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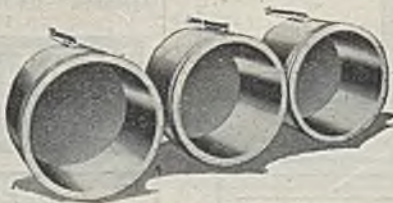
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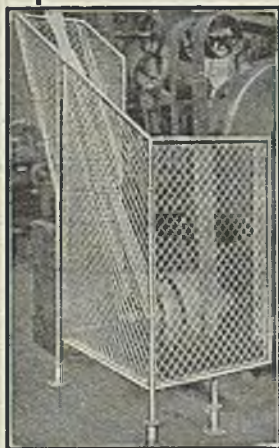
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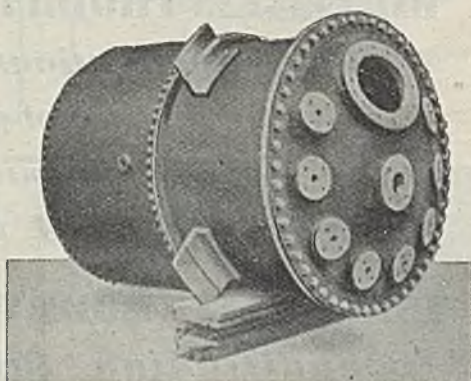
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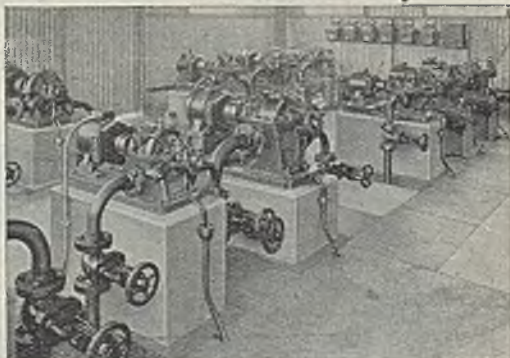
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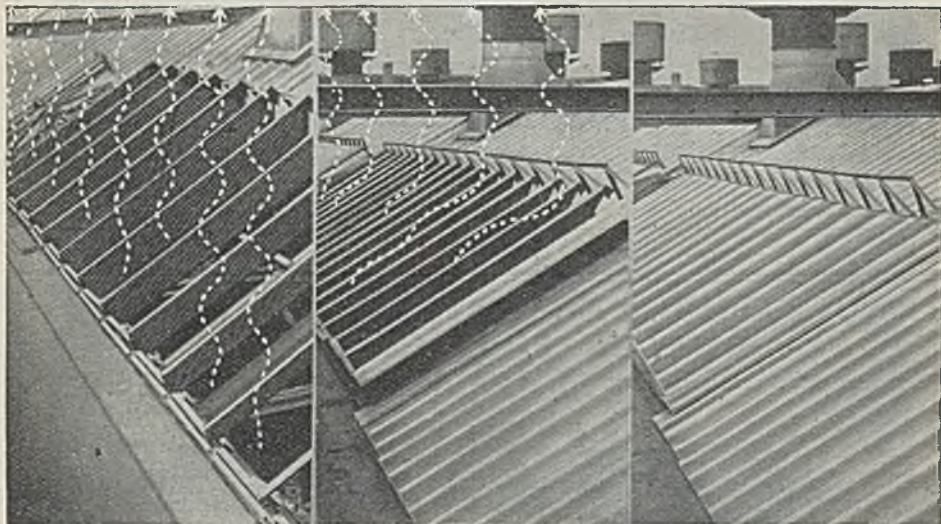
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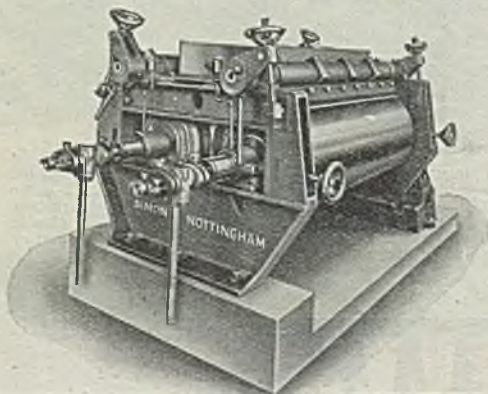
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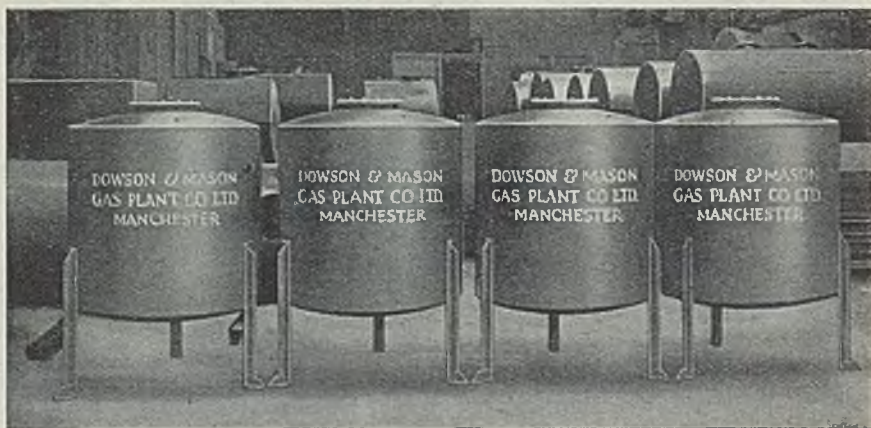
