220,500	421,200
1960-61	931,000	198,700	260,500	459,200

* These columns show nitrogen content
† 21% N.

Pinene Bulletin

A. Boake Roberts and Co. Ltd., Carpenters Road, Stratford, London E.15, have distributed the first of a new series of bulletins entitled 'Progress from pinene'. These bulletins, which will be issued at four-monthly intervals, are intended to keep the perfumery and soap industries acquainted with developments in the field of the pinene synthetics, and will include commercial as well as 'technical' information. A regular feature will be a column by Max Erni—ABRAC chief perfumer—which will cover the subject from a perfumer's viewpoint.

Elliott to exploit U.S.–developed ultrasonic measurement and control techniques

ADVANCED ultrasonic techniques with many potential applications in industrial measurement and control are to be exploited by Elliott Brothers (London) Ltd.—principal operating subsidiary of the Elliott-Automation Group—under a manufacturing and sales agreement negotiated with Acoustics Associates Inc., Los Angeles, California. This gives Elliott world-wide rights (exclusive, in general terms, of North and South America and non-Commonwealth countries in Asia and Australasia) to use these techniques, originally developed as part of the American missile programme.

The new ultrasonic developments have been made possible by the development of compact and rugged piezoelectric ceramic transducers. Apart from the industrial control techniques, the licence also covers a range of ultrasonic cleaning apparatus and opens up a range of activities in the field of non-destructive testing.

Mr. Alan E. Crawford, lately chief engineer of The Brush Crystal Co. Ltd., will be responsible for Elliott's activities in this field. He is an authority on all aspects of ultrasonic engineering engineering and solid state devices based on ferroelectric materials.

New sections for Soc. Inst. Technology

THE two specialised sections of the Society of Instrument Technology—the Control and Data Processing Sections—are being replaced by four sections as follows:

Measurement technology. Theory, development and application of methods of measurement, inspection and display.

Control technology. Theory, development and application of automatic control with particular reference to components and single and multi-path systems.

Systems engineering. Theory, development and application of data handling and complex control systems.

Automation. Theory, development and application of control and data handling in automatic mechanical production.

New rules are being introduced to simplify administration and provisional committees are being formed: The following members have accepted invitations to act as chairman of these committees and chairman-elect of the section committees: Measurement technology, Dr. J. Thomson; Control technology, Mr. R. J. Redding; Systems engineering, Mr. E. J. Petherick; Automation, Mr. A. V. Hemingway.

ECONOMICS OF DRUG RESEARCH

Minister of Health has removed incentive says I.C.I. drug chief

BY his decision to invoke Section 46 of the Patents Act and buy drugs from foreign countries, the Minister of Health, Mr. Enoch Powell, has removed the incentive for research. So stated Dr. J. Yule Bogue, joint managing director of I.C.I.'s Pharmaceutical Division.

In his address, given to the Pharmaceutical Society of Great Britain on 10 January, Dr. Bogue quoted the Hinchcliffe report on the cost of prescribing as saying: "The pharmaceutical firms which do research are making a valuable contribution to the N.H.S. Such research is essential to the advancement of therapeutics. Firms should be encouraged to increase research efforts. The conditions which favour profits for research, such as patent rights, the publicising of proprietary names and the price agreement with the Ministry of Health should be accepted." The Minister of Health, said Dr. Bogue, has chosen either to ignore or not to accept these conclusions. The only result that this can have in the long run is the ultimate reduction in research effort and fewer new drugs for the home and overseas markets.

Expensive development

Dr. Bogue drew attention to the enormous expense behind the development of a new drug. Extensive tests are given to many potential compounds, out of which only very few ultimately prove suitable. In 1958, 114,600 substances were tested but only 44 new chemicals were marketed, 16 of which came from non-U.S. sources. The ratio both in the U.S. and the U.K. is about 3,000:1. Around 400 man-hours goes into the synthesis and first biological testing of a single compound. Nevertheless, industries which spend the highest percentage of sales on research are always those with the highest growth rate. Scientific discovery is a potent form of economic energy. Much long term research is undertaken. For instance, I.C.I. spent £700,000 looking for a chemical anti-viral drug, with no product.

Toxicity is the main barrier to continued development of promising substances. Some toxic compounds are species-specific, occurring perhaps in only one animal species while absent in others. With our present state of knowledge, prudence requires that man should be considered equivalent to the least favoured species. When this occurs the drug cannot be recommended for clinical trials in man. The casualty rate of interesting compounds at this stage may be as high as five out of six—and this after many tens of thousands of pounds and man-years have already been expended on the potential drug. I.C.I. process about 15,000 slides a year for toxicity studies (the department accounts for about 4% of the research budget).

To indicate the size of the research effort, Dr. Bogue gave the following figures. In the U.K. in 1960, out of a total of 58,000 employees in the industry, 7% were engaged in research activities. Out of this sum total, 2.62% were qualified scientists and engineers. The corresponding figures for Canada, with 5,950 employees in the industry, are 6% and 3.7% respectively, and for the U.S., with 100,000 employees, 12.9% and 7.2%.

Research in U.K.

The cost absorbed by the research effort in the U.K. was £7.5 million in 1960; 75% of which was accounted for by five British firms. The £7.5 million represents 12.5% of National Health Service sales. The total world wide expenditure from which the N.H.S. benefits is £100 million. In 1958, the Medical Research Council spent £3.8 million. For Canada, the figure was £3.3 million of which £1.49 million was spent in Canada. In the U.S. the research expenditure £77 million in 1960.

Research costs expressed as a percentage of a sales reveal that in the U.K. 8.3% of all home and export sales of prescription drugs was devoted to research. In Canada it was also 8.3% and in the U.S. 9.5% of sales. It ranges according to the company from less than 5% to greater than 15%.

Research expenditure in the U.K. is increasing steadily by approximately 20% per annum, and the expenditure in 1960 was 2½ times that in 1954. In the U.S. there has been a five-fold increase over the last 10 years, with a 10% increase from 1960 to 1961. The growth rate of research expenditure in Canada is from 12 to 14% per annum. In all three countries, somewhere in the region of 20 to 25% of research expenditure is on fundamental research.

During the last three years, the U.K. industry has maintained an average capital investment of over £9 million per year out of profits, representing 15% of the N.H.S. sales (including, of course, production facilities as well as research facilities).

The money to support this considerable research effort comes from the profits of the commercially successful drugs, not just marketable drugs which can be commercial failures. For a well-established firm an allocation of 8 to 10% of 'ethical' sales appears to be sufficient. The requisite funds come from the development of high sales volumes, rather than high price and low volume sales. Such conditions require an efficient manufacturing process, which in turn, is dependent upon the research development teams of first-class chemists and chemical engineers. Many firms are putting more money into their research effort than they are paying to their stockholders.

The availability of patent protection, continued Dr. Bogue, provides the incentive to invest in research. The 'ethical' drug industry has been shown to be vigorously inventive; the success of a patented drug demonstrates this, for this success serves as a stimulus for research workers in competitors' laboratories to find something equally good or better, and they usually succeed. No first drug was ever the best. Better drugs are discovered because the patent system is a powerful stimulus for other firms to seek new, different and better compounds in order to stay in business.

The payment of royalties by the Ministry of Health to the true owner of the patent is dismissed by Dr. Bogue. He said that he knows of no factory or research department that can be run on royalties. He cited as an example the National Research Development Corporation. The statement of accounts for the year ended 30 June 1961 showed that, even without the heavy overheads of research and plant, the Corporation's royalty income leaves them in the red.

In conclusion, Dr. Bogue again quoted from the Hinchcliffe report: "We are concerned to note the totally inadequate publicity given to the remarkable saving of life, improvement in health, increase in efficiency and saving on expensive institutional treatment, which all stem from, among other things, the use of new drugs. We urge the Minister of Health to consider ways and means of publicising these facts in a telling manner."

Smallpox drug on trial

THE Wellcome Foundation has produced a new drug which is being used experimentally in the current outbreaks of smallpox. It has been found effective in mice infected with smallpox and safe for use in man.

A large-scale clinical trial has been planned for countries where smallpox is endemic, but in view of the emergency in the U.K. the Foundation is making available the present limited stocks for use in suitable cases. It emphasises that, although laboratory experience is encouraging, the value of the drug in man has yet to be shown.

Nitrogen heterocyclic chemistry

A symposium on nitrogen heterocyclic chemistry will be held at Hatfield on 10 and 11 May 1962. The meeting is arranged by the Hatfield College of Technology with the support of the Chemical Society. Enquiries concerning the symposium should be addressed to Dr. R. F. Robbins, Head of Department of Science, Hatfield College of Technology, Hatfield, Herts.

BUTLER SELL TAR INTERESTS TO SOUTH WEST GAS BOARD

NEGOTIATIONS between Wm. Butler and Co. (Bristol) Ltd., referred to in CHEMICAL AGE, 14 October 1961, p. 582, did not produce any positive results and the company has now arranged to sell its holding in Bristol and West Tar Distillers Ltd. to the South Western Gas Board.

This is stated by Mr. Eric W. Butler in a statement to shareholders. S.W.G.B. acquired a 25% interest in Bristol and West from Wm. Butler on 1 January 1953 and the remaining 75% is to be sold to them for £656,250. The book value of the shares is £262,500; £85,000 of the consideration has already been paid and the balance of £571,250 is due on 31 December 1963.

The realisation of this investment became desirable in order to protect the company's capital and the revenue arising therefrom, states Mr. Butler.

The long-term co-operative contracts under which Bristol and West Tar Distillers purchased crude tar from certain Gas Boards were cancelled on 30 June, as they were in conflict with the requirements of the Restrictive Trade Practices Act. In the early days of negotiating new contracts, the Gas Boards insisted on terms in line with those now applying generally in an industry of which Bristol and West Tar Distillers are one of the smaller units. The tar company's revenues would have been so reduced had these terms been accepted, that the return on capital would have fallen below that expected from a sound industrial investment.