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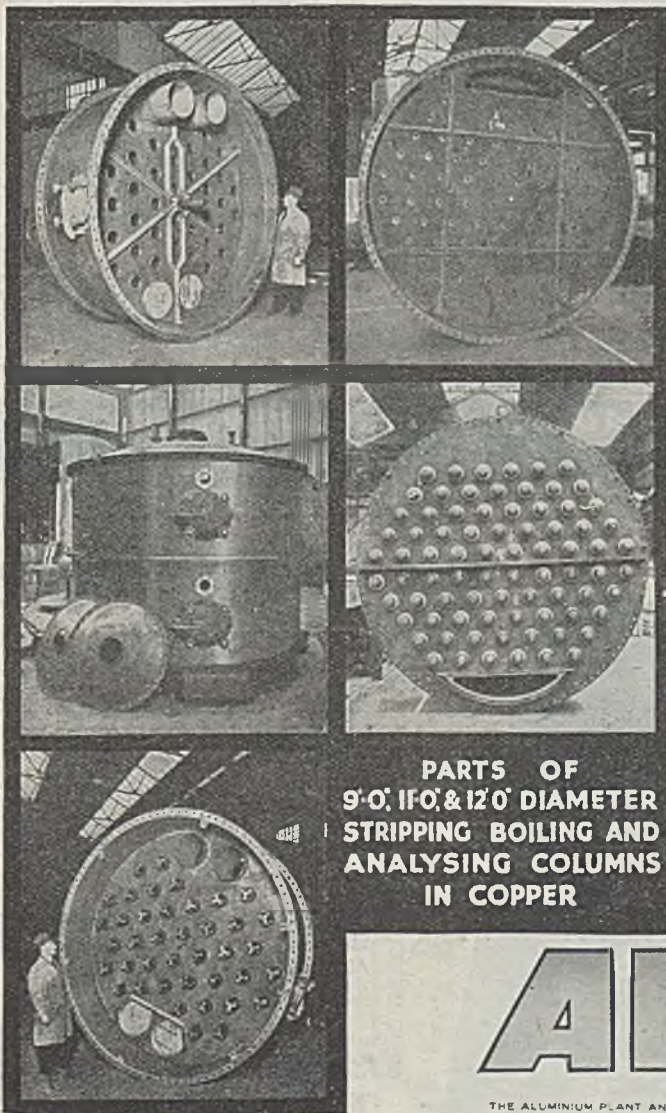
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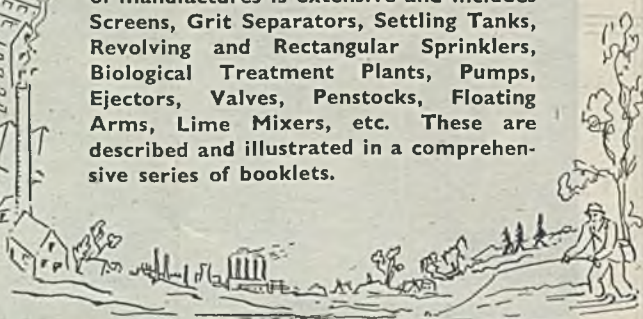
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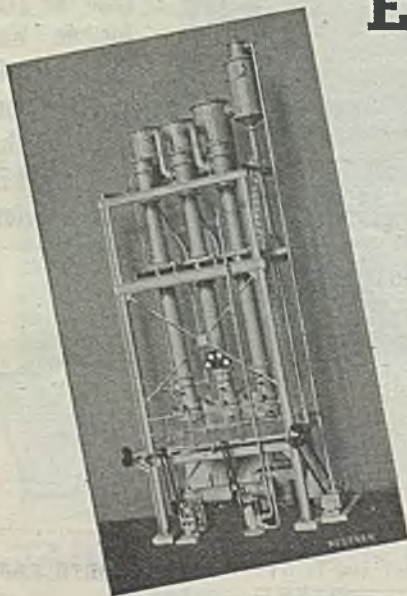
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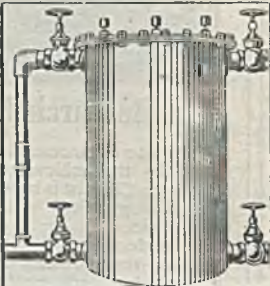
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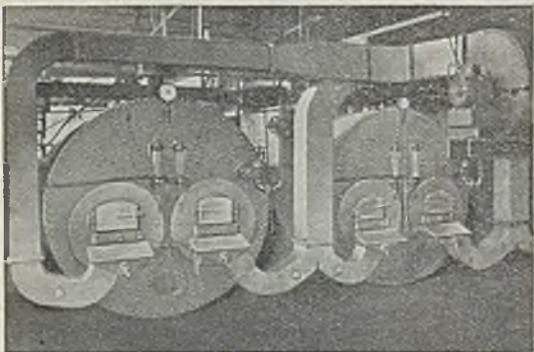

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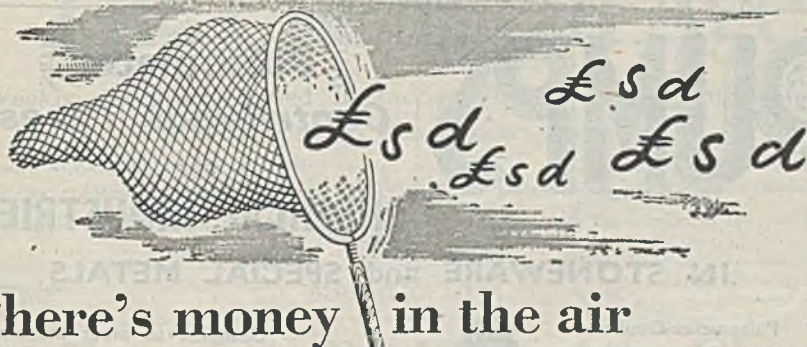