"In the above situation," declares Mr. Butler, "your board had no alternative but to negotiate the withdrawal of your company's capital, which, in the circumstances, they consider has been achieved on very satisfactory terms."

As a result of the sale of the shareholding in Bristol and West, it is anticipated that Butler's will have cash surplus to their needs. Accordingly, the directors propose recommending a payment on capital account of 2s per 5s unit, to ordinary stockholders, during 1962. A final dividend of 7%, less tax, in respect of 1961, making 11% for the year, will also be recommended.

The sale of the interest in Bristol and West Tar Distillers involves approximately 40% of the company's assets. It is essential, therefore, that the company's organisation be rapidly adjusted to the new conditions.

Butler's have substantial businesses in the marketing of petroleum products, in the manufacture of chemical products for the board and paper industries, and in the manufacture of disinfectants. These businesses are healthy and vigorous, and plans have already been prepared to expand the production and marketing of each of them. This programme of expansion will also be financed from the proceeds of the sale of the shares of Bristol and West.

In the light of the new conditions, Mr. E. W. Butler is to make way for a new chairman, who can bring experience of a kind peculiarly suited to the needs of the company at the present time. With the full agreement and support of co-directors, he approached Mr. S. R. Hogg, a well-known chartered accountant who has wide experience in the direction of public companies, to take his place as chairman. Mr. Hogg has agreed to accept the appointment.

Mr. Hogg has reached the age of 72 and, under the provisions of the Companies Act, approval of shareholders for his appointment is to be obtained. A meeting for this purpose will be held at 12 noon on 2 February at Silverthorne Lane, St. Philips, Bristol 2.

Mr. Butler is to continue as a member of the board for the time being. There will, however, be some changes.

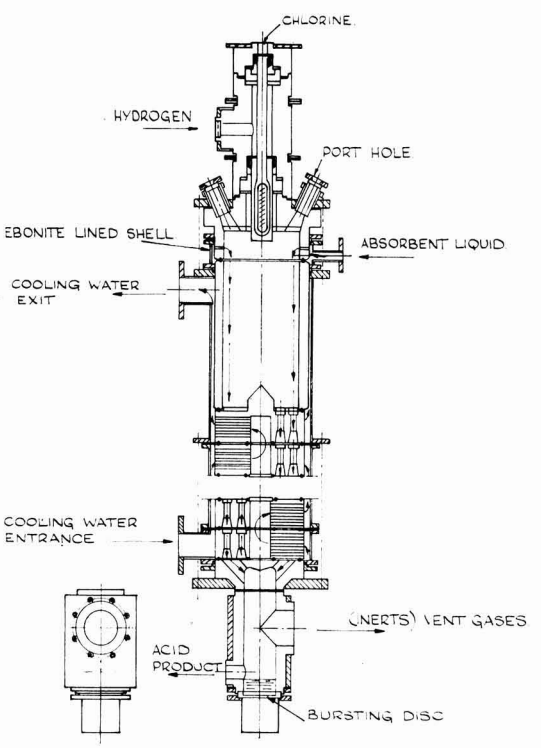
Mr. Hall, who was recently elected to the board, is also managing director of Bristol and West Tar Distillers, and it will be necessary for him to resign from the board to devote the whole of his time and efforts to Bristol and West under the new ownership. Mr. Hatfield and Mr. Foss, who have served the company for many years, are retiring.

The new board will be Messrs. S. R. Hogg (chairman), E. P. Butler (vice-chairman), Eric W. Butler, H. H. Bates and W. J. Stimpson.

Obituary

Dr. Michael Erlenbach, board member of the Frankfurt-on-Main chemical company Farbwerke Hoechst AG and their subsidiary Knapsack-Griesheim AG, Knapsack, West Germany, has died at the age of 59.

French graphite unit for production of hydrochloric acid made by U.K. firm



Sectional diagram of a 'packaged' unit in graphite for the manufacture of hydrochloric acid, recently developed by Société le Carbone Lorraine, Paris, and manufactured in the U.K. by Robert Jenkins and Co. Ltd., Wortley Road, Rotherham, Yorks. The equipment comprises an integral combination of a burner unit for the synthesis of hydrochloric acid gas, with a Polybloc absorber. A big advantage claimed for this integral construction is that it cuts out the need to duct hot HCl gas from the burner to the absorber

Italian chemical industry

1961 marked by increased sales, production, investments, exports

THE chemical sector is one of the mainstays of the Italian industry. For some years now it has been showing an upward trend in expansion even when other sectors of the industry have experienced a recession. The year 1961 was no exception; bigger sales and exports, increased output and investments and larger plants have been the order, in spite of sterner competition both on the home market and abroad and a drop in profit margins.

In spite of constant cuts in costs as a result of rationalisation of production, profit margins continue to decline. The opinion is held in some quarters that the best solution to this problem is mergers and the expansion of many concerns to a scale that would enable them to hold their own in the world markets. This is difficult, however, since efforts to have taxes reduced on mergers and similar operations have not yet met with success.

During 1961 the following major plants came into production: Montecatini's maleic anhydride and fumaric acid plant at Rho; Sicedison's synthetic phenol and cyclohexane plants at Mantua, also their fluorocarbons and caprolactam plants at Port Marghera; and Larderello's caustic soda/chlorine plant at Salina di Volterra.

During the same year, construction was also begun on a number of plants due to go on stream in 1962 and 1963, the most important being Montecatini's plant at Brindisi.

Figures of chemical production compiled by the Central Institute of Statistics in Rome show that for the period January to August 1961 the index was 262.9 (1953, 100) compared with 240.7 for the same period of 1960. In October 1961, the index went up to 297.2 compared with 245.3 for the same month of the previous year.

Outputs of three major chemicals are shown by the following table. Production is given in tonnes.

	1960 (Jan.-Aug.)	1961 (Jan.-Aug.)	% inc.
Sulphuric acid ..	1,384,102	1,429,190	3.2
Ammonia syn. ..	539,775	556,124	3.2
Caustic soda ..	285,456	287,655	0.8

Foreign trade in chemicals is shown by the following table. Figures are for the period January to August 1960 and 1961 and are given in million lire.

	1960 (Jan.-Aug.)	1961 (Jan.-Aug.)
Imports—chemicals ..	143,372	149,234
Imports—coal and tar derivatives	14,291	15,398
Total	157,633	164,632
Exports—chemicals ..	114,904	146,156
Exports—coal and tar derivatives	593	990
Total	115,497	147,146

The Italian chemical industry has always shown an adverse balance of trade, but for some years the deficit has been diminishing.

An increase in production during 1961 has been reported from the sulphuric acid, synthetic ammonia, nitric acid, urea, fertilisers, chlorine and sodium sulphide sections of the industry. Demands for chlorine from the paper industry were lower but these were offset by the increased demands from plastics manufacturers. The domestic consumption of caustic soda was about 5% which took up some of the excess available as a result of increasing demand for chlorine. The rest of the excess caustic soda was exported. The continued expansion of the plastics industry, however, is likely to lead to a surplus of this chemical.

A large increase in the output of sodium chloride is reported, and in spite of the fact that two new plants of Rumianca have come on stream, the percentage of capacity in use remained at the same level as in 1960.

Exports of sodium carbonate remained at the same level, but production was stepped up due to an increased home demand.

Good all-round reports come from the organic sector of the Italian chemical industry. The production of acetic acid, acetic anhydride and acetic esters was on a very satisfactory level due to the good demand from artificial fibre manufacturers. Expansion in production of resins stimulated the output of methanol and formaldehyde. In the same way, the demand from manufacturers of phenolic resins and polyamide fibres lead to an expansion in phenol output. Ethylene and propylene oxide also showed an increase in production.

During the year the total potential of Italy's phthalic anhydride capacity increased by between 25 and 30% over 1960. During the first nine months of 1961, exports of phthalic were highly satisfactory. Later in the year, however, they decreased under pressure from U.S., German and Japanese competition. Maleic anhydride showed the reverse situation. An increase in production capacity was accompanied by a decrease in exports, which continued into June. By July, however, both exports and home consumption had taken a turn for the better. Benzene, naphthalene and *o*-xylene experienced a decrease in demand both from home and overseas markets. A considerable increase took place in the output of organic dyestuffs.

Production of raw materials for the plastics industry increased, as did exports, but consumption at home although increasing, is not expanding as fast as it was hoped.

A further expansion was recorded from the pharmaceutical industry, in spite of price reductions enforced by the Government. Exports totalled about Lire 2.5 million—less than total imports.

S.C.I. to hold symposium on food regulations and international trade

AN international symposium on 'Food regulations related to international trade' will be held on 24 September, at Church House, Westminster, London S.W.1. It will follow the 1st International Congress of Food Science and Technology.

The symposium has been arranged for the convenience of food scientists and technologists from many countries who may be in London at this time. It will also interest those responsible for advising manufacturers in the difficult problems connected with the regulations of different countries, and even of different regulations in various parts of the individual countries.

Emphasis will be given primarily to problems associated with food additives of every type, and food labelling. The morning session will be devoted to papers by speakers from three countries. They will deal with (a) the present chaotic position; (b) food additive regulations; and (c) food labelling regulations.

The afternoon session will be opened by a speaker who will deal with efforts being made at present to simplify the position. This will be followed by a 'brains trust', which will answer questions previously submitted in writing. There will be an opportunity for general discussion.

Further particulars may be obtained from the hon. secretary, Food Group, Society of Chemical Industry, 14 Belgrave Square, London S.W.1.

Proceedings of A.B.C.M. productivity meeting

THE proceedings of the A.B.C.M. Productivity Techniques Conference, held in Harrogate in April 1961, have now been published. The conference covered the following subjects: Work study applied to administrative procedures; Evolutionary operation; Work study in the pre-production field; Operational research; Ergonomics.

Copies of the proceedings are available (22s 6d) from the Association of British Chemical Manufacturers, Cecil Chambers, 86 Strand, London W.C.2.

Laboratory service

New offices and showrooms for the Northern Division of the B.T.L. Group of companies (Baird and Tatlock) were recently opened at 124 Great Ancoats Street, Manchester 1. The new premises will provide greater facilities for the supply of laboratory instruments, apparatus and reagents.

PEOPLE in the news

● **Mr. Adam Taylor,** who has been appointed manager of the new Indian office of Humphreys and Glasgow (Overseas) Ltd. will arrive in Bombay on 26 January. The Indian subsidiary of Humglas was recently registered in Bombay and London to cover operations throughout the India sub-continent.

● The President of the Royal Society, Sir Howard Florey, has appointed the following vice-presidents for the year ending 30 November, 1962. **Lord Fleck, K.B.E.,** treasurer of R.S; **Sir Lindsor Brown, C.B.E.,** biological secretary; **Sir William Hodge,** physical secretary; **Sir Patrick Linstead,** foreign secretary; **Prof. W. T. J. Morgan, C.B.E.,** and **Sir Gordon Sutherland.**

● **Mr. J. A. Calnan,** who joined the technical sales department of Vinyl Products Ltd., Butter Hill, Carshalton, Surrey, in 1954 becoming assistant sales manager in 1958, has been appointed home sales manager. **Mr. P. O. Miles,** who has been appointed marketing manager, will be responsible for market

J. A. Calnan

W. H. Gathercole

research and the initial marketing of new products. For the past five years he has been in charge of all sales activities in north London. **Mr. W. H. Gathercole,** in charge of sales in south London since 1957, has been appointed Southern Area sales manager and will be responsible for all sales in London and the south of England.

● **Mr. J. E. V. Tyzack, C.B.E.,** who over the past 20 years has held prominent positions in Services and industrial planning and personnel administration, has been appointed a director of Polypenco Ltd., Welwyn Garden City, associate company of the Polymer Corporation, Reading, Penns.

● **Professor Arne Tiselius,** Nobel Laureate, of Uppsala, Sweden, has been appointed Messel Medallist of the Society of Chemical Industry for 1962.

● **Mr. Cecil F. Bush** has recently retired, on grounds of ill-health, from the board of W. J. Bush and Co. Ltd. At the same time he relinquished the other directorships he held within the Bush Group. A grandson of the founder, he joined Bush and Co. in 1930 at which time his father, Mr. Ferdinand Bush, was a director. For 10 years previously, Mr. C. F. Bush had been associated with a firm of produce brokers, in the essential oil and drug trades, in Mincing Lane, London. In 1931 he became joint general manager, and has been a director of the company since 1942. He was also a director of W. J. Bush and Co. (Australia) Pty. Ltd., W. J. Bush and Co. (Canada) Ltd., the Kitty Kola Co. Ltd., and Stimlo Beverage Co. Ltd. Until his retirement, Mr. Bush was a member of the Executive Committee of the Essential Oil Importers' Section of the London Chamber of Commerce, the British Aromatic Compound Manufacturers' Association and the Flavouring Compound Manufacturers' Association, and throughout the period of the Essential Oils Control Scheme he represented the British Essence Manufacturers' Association on the Essential Oils Advisory Committee.

● **Mr. Ralph Macon** has been promoted to manager—international development of Hooker Chemical Corporation's International Division. Mr. Macon, who joined Hooker last year as project manager of international development, will remain at the division's offices in New York.

● **Mr. Harry Ault,** manager of the laboratory services division of Q.V.F. Ltd., chemical engineers in glass, Stoke-on-Trent, has retired owing to ill health. He is succeeded by **Mr. John Angus,** formerly at the Q.V.F. Scottish office in Musselburgh. Mr. Angus will be responsible for the technical services of the division, and **Mr. Barry Cowper** will be in charge of the commercial aspects of the division's work.

● **Dr. J. Howard Brown,** who has been promoted to director of research of Hooker Chemical Corporation, has been manager—research since November 1960. In his new position, Dr. Brown will direct all corporate research, process development, and semi-commercial operations. He will remain at the Hooker Research Centre, Grand Island, N.Y.

● **Mr. W. J. Woodger, Jr.,** formerly with Warren Petroleum International Corporation, has been appointed manager, Gas and Gas Liquids Department, of Gulf Eastern Co. in London. Both companies are subsidiaries of Gulf Oil Corporation.

● **Mr. C. F. Thring,** secretary to the I.C.I. Billingham Division and a former Civil Servant, has been adopted as prospective Conservative candidate for Sedgefield.

● **Brigadier H. P. Crosland, C.B., C.B.E.,** has been elected as chairman of the Lead Development Association Council for 1962. He succeeds **Dr. W. G. Hiscock,** a director of Consolidated Zinc Corporation Ltd.

● As a result of the growth of their interests in Australia, Laporte Industries Ltd. have created the new position of commercial manager within their subsidiary, Laporte Chemicals (Australia) Ltd. **Mr. K. H. Rawsthorne,** who has been appointed to this new position, joined the Laporte Group in 1953 after periods of service with the Admiralty and I.C.I. He is at present sales development manager of Laporte Chemicals.

● **Mr. Leonard Hall,** having been released from his duties with Powell Duffryn has resigned from the board of Powell Duffryn Technical Services Ltd., to take up an appointment as director of investment, Africa, Asia and the Middle East, on the staff of the International Finance Corporation.

● **Mr. F. H. Lawton** has been appointed project manager of the Special Projects Group of AviSun Corporation of the U.S. He was formerly vice-president of Hood Chemical Co.

● **Mr. J. Thomson** has been appointed a director of the Ship Carbon Co. of G.B. Ltd., recently acquired by the Morgan Crucible Group.

● **Mr. H. Hesseling, Ir.,** director of the Dutch chemical plant organisation, Stichting Nederlandse Apparaten voor de Procesindustrie, has been appointed advisor to Stone and Webster Engineering (Holland) NV and the Arnhem branch of H. H. Fraser and Associates Ltd.

● **Mr. Lawrence E. Morey** has been appointed marketing manager of Mead Johnson Ltd. He began his career as a salesman with Thomas Hedley Ltd., followed by two years with a well-known advertising agency, then joined Colgate Palmolive Ltd., ultimately becoming marketing manager before joining Mead Johnson.

L. E. Morey (left), newly appointed marketing manager of Mead Johnson Ltd., with C. Grant Cornell, managing director, at London Airport on their return from a visit to the company's international H.Q. at Evansville, Indiana

Overseas News

HOECHST-CELANESE LINK TO MAKE ENGINEERING PLASTICS MATERIAL

THE production and marketing of polymers and other chemical products is the aim of Ticona Polymerwerke GmbH, a new company formed in Kelsterbach-on-Main, West Germany, by Farbwerke Hoechst AG, Frankfurt-on-Main, and the Celanese Corporation of America, New York.

Farbwerke Hoechst, already connected with Celanese Corporation in the synthetic-fibre company Bobina Faserwerke GmbH, Bobingen, West Germany, will hold 59% of the Ticona capital. This has now been raised from the DM 26,000 with which the company was set up last month to DM 10 million, while the Bobina capital has been increased similarly from the initial level of DM 20,000 to DM 50 million. The Ticona company plans to make a 'new thermoplastic material' with extreme hardness and for use to replace non-ferrous metals.

It is believed that the plastics material referred to is acetal resin, a plant for which has been developed by American Celanese in the U.S.

Spencer Chemical acquire eight fertiliser firms

Spencer Chemical have acquired eight fertilisers companies. They will exchange $4.8 million worth of their common stock for the stock or assets of the firms concerned. The eight firms all produce granulated fertiliser.

Acetylene from natural gas in Rumania

A plant to produce acetylene from natural gas, using the process of Société Belge de l'Azote et des Produits Chimiques du Marly (S.B.A.) is to be built in Rumania under an agreement between the Rumanian organisation Masinimport and the Belgian company Etudes et Recherches Industrielles (E.R.I.). S.B.A. will carry out the complete engineering of the plant and will supply the major part of the equipment.

It will be recalled that an S.B.A. process is used in the plant to produce acetylene from coke oven gas-based methane at the Carling, Moselle, works of the French company Houillères du Bassin de Lorraine (C.A., 27 February, 1960, p. 366).

East Germany and caffein exports

The complete Communist bloc can now be supplied with caffein from one single plant in East Germany, it is stated from East Berlin. This is the Radebeul works of V.E.B. Arzneimittelwerk Dresden, whose 300 tonnes/year capacity permits exports also to non-Communist countries. The expanded caffein plant works to a new system, enabling liquid-form production from a base of dimethyl urea, cyanoacetic acid and acetic anhydride, all of which materials are available from other East German producers. Caffein was formerly produced in solid form at Radebeul from monomethyl urea and cyanoacetic butyl ester bases.

Union Carbide drop vinyl acetate price

Union Carbide Corporation, U.S., have now dropped the price of their vinyl acetate monomer from 15.6 cents to 14.5 cents/lb. A similar move is considered likely from Du Pont, Celanese Chemical Co. (division of Celanese Corporation of America) and Shawinigan Resins Corporation.

Sicilian sulphur mines must modernise or lose concessions

Under new legislation brought in by the Sicilian Government of sulphur mines who fail, after an official notice, to fulfil modernisation programmes prescribed for their mines, will have their mining concessions cancelled.

The mines thus rendered available will be transferred to another applicant or, if no applicants materialise promptly, will be operated by receivers.

Nitrogen fertiliser expansion in India

First stage of the expansion programme of Fertilisers and Chemicals Ltd., Alwaye, has been completed in India. Installed capacity has increased by 100% in terms of nitrogen. Production of ammonium sulphate in the period January-October 1961 was 43,000 tonnes, as compared with 35,000 tonnes in the corresponding period of the previous year.

While there was practically no production of ammonium phosphate in 1960, during the first 10 months of 1961 output was about 11,000 tonnes. Production of ammonium chloride rose from 5,000 to 6,000 tonnes.

Yugoslavia quota lists chlorine and dyestuffs

Chlorine, hydrochloric acid, trichlorethylene, potassium iodide and various dyestuffs are among commodities contained in a new list of goods whose import into Yugoslavia is covered by a quota system.

More magnesium from Norsk Hydro

Norsk Hydro, Oslo, plan to double magnesium production at their Eidanger chemical works in the Heroya district of Norway. First stage of the expansion, which will bring output up to 30,000 annual tonnes, will be completed in October of this year.

P.V.C. plant being built in Bulgaria

Technicians from East Germany, Poland and Czechoslovakia are currently reported to be building an 18,000-annual tonnes plastics plant in the Devnya plains of Bulgaria. The plant will use acetylene and hydrogen chloride as base materials for the production of p.v.c.

Norwegian Minister takes up complaint about Sweden's nitrogen expansion plans

FOLLOWING protests made to the Swedish Government by Norvegienne de l'Azote, Norway's largest producer of nitrogenous fertiliser, at Sweden's plans to boost nitrogen output, Mr. Arne Skaug, Minister for trade, in the Norwegian Parliament last week deplored Sweden's plans to expand her domestic production. The Norwegian company in its protest stated that its capacity was sufficient for both countries (see also 'Distillates').

The Minister said that Swedish expansion in this area would create difficulties for traditional Norwegian exports. This was not in harmony with efforts to have an efficient division of production in Scandinavia. Sweden's nitrogen proposals come at a time when efforts are being made through the Nordic Council to formulate present Scandinavian co-operation in a special treaty. Aim is to safeguard common interests in view of coming negotiations with the Common Market.

Record U.S. sales of plastics expected

Mr. E. E. Winne, vice-president of the Polymer Chemicals Division of W. R. Grace, expects that sales of plastics materials will total about 6,500 lb. million in 1961, a 12% rise on 1960. The growth rate for plastics in 1962 is expected to continue expanding at a compound annual growth rate of about 11 to 12%. Mr. Winne added that the growth rate for plastics was about four times the increase experienced for all U.S. industry in the past 10 years.

Overseas news

ST-GOBAIN TO CO-OPERATE WITH GREEK FIRM IN FERTILISER VENTURE

TWO plants that will make Greece self-sufficient in fertiliser production are to be built by a new company that will be set up in Athens as a joint venture by the National Bank of Greece. the Hellenic Chemical Products and Fertilizer Co. and Compagnie de Saint-Gobain of France.

The new company, as yet unnamed, will start operations with plants at Piraeus and Kavalla in Northern Greece. Added to existing facilities they will satisfy all of Greece's fertiliser needs, both in quantity and types as established by the Greek Agricultural Department and the Agricultural Bank. In addition, the plants will produce various heavy chemicals both for domestic use and for export in the Mediterranean area.

By 1964, the complex of plants at Piraeus owned by the new company and by Hellenic Chemical will have a capacity of 250,000 tonnes/year of sulphuric acid, 40,000 tonnes of phosphoric acid and about 350,000 tonnes of fertilisers.

Saint-Gobain will take up shares in the new company, supply equipment credits, technical know-how and advice. (See also 'Distillates').

Reduction in polycarbonate resin prices

A reduction in the price of polycarbonate resins has taken place in the U.S. led by General Electric. They were quickly followed by Mobay Chemical. The new levels are $1.05 per lb. for non-coloured and $1.2 per lb. for coloured resins in truckload quantities, a reduction of $0.3 in each case. Powders for solvent casting have also been reduced to $1.05 and $1.35 from $1.3 and $1.5.

New plant for U.S. drug company

Merck Sharp and Dohme are to build a new pharmaceuticals plant at West Point, Pa.

U.S. chemical plant spending rises steadily

Expenditure on new plant and equipment by the U.S. chemical industry is rising steadily, according to the latest report of the Office of Business Economics, a branch of the U.S. Department of Commerce. Last year some $1,620 million were spent in this way, compared with $1,600 million in 1960 and $1,230 million in the previous year. The estimated expenditure for the first quarter of the current year, if seasonally adjusted, is equal to an annual rate of $1,700 million.

West German chemical quotas fixed

The Federal German Government has fixed an annual import quota for the current year of 430,000 tonnes of sulphate cellulose and sodium cellulose, while granting customs exceptions for aromatic products for carbon black manufacture, essential oils, crude tall oil and raw cocaine. For the first half of 1962 allocations of 3,500 tonnes have been set for balsam terpentine oil, 12,000 tonnes for crude sulphate terpentine oil and 7,500 tonnes for colophonium.

Sulphur extraction in Alberta

Jefferson Lake Petrochemicals of Canada Ltd., have begun sulphur production at their plant at Coleman, Alberta. The sulphur is extracted from sour gas from the Savanna gas field, 45 miles north of the plant site.

Jefferson Lake now have three sulphur plants in operation in Western Canada with a combined capacity of 1,600 tons/day.

American Enka to expand nylon facilities

American Enka are to expand their nylon facilities at Enka, N.C., by about 10% to 45 million lb. a year. The expansion should be completed by spring 1963. This latest expansion is in addition to the nylon expansion now under construction at Enka and scheduled for completion mid-1962.

Hungarian chemical output up 13%

Hungarian authorities state that over 1961 national chemical industry production increased by some 13% above the previous year's level, as compared with an overall industrial production increase of only 8%. Within the chemical industry itself, pharmaceutical output was up by 20% and the plastics and rubber industries each by 19% over 1960.

Spanish company to double p.v.c. output

Hispavic Industrial S.A., Spain, jointly owned by I.C.I. and Solvic, are planning to double their current p.v.c. production of 7,500 tonnes. To this end they are proposing a capital increase, said to be of 100 million pesetas.

Soviet chemicals for Cuba

Under a new trade agreement, the Soviet Union is to supply Cuba with fertilisers, chemicals cellulose, animal fats and vegetable oils, plant and equipment etc. Cuban exports to the U.S.S.R. will include nickel ore.

Sales boom for W. Australian fertiliser

Western Australian fertiliser sales in 1960-61 were a record 651,000 tons, according to the annual report of Westralian Farmers Superphosphates Ltd., which states that sales of the manufacturing company—Cuming Smith and Mt. Lyell Farmers Fertilisers Ltd.—reached 405,000 tons. The subsidiary—Albany Superphosphate Co. Pty. Ltd.—sold 106,000 tons from its factory at Albany.

Yugoslav production of major chemicals up 10% in first nine months of 1961

PRODUCTION of major chemicals in Yugoslavia increased by 10% during the first nine months of 1961, compared with the January to September period of 1960. The figures for the various sections of the industry are given in tonnes:

	1960 (Jan. to Sept.)	1961 (Jan. to Sept.)
Sulphuric acid	98,200	162,722
Caustic soda	35,822	36,700
Calcium carbide	50,501	61,537
Fertilisers	192,786	291,952
P.v.c.	5,306	6,125
Soap and detergents	23,852	23,715
Raw materials for drugs	617	483
Pharmaceuticals (millions dinars)	16,931	17,787

New plants coming on stream at Bor and Prahavo at the beginning of 1961 was responsible for the substantial increase in sulphuric acid and fertiliser outputs.

Yugoslav foreign trade presents the following picture (millions of dinars):

	1960 (Jan. to Sept.)	1961 (Jan. to Sept.)
Exports		
Caustic soda	527	294
Sodium carbonate	399	183
Calcium carbide	515	619
Other organic chemicals	159	293
Alcohol	202	7
Superphosphates	259	366
Plastics materials	158	9
Imports		
Sulphuric acid	446	48
Solvents, etc.	742	758
Ammonia and calcium nitrates	2,691	2,078
Superphosphates	726	56
Potassium salts	855	326
Resins and plastics materials	536	570

New chemical plant for Travelcost

A new chemical plant is being built by Travelcost in the industrial area of Bari, Southern Italy.

Commercial News

- American Viscose expect $2/share profit
- Cyanamid hope for record sales in 1961
- Kleber to take over majority of Polyplastic
- Rhone-Poulenc form new company

I.C.I.

Dividend and preliminary figures for I.C.I. are to be announced on 22 February—a month earlier than during the past few years. It is understood that the decision to do this was taken some months ago and has no connection with the bid for Courtaulds.

Whessoe

Stockholders of Whessoe Ltd., Darlington, have been asked to approve payment of £25,000 to M. A. G. Grant, managing director, for loss of income and pension right. Mr. Grant has resigned from the board for health reasons.

A.B.C.D.

Asfalti, Bitumi, Cementi e Derivati (A.B.C.D.) of Palermo have shown a net profit of Lire 233,735,290 for the year ended 30 September 1961. The petrochemical plant which the company has built in Sicily is now in operation although it is not running at full capacity.

American Viscose

Financial results of the American Viscose Corporation, U.S., have so improved that the company hopes for a total 1961 net profit of up to $2.00/share, whereas one representing only $1.75 to $1.80 had been expected as the result of previous 1961 quarters. Over 1960 the company recorded a share-profit of some $1.45. A greater expansion rate in the production programme is expected to be reached, possibly as the result of a takeover during 1962.

Snia Viscosa

Hambros Bank Ltd. announce that they have made arrangements with Credito Italiano, Milan, and with Snia Viscosa, under which Hambros will issue their own certificates for Snia Viscosa ordinary shares, to facilitate Snia dealings on the London Stock Exchange. This arrangement follows the application of a London official quotation for all the Snia ordinary and privileged shares.

Snia Viscosa have also announced the introduction of their shares to the Paris Stock Exchange.

American Cyanamid

1961 sales of American Cyanamid should exceed $600 million and establish a new record, says Mr. Kenneth H. Klipstein, president. He believed that further increases in sales and earnings will be recorded in 1962. Important U.S. expansion projects include a $3 million addition to ammonia facilities and a new agricultural centre near Princeton, N.J.

Overseas, $48 million had been applied to new and expanded plants, begun or completed in 12 countries in 1961. These included antibiotic and melamine crystal plants in the U.K., antibiotic units in Italy, India, Brazil and Mexico, pharmaceutical formulating plants in Belgium, West Germany, Pakistan, Venezuela, Colombia and South Africa. Capital projects this year will cost between $45 and $55 million.

Lederle Laboratories Division is making progress in its efforts to produce approved types of live virus oral polio vaccine and may possibly receive a licence to produce all three types early in 1962.

Chemical Bank

Net operating earnings of the Chemical Bank New York Trust for 1961 reached the record of $43.9 million or $5.18 share ($40.9 million, or $4.83/share). Capital, surplus and undivided profits at 31 December totalled $430.2 million ($413.2 million). Deposits increased 11.7% to $4,352 million.

Eurofund

As at 30 September last the total holdings of the investment fund Eurofund Inc., which has a particular interest in the European chemical industry, were $U.S. 33,965,598 as against $28,014,297 as at 30 June 1961, and only $24,370,878 as at 31 December 1960. Intrinsic worth of each Eurofund certificate rose over the period from $18.99 at the end of 1960 to $21.83 on 30 June 1961, dropping back to $20.54 as at 30 September 1961.

Hercules Powder Co.

A general meeting of Hercules Powder Co., Wilmington, Del., has been called for 20 March to discuss the granting of a share distribution in the ratio 1:2.

Meyhall Chemical AG

Meyhall Chemical AG is the name of a new company formed in Kreuzlingen, Switzerland, with a capital of S.Fr. 2.6 million and with the aim of producing chemical products and taking up holdings, particularly in the Meypro AG concern, also of Kreuzlingen. The new company has a mixed U.S.-Swiss board.

Polyplastic

Kleber-Colombes, rubber and plastics producers of France, are to take over the majority of the Polyplastic plastics concern, also of France. The take-over includes some 200 patents in various countries and a research laboratory, the latter concerned with plastics and elastomers study. Polyplastic will continue to function as an agent for foreign plastics and elastomers.

Rexall

Rexall Drug and Chemical Co. of the U.S. have acquired a majority holding in Dr. Kettlehack, Borken, Westphalia, pharmaceutical producers. Kettlehack will become part of Riker Laboratories, Rexall's ethical subsidiary and will produce some Riker producers. Other Riker companies are in Australia, Canada, New Zealand, South Africa, Switzerland and the U.K.

Rhone-Poulenc

Société des Usines Rhône-Poulenc, France, whose shareholders have just approved a merger scheme with Celtex (now renamed Participations Industrielles et Cellulosiques), have formed a new company to take over their complete industrial and commercial assets and research facilities. The new company is named Société Nouvelle des Usines Rhône-Poulenc, with capital of Fr. 400 million. The old company, which has taken the name of Rhône-Poulenc S.A. and has a capital of Fr. 675 million, will act purely as a holding concern (see CHEMICAL AGE, 15 July and 25 November 1961).

Over the first 11 months of 1961, the company states, its chemical-pharmaceutical turnover was 6.2% above that for the corresponding 1960 period and some 24.7% of chemical-pharmaceutical production value was exported.

Standard Oil

Shares of Standard Oil Co. of New Jersey are to be admitted to official trading on the Paris Bourse.

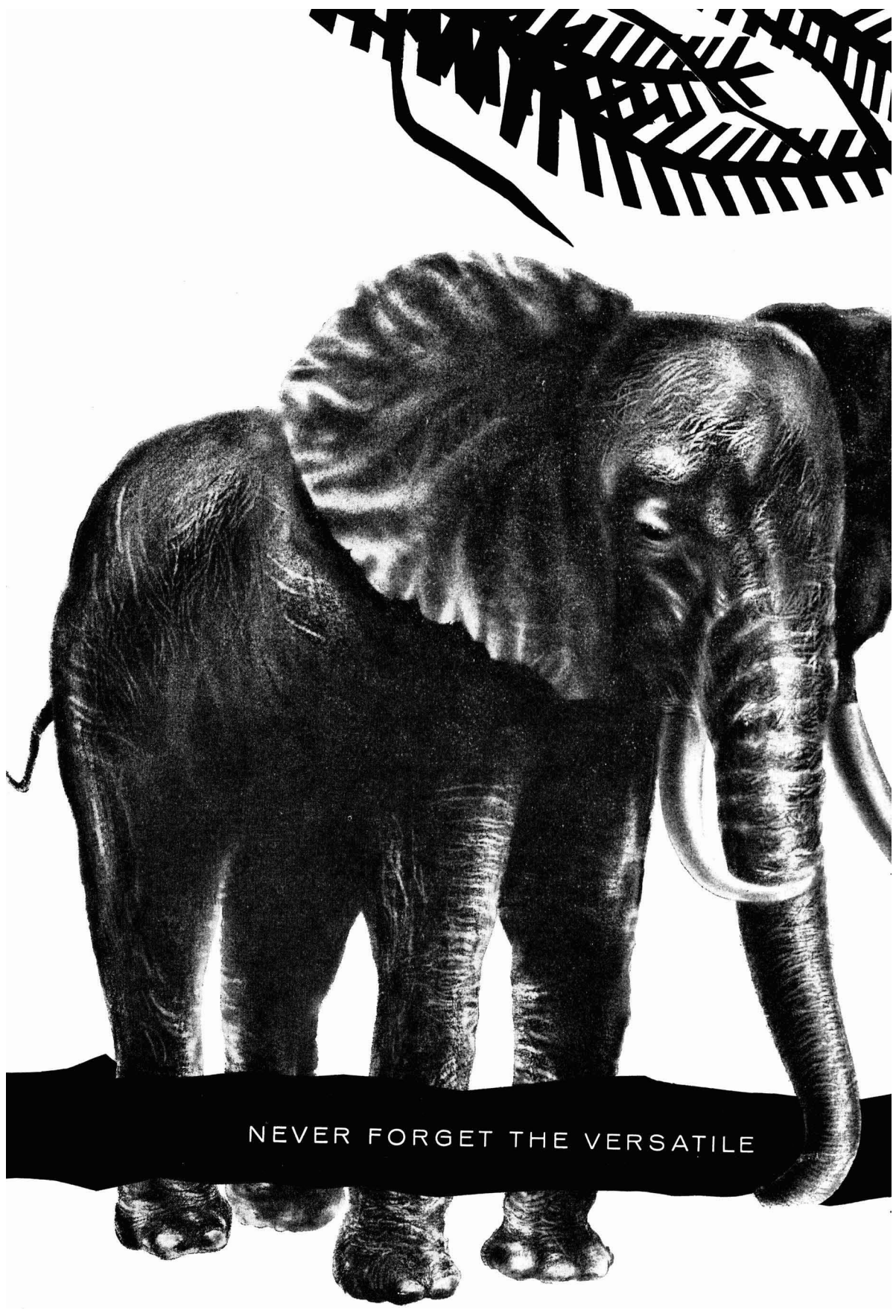
Stickstoffwerke

Oesterreichische Stickstoffwerke AG, Linz, have stated that more forethought than previously will have to be used in the utilisation of funds available for investment expenditure. In the forefront of investment considerations was the start of synthetic fibre production jointly with the Zellwolle AG, cellulose producers, of Lenzing, while the question as to whether Stickstoffwerke should expand petrochemical capacities through their associated Danubia still has to be cleared. The company expects a further continuation of price pressure on its export market over the current year.

Strath Labor AG

Strath Labor AG is the name of a company formed in Zurich, Switzerland, with a capital of S.Fr. 50,000. As the company, expected to take up pharmaceutical production, has a chairman who is a leading figure in the Migros Genessenschaft Swiss chain-store group, it is anticipated that Migros—already engaged in a mineral oil refinery in North Germany through the Frisia subsidiary—are planning to take up pharmaceutical production.

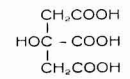
(*Continued on page 144*)


NEVER FORGET THE VERSATILE

CITRIC ACID

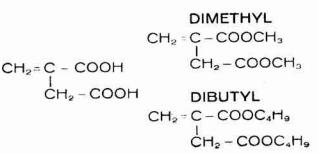
Non-toxic—excellent sequestrant—one of the most versatile of industrial organic acids—efficient cleaner for ferrous and non-ferrous metals—successfully used in pre—and post-operational power plant cleaning and radio-active decontamination programmes.

Citroflex* esters are gaining a reputation as efficient, non-toxic plasticisers. *Trade Mark



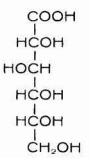
ITACONIC ACID

Low toxicity—reactive monomer—carboxyl groups can add adhesion, stability and solubility to copolymers. Other itaconic monomers (dimethyl and dibutyl) commercially available.



GLUCONIC ACID

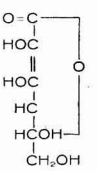
Non-toxic—outstanding sequestrant in caustic solutions—low corrosion rate—extremely useful in formulation of metal cleaning compounds for rust removal and paint stripping. Also used in electroplating and other industrial sequestrant applications.



ERYTHORBIC ACID

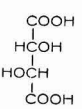
FORMERLY ISOASCORBIC ACID

Non-toxic—effective industrial anti-oxidant—widely used in the brewing industry to protect beer against 'off-taste' and 'haze' caused by oxidation.



TARTARIC ACID

Non-toxic—excellent sequestrant—salts widely used in metal cleaning and plating, textile printing, and blue-printing, plus a host of related industries.



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Pfizer Ltd
Chemical Sales Division
Sandwich
Kent

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CH48/17025

Mettur Chemicals plan 100-ton caustic soda capacity

INDIA'S target for caustic soda capacity by 1965 is 350,000 tons, compared with 5,800 tons produced in 1948. This was stated by Mr. K. C. Reddy, Indian Minister for Commerce and Industry, when he opened an expansion project to 40 tons/day at the Mettur works of the Mettur Chemical and Industrial Corporation recently. Next phase of the company's expansion will raise capacity to 100 tons/day.

The 1965 target of 350,000 tons a year would make India self-sufficient in caustic soda. Mr. Reddy added that the Government was keen that small units producing basic chemicals should expand to economic size in order to lower production costs.

Indian production of soda ash had risen from 28,000 tons/year in 1948 to 175,000 tons/year in 1961. Reasonably sized units had been set up and one of them had already reached a capacity of 400 tons/day. Caustic soda was now being produced from soda ash without the problem formerly associated with the utilisation of chlorine. Soda ash production is planned to rise to 500,000 tons/year.

Dr. P. S. Lokanathan, chairman of Mettur Chemical, who were acquired by Seshasayee Bros. in 1940, said that the 1965-66 target of 350,000 tons for caustic soda was rather modest. Demand by that time should reach 350,000 tons; provided that 85% of installed capacity was utilised, that demand should just about be met. He felt the target should be raised to 450,000 tons.

Even with Mettur's planned 100 tons/day, their annual output would only reach 30,000 tons. With two other South Indian units that would bring the area total to between 90,000 and 95,000 tons/year by 1965-66. Present consumption in the Southern Region was about 45,000 to 50,000 tons; by 1970-71 demand would total 165,000 tons, by which time the all India demand for caustic soda would have reached some 625,000 tons.

There was therefore a need to plan for bigger capacities and Mettur Chemical should plan to raise their capacity to at least 200 tons/day within the next seven to 10 years.

Mettur are also constructing a new potassium chlorate plant to their own design and fabricated locally. This is claimed to represent a saving of between 200 to 300% compared with imported chemical plant and equipment.

Recently Mr. K. K. Raman and Mr. S. Ramaswamy returned from a tour of Europe, the U.S. and Far East, after establishing contact with foreign firms. Main aim of their tour was to explore possibilities of securing assistance, including financial aid, to enable Mettur Chemical to set up the additional plant needed to boost caustic soda capacity to 100 tons/day and to start the manufacture of a whole range of new products based on chlorine. These are likely to include insecticides, plastics, solvents, etc.

Furfural in France

In our issue of 11 November 1961, p. 768, it was stated that a plant for the production of furfural was to be erected at Sorgues, France, by Soc. Financiere et Industrielle des Petroles (F.I.P.). This story, which was obtained from a usually very reliable West German source, now appears to be without foundation. R. Aumas et Cie, Paris, selling agents for Soc. Agrifurane—an F.I.P. Subsidiary—point out that a plant to produce furfural was erected at Boé-Agen (Lot et Garonne) by Soc. Agrifurane and has operated quite satisfactorily since production started in August 1959. Previously, Agrifurane produced furfural at Sorgues, but this has been discontinued.

Market Reports

NEW BUSINESS IN MOST SECTIONS

LONDON There has been a fairly active movement of industrial chemicals with new business broadly placed in most sections of the market, and contract deliveries being regularly called for. Quotations generally have been maintained at recent levels. There has been a steady call for the routine soda products and potash chemicals, and a fair trade in hydrogen peroxide, formaldehyde, borax and the barium compounds. The market for agricultural chemicals is again without feature, while in the coal tar prdoucts there has been a steady call for creosote oil, cresylic acid and the light distillates.

MANCHESTER Apart from price reductions in a further range of plasticising materials, quotations for chemical products have been maintained in virtually all sections. Home trade consumers, with a relatively few exceptions, are drawing steadily against existing commitments extending over the early months of the year, and there is a reasonably satisfactory movement for export. Fresh bookings during the week have been on a fair scale. The tar distillates are mostly meeting with a quietly steady demand.

SCOTLAND Trading has been fairly steady although some sections of industry may not yet be at full production. Quantities have been more or less nominal, and demands have varied, including the usual basic range of acid, hypo and caustic. There has been a good volume of enquiries for the export market.

Commercial news

(*Continued from page 141*)

U.S. Rubber Overseas

U.S. Rubber Overseas S.A. is the new name of the former Interbel Holding Company S.A., the company's aims being the production of natural and synthetic rubber, chemical products, plastic materials and semi-products and products from these bases. The company's H.Q. remains in Geneva. Capital has been increased from S.Fr. 50,000 to S.Fr. 5 million.

INCREASES OF CAPITAL

A/S ARENDAL SMELTEVERK, producers of silicon carbide, Norway. Capital has been increased from Kr. 4.56 million to Kr. 18.24 million by a scrip issue.

COMPAGNIE DE SAINT-GOBAIN, France. Capital is to be increased from Fr. 521,950,000 to Fr. 626,340,000, by the issue of 1,390,000 shares (at a ratio of 1:5) at an issue price of Fr. 180; nominal value is Fr. 75.

CUTOLO-CALOSI GROUP, operating three chemical-pharmaceutical concerns in Naples and Florence, are planning to increase their capital from Lire 1,350 million to Lire 2,700 million.

GEIGY-WERKE SCHWEIZERHALLE AG, Muttenz, Switzerland, a subsidiary of the Basle chemical group J. R. Geigy AG. Capital is to be increased from S.Fr. 20 million to S.Fr. 30 million.

D. MCDERMOTT (CHEMICALS) LTD., 31 Gladstone Street, Widnes. Increased by £10,000 beyond the registered capital of £20,000.

SCIENTIFIC PHARMACALS LTD., manufacturers of and dealers in chemicals, etc., Innoxa House, Essex Road, London N.1. Increased by £1,000 beyond the registered capital of £2,000.

VANTOREX LTD., manufacturers of and dealers in chemicals, etc., 1 Morley Street, Loughborough. Increased by £499,500, beyond the registered capital of £500.

NEW COMPANIES

ANGLO SWISS CHEMICAL PRODUCTS LTD. Cap. £10,000. Objects: To acquire the business of Antisol Developments, importers, factors, agents and manufacturers of Swiss chemical products marketed by Antisolchemie, chemists, druggists, chemical engineers, manufacturers of an dealers in chemicals, plasters, salts, acids, varnishes, paint, perfume, proprietary articles, photographic equipment and apparatus, etc. Directors: J. H. Robinson, G. Ross, F. W. Hardy and D. C. R. Hutchings. Reg. office: 28 Blackfriars Street, Manchester 3.

BAYLEYS CHEMISTS (FRINTON) LTD. Cap. £5,000. Manufacturing, wholesale, retail, consulting, research, analytical and dispensing chemists, etc. Directors: C. F. Bayley and Margaret P. Bayley. Reg. office: Granby Place, Granby Street, Leicester.

TRADE NOTES

Export prices in decimals

Quickfit and Quartz Ltd., Stone, Staffs., makers of interchangeable laboratory glassware, are to publish their export prices in decimal form. The company's next export price list will express one guinea as £1.05, and so on. Quickfit already use the metric system for weights and measures in their catalogues and technical specifications.

Changes of name

United Drug and Chemical Co. (Medland) Ltd., Morley Street, Loughborough, Leics., have changed their name to Rexall Drug and Chemical Co. (U.K.) Ltd.

Whitfield (Engineering) Chemical Co., Ltd., 20 Hill Street, London, have changed their name to Whitfield Investments Ltd.

Scientific instruments

Dr. P. R. Masek, 146 Randolph Avenue, London W.9, has been appointed sales agent of A. Kruss, Hamburg, for their scientific instruments, colorimeters, photometers, spectroscopes, tensiometers and erythrocytometers.

Achema 1964 booked up

Floor space available for the Achema Congress 1964 at Frankfurt (Main) West Germany, has already been fully booked. Applications have been received for a net exhibition space of about 732,000 sq. ft., whereas the available space in 20 halls, is 603,000 sq. ft. Organisers of the exhibition are Dechema (Deutsche Gesellschaft für chemisches Apparatewesen), Frankfurt (Main) 7, Postfach 7746, West Germany.

Durez resins in flake form

OMNI (G.B.) Ltd., 35 Dover Street, London W.1, are now supplying Durez alkali soluble resins, such as 15546 and 19788, in flake form instead of in ground form. The flake form eliminates dust and makes the resins easier to handle. Flakes are approx. .040 in. thick and about $\frac{1}{2}$ in. across.

Mixers

A wide variety of mixers manufactured by Baker Perkins Ltd., Westwood Works, Peterborough, is illustrated in a 20-page brochure issued by the company. Standard production and laboratory models for many different duties are described, the range including tilting and bottom outlet models and also heavy duty shear-mix machines for heavy plastics masses and rubber mastication.

New symbol for United Glass

A new symbol has been adopted by United Glass Ltd., U.K.'s largest makers of glass containers. It consists of the letters UG inside a hexagonal framework representing a quartz crystal structure. The six sides are intended to convey the many-sided activities of United Glass.

Polysar price cuts

Prices of Polysar SBR have been cut by Polymer (U.K.) Ltd. Like price cuts made by International Synthetic Rubber Co. Ltd. and Shell Chemical Co. Ltd., these reductions were effective on 1 January.

DIARY DATES

MONDAY 22 JANUARY

R.I.C.—Enfield: Technical College, Queensway, Ponders End, 6.30 p.m. 'The role of chemistry in mineral processing' by A. J. Robinson.

S.Inst.Tech.—London: Manson House, 26, Portland Place, W.1, 5 p.m. 'Recent developments in automatic boiler control practice.'

TUESDAY 23 JANUARY

F.S.—London: Geological Society, Burlington House, Piccadilly, W.1. 'The origin and processing of phosphate rock, with particular reference to beneficiation' by Vincent Sauchelli.

WEDNESDAY 24 JANUARY

S.C.I.—London: 14, Belgrave Square, S.W.1. 6.15 p.m. 'Gastronomic chemistry,' by Dr. A. McM. Taylor.

THURSDAY 25 JANUARY

S.C.I.—London: 14, Belgrave Sq., S.W.1. 6.30 p.m. 'Chemical control of soil fertility,' by Dr. G. W. Cooke.

S.C.I.—Plymouth: The Tech. Col., Tavistock Rd., 5.30 p.m. 'Achievements and aims in corrosion prevention: afterthoughts on the international corrosion contest by S. C. Britton.

NEW PATENTS

By permission of the Controller, H.M. Stationery Office, the following extracts are reproduced from the 'Official Journal (Patents)', which is available from the Patent Office (Sales Branch), 25 Southampton Buildings, Chancery Lane, London W.C.2, price 3s 6d including postage; annual subscription £8 2s.

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

ACCEPTANCES

Open to public inspection 21 February

Film-forming dehydrocopolymers. Imperial Chemical Industries Ltd. **889 792**

Liquid washing agents incorporating glycol derivatives containing peroxide groups. Henkel & Cie GmbH. **889 652**

Process for the production of substituted triazines. Deutsche Gold Und Silber Scheideanstalt. **889 715**

Process for removing sodium chloride from aqueous caustic soda solutions. Farbenfabrik Folfen Veb. **889 717**

Silicon-containing reaction products of epoxidised oils. Boake, Roberts & Co. Ltd. **889 800**

Ion-exchange assemblies and methods of treating liquids. Rohm & Haas Co. **889 656**

Cyclisation of substituted acetylenes to produce aromatic compounds. Huebel, K. W. [Divided out of 885 514.] **889 993**

Process for dehydrating the catalyst in deuterium exchange installations. Deutsche Gold- Und Silber-Scheideanstalt. **889 823**

Strong calcium silicate hydrate product and process of making same. Dilnot, S. **889 763**

Process for the production of alkyl sulphonic acids and alkyl sulphonic acid compounds. Ziegler, K. **889 764**

Synthesis of steroids. Olin Mathieson Chemical Corp. **889 765**

Process for polymerising lower olefins. Farbwerke Hoechst AG. **889 829**

Method of production and use of substituted sulphonphthalein dyes. Svoboda, V., Terzijska, D., and Korbl, J. **889 801**

Process for the production of boron-nitrogen compounds. Farbenfabriken Bayer AG. **889 599**

Manufacture of polymeric materials. Imperial Chemical Industries Ltd. **889 720**

Disazo-dyestuffs insoluble in water and process for their manufacture. Farbwerke Hoechst AG. **889 802**

Yohimbane derivatives. Laboratories Francais de Chimiotherapie. **889 774**

Production of foamed resins. Nopco Chemical Co. **890 045**

Metalliferous azo-dyestuffs containing monohalogentriazine residues and process for their manufacture. Ciba Ltd. **889 833**

Metallisable trisazo dyestuffs and their use. Geigy AG, J. R. **889,658**

Block polymers of aliphatic 1-olefins. Phillips Petroleum Co. **889 659**

Pigmented fibre-forming polyesters and process for their manufacture. Farbwerke Hoechst AG. **889 811**

Process for optically brightening polyacrylonitrile fibres. Ciba Ltd. **889 642**

Thorium disilicide. General Electric Co. Ltd. **889 775**

Process for the production of polyethers. Farbenfabriken Bayer AG. **889 633**

Process for the production of dicyanogen and carbon disulphide. Deutche Gold Und Silber Scheideanstalt. **889 716**

Steroids and the synthesis thereof. Olin Mathieson Chemical Corp. **889 766**

Gold tertiary alkyl mercaptides and method for the preparation thereof. Engelhard Industries Inc. **899 912**

Process for the production of borazanes. Farbenfabriken Bayer AG. **889 600**

Halogenated resbenzophenones and their etherified derivatives and compositions resistant to ultraviolet light. Allied Chemical Corp. **889 777**

Process for the manufacture of vinyl polymers. Wacker-Chemie GmbH. **889 645**

Blue disperse dyestuffs of the anthraquinone series. Sandoz Ltd. **889 814**

Production of phosphine. Albright & Wilson (Mfg.) Ltd. **889 639**

Steroids and the manufacture thereof. Upjohn Co. **889 779**

N-Monosubstituted-2,2-dialkyl-1,3-propanediol dicarbamates. Carter Products, Inc. **889 641**

Process for the bromination of acetylene. Associated Eethyl Co. Ltd. [Addition to 804 995.] **889 649**

2-β-Methoxyethylpyridine, manufacture thereof and anthelmintic. Imperial Chemical Industries Ltd., and Midland Tar Distillers Ltd. **889 748**

Substituted aminoalkylamides. Monsanto Canada Ltd. **889 749**

Guanidine derivatives. Monsanto Canada Ltd. **889 726**

Hydrazinium compounds, their production and pharmaceutical compositions containing them. Grace & Co., W. R. **889 671**

Production of polyester films. Du Pont de Nemours & Co., E. I. **890 004**

Production of stable, aqueous polymer dispersions which contain a high percentage of copolymerised vinylidene chloride. Badische Anilin & Soda-Fabrik AG. **889 847**

Process for the preparation of ferrous leucoferrocyanide and Prussian blue. Montecatini. **889 673**

Bis-dithiocarbamates. Montecatini. **889 675**

Derivatives of 3¹-methyl-spiro (2H-1-betanaphthopyran-2,2¹[2¹H-L¹-benzopyran]). National Cash Register Co. **889 586**

Stretching of organo polymer film. Du Pont de Nemours & Co., E. I. **890 005**

Synthetic rubber latex. United States Rubber Co. **889 732**

Preparation or treatment of monomethyl hydrazine. Olin Mathieson Chemical Corp. **889 705**

Fungicidal composition. Clayton, T. A. (United States Rubber Co.). **889 706**

Process for regulating the molecular weight of ethylene-propylene and ethylene-butene copolymers. Montecatini. **889 852**

Preparation of glycerol. Olin Mathieson Chemical Corp. **889 613**

Polyolefin compositions. Du Pont de Nemours & Co., E. I. **889 680**

Recovery of naphthalene from petroleum fractions. Ashland Oil & Refining Co. **889 789**

Modified rubbery organopolysiloxane putty compositions. Dow Corning Corp. **890 007**

Olefin copolymers. Montecatini, and Ziegler, K. **889 707**

Process for hydroxylation of steroids. American Cyanamid Co. **889 853**

Polymerisation of acetylene and mono-substituted acetylenes and catalysts therefor. American Cyanamid Co. **889 730**

Linear polymers having stereo regular structure of vinyl cyclic monomers. Montecatini. **889 591**

Polyethylene compositions. Grace & Co., W. R. **889 736**

Process for the manufacture of diaminodianthraquinonyls. [Divided out of 887 923.] Ciba Ltd. **889 746**

Hastelloy alloys withstand hot acid

PIPES and fittings of Hastelloy B nickel alloy are reported to have successfully withstood 50% sulphuric acid at 200°F for more than 400 hours without sign of corrosion in a U.S. installation where Standard Puroxoloid Corp. of Leominster, Mass., use sulphuric acid for a dip bath to remove organic surface particles from stainless steel. Separating racks, to hold the metal sheets as they are dipped, have also been constructed in Hastelloy B and likewise shown no sign of corrosion.

According to the Metals Department of Union Carbide International Co., almost every material tried for this application corroded beyond use in periods varying from 8 hr. to three days. The problem was further complicated by fumes accompanying the corrosive action, making it impossible to work in the vicinity of the acid.

Another successful use of a Hastelloy alloy, this time the alloy C, is in a sump pump stated to have handled dry bromine continuously for 10 years without trouble. The pump is installed at the bottom of a bromine storage tank at one of the Dow Chemical Co.'s works. Bromine, at room temperature, is blown with dry air from a rail tanker into the storage vessel, from which it is pumped off as required and piped to the plant process lines. All the pump contact parts are in Hastelloy C, including piping and 2-in. discharge line. U.K. supplies of Hastelloy alloys are Langley Alloys Ltd., Langley, Slough, Bucks.

Sound waves improve conversion of salt water

THE use of sound waves can improve the economy of evaporator operation in converting saline water to fresh water, according to a study conducted by the U.S. Department of the Interior. Employment of acoustic vibrations in the viscous and turbulent flow of water in electrically heated pipes and in the pipes themselves resulted in improvement in water side heat transfer coefficients varying from 450% at a Reynolds number of 540, to 16% at a Reynolds number of 16,000.

A report of the study, PB/171/911, is available from the Office of Technical Services, Business and Defense Services Administration, U.S. Department of Commerce, Washington 25, D.C.

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Bookshelf

Developments in chemistry of natural phenolics group

RECENT DEVELOPMENTS IN THE CHEMISTRY OF NATURAL PHENOLIC COMPOUNDS. Edited by *W. D. Ollis*. Pergamon Press. Pp. 237. 70s.

The lectures given at the symposium held in 1960 by the plant phenolics group form the basis of this book. Under the editorship of Dr. Ollis the lecturers have expanded their contributions and review their topics in relation to the general context of current research in natural product chemistry.

The opening chapters are devoted to reviews on the biosynthesis of plant phenolic compounds and their structural and biogenetic relationships. The subsequent chapters deal with the biosynthesis of isoflavones, isoprenoid units in natural phenolic compounds, recent syntheses of various natural products by free radical coupling of phenols, and then recent developments in the chemistry of tannins.

The remainder of the book reviews structural investigations on biflavonyls, new phenolic C-glycosides, and the red pigments, the betacyanins. The last chapter contains the first published account of a new family of antibiotics obtained from various strains of Actinomycetes. In reviewing the evidence for the structure of rutilantinone and other members of this group, all of which are derivatives of polyhydroxytetracene quinone, the editor shows clearly the contribution from ultra-violet, infra-red and nuclear magnetic resonance spectroscopy in interpreting the information obtained by chemical degradation.

The text contains abundant structural formulae, and extensive bibliographies are given at the end of each chapter.

Spectroscopy

ULTRA-VIOLET AND VISIBLE SPECTROSCOPY. By *C. N. R. Rao*. Butterworths and Co., London, 1961. Pp. xiii + 164. 30s.

This eminently readable account by a well-known spectroscopist introduces the basic concepts of electronic spectroscopy in a clear and logical manner. Having prepared the background thoroughly the author deals with the more important applications such as the analytical and structural analysis of simple molecules, conjugated and aromatic molecules and heterocyclic molecules. A general chapter on applications introduces such topics as optical isomerism, tautomerism, the study of chemical reactions and other physicochemical studies. This chapter is valuable but rather condensed. Among more recent developments dealt with are the far ultra-violet spectra of organic molecules, fluorescene and charge transfer spectra.

The only criticism that can be made concerns the rather meagre treatment of ligand field theory and rotatory dispersion. The book represents excellent value for 30s.

Plastics materials

CHEMIE, PHYSIK UND TECHNOLOGIE DER KUNSTSTOFFE. PART 7; VOL. 2. PRAKTISCHE KUNSTSTOFFPRÜFUNG. Edit by *R. Nitsche* and *Paul Nowak*. Springer-Verlag, Berlin, 1961. Pp. xii + 656. DM 112.

This volume of a comprehensive work on plastics materials deals with the problems of testing and quality control. It is organised in six sections. The test laboratory (24 pp.), Sampling (23 pp.), Determination of the chemical and physical properties of the plastics material (368 pp.), Testing the fabricated article (192 pp.), Evaluation of results (15 pp.), Standards and safety (16 pp.). The major part of the book is thus given over to a comprehensive and critical account of the measurement of the physical properties (particularly mechanical) of plastics materials. There are also sections on resistance to corrosion and to attack by micro-organisms and on the physiological properties of these materials. Reference is made throughout to the German and International standards at present in use, making this a valuable international reference book.

Titrimetry

PHOTOMETRIC TITRATIONS (INTERNATIONAL SERIES OF MONOGRAPHS ON ANALYTICAL CHEMISTRY, VOLUME 4). By *J. B. Headridge*. Pergamon Press Ltd., Oxford, 1961. Pp. 122. 45s.

This book fills a gap in the list of available text-books on analytical procedures. The author justifies his production by facts which show the rapid rise in interest in photometric titrations since 1952. His first chapter, Introduction and theory, could be improved: in one place the reader has to deduce the meaning of a symbol and wait patiently for confirmation that his deduction is correct. Commercially available apparatus is described, the modification of commercial photometers and spectrophotometers discussed and some cases of the construction of instruments from basic components referred to. The description and discussion of the use of photometric titrations is divided into acid-base titrations, oxidation-reduction systems, complexiometric titrations, precipitation reactions, coulometric titrations and miscellaneous applications. Measurements of over 50 different substances or types of substance such as water, metals, anions, phenols, olefins, dyestuffs and protein (to list but a few examples) are included. There are 266 references to original papers (latest 1959) though the author mentions in his text that some 300 papers had been produced up to 1959. Of the listed publications 64 are due to the efforts of Bobtelsky and his collaborators between 1953 and 1959. The text is supported by an author and a subject index.

The book is nicely produced with photographs and many line diagrams and would make a useful addition to many libraries.

Small-scale organics

EXPERIMENTAL CHEMISTRY. PART II. SMALL-SCALE ORGANIC PREPARATIONS. By *P. A. Claret*. Pitman, London, 1961. Pp. 142. 18s.

This book is the second in a series on experimental chemistry by this author, the first being concerned with inorganic experimental chemistry. The present volume is to be regarded as a companion volume to Part III which deals with organic qualitative analysis. The book is intended for use by sixth forms and by candidates for the Ordinary and Higher National Certificates, etc.

The quantities of reactants used in the formal preparations give yields of the order of 0.5 to 2 g. of solids and 2 to 4 ml. of liquids. The recommended apparatus, described in Chapter 1, is based on earlier equipment designed by the author. Chapter 2 discusses the common techniques of organic chemistry, while Chapter 3 comprises preliminary exercises in the application of these techniques.

The author is to be commended on the amount of information included in such a small volume, and accordingly some of the discussion in Chapter 2 is brief and some teachers will have reservations regarding some parts of the opening chapters.

Chapter 4 is devoted to the main classes of aliphatic compounds, their preparation, their reactions, 'group tests' and derivatives. Again, some teachers will have reservations as to the value of colour tests.

Chapter 5 deals with aromatic compounds while Chapter 6 gives experimental instructions for the preparation of heterocyclic compounds such as pyrrole, indole, pyridine, and quinoline derivatives each preparation being prefaced by a useful discussion of the reaction.

The text is clearly illustrated with many formulae and equations and is bound in a stiff paper cover. There is a misprint on page 67. The book will be a useful addition to the other texts on this particular aspect of organic chemistry.

Equipment news and trends

'AIR stream grinding' is the basis of the Ultra-Rotor **micro grinder**, now introduced to the U.K. in two models providing for outputs of up to 4,400 lb./hr. and up to 2,200 lb./hr., depending on the materials to be ground and the degree of fineness required. The process is claimed to have special advantages for the grinding of heat-sensitive substances, foodstuffs and other materials that might have their vital properties harmed by conventional grinding techniques.

Material is fed into an input hopper from which it is conveyed by a worm into the grinding chamber, where a high speed rotor creates intense turbulence and numerous vortices. An impeller at the top of the grinding chamber draws air into the machine through vents situated at the base of the rotor and this powerful air stream carries the material fed by the worm into the vortices where it is subjected to severe buffeting and inter-particle bombardment.

Immediately below the impeller lies the separator disc which permits particles only of selected fineness to pass for collection while the rejected material is swept back via a by-pass for recirculation and regrinding. Several adjustments are possible to give varying degrees of fineness.

A new micro-classifier is also offered to meet the need for classifying into three or four fractions fine powder in the very low micron range. The system operates on the principle of twin cyclones with adjustable pneumatic barriers established in the secondary chambers acting as cushions in the collecting chambers.

Steels Process Plants Ltd., Steel House, Eastcote, Middx.

* * *

New Valpac 10-gall. blow-moulded **drum** has a liner of a special grade of polythene with extra chemical resistance. Integral plug and buttress threads, seals with hand tightening and provision for pilfer-proof capping are further features. Outside protection in transit is provided by the steel outer container. The outers which are available in various gauges are painted externally with acid resisting paint of a standard shade and are internally coated against corrosion. A new flush top head (with bolt-type closing ring) ensures cleanliness, secure stacking, ease of pouring and protection of the closure. The special neck assembly provides a positive weather-proof seal between liner and outer.

Metal Containers Ltd., 17 Waterloo Place, Pall Mall, London S.W.1.

* * *

For physical and chemical experiments where visible or ultra-violet radiation plays a part, there is a new range of **spectral lamps** with transformers and a new stand and control gear to be used in conjunction with them. Lamps are of the spectrum discharge type; transformers are auto-leak of the low-power factor type.

Griffin and George (Sales) Ltd., Ealing Road, Alperton, Wembley, Middx.

* * *

Available at an initial cost of £18 10s and capable of handling up to 3,550 gall./hr. and heads up to 40 ft. is an all-plastics, general purpose single stage centrifugal **pump**, the P.V.100. The three main components—the impeller and two halves of the casing—are heavy section plastics mouldings, ribbed for extra strength where necessary. A stainless steel and graphited plastics seal is incorporated in the casing and this is shrouded in rubber to prevent the pumped liquid coming into contact with the motor shaft. The electric motor, the shaft of which carries the pump impeller, is rated at ¾ h.p.

James Beresford and Son Ltd., Ace Works, Kitts Green, Birmingham 33.

* * *

A unit with six liquid ends, capable of handling six different liquids, is included in a range of **metering pumps** offered for chemical and other duties. Two single-pump types have interchangeable liquid ends; with the N1 model the stroke length is varied from zero to maximum during a short operational shut-down, while for batching a counter is attached to the machine and stops it automatically when the pre-set quantity is delivered. With the DN1 model, stroke length can be varied from zero to maximum during operation and while stationary.

Bran and Luebbe (Great Britain) Ltd., 62 Coventry Road, Market Harborough, Leics.

* * *

Improved resistance to the severe conditions encountered in combustion chambers of boilers, furnaces and heat exchange units is claimed for a new high-grade mouldable **plastics refractory** with which is incorporated a high percentage of Zircon. This is claimed to give extra chemical resistance to accelerated corrosion at high temperatures, experienced with fuel oils.

Furnascote Ltd., 16/18 Malvern Road, Southampton.

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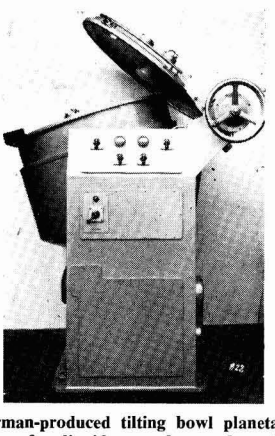

German-produced tilting bowl planetary mixer for liquids, powders and pastes, now available for trials in the U.K. through Buckham and Sandeman Ltd., William Curtis House, Alton, Hants. Largest mixer in the range has a capacity of 110 gall., others 13-45 gall.

* * *

The Hydrovalve—a globe type **valve** designed to control the flow of liquids or gases up to a pressure of 125 p.s.i.—has been produced for operation by remote control by pneumatic or hydraulic power. Non-concussive in action, it is claimed to eliminate hammering problems. A special feature of the design ensures that the line pressure itself effects a tight shut off.

Perrett Control Co. Ltd., Green Lane, Hounslow, Middlesex.

* * *

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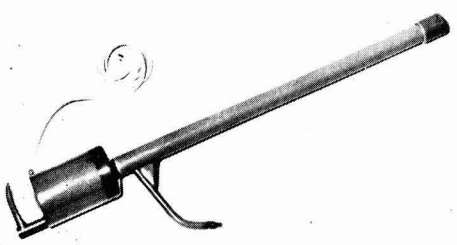
Albert E. Reed and Co. Ltd., Packaging Division, Reed House, Kew Bridge, Brentford, Middlesex.



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