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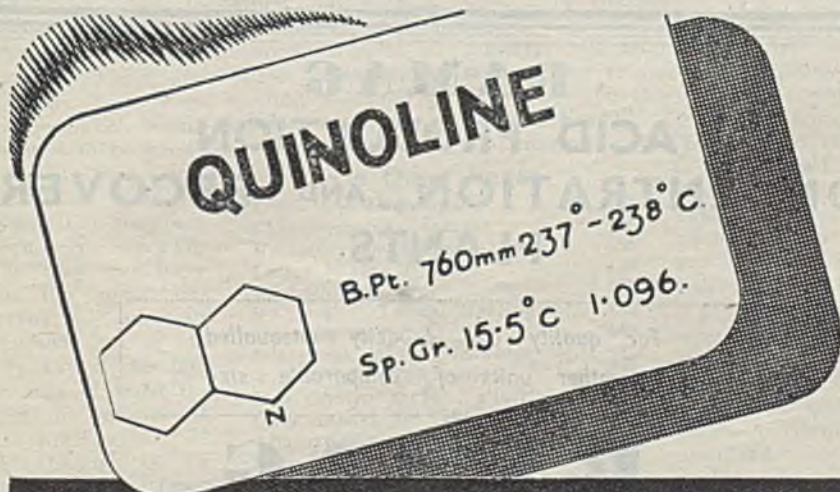
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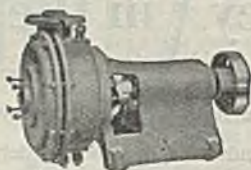
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May 19, 1945

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The Economic Position of the Chemist

THE British Association of Chemists has been discussing the position of the chemist, a subject that is, of course, peculiarly within the scope of the Association. The B.A.C. has done a great deal of very useful work in raising chemists to a better position than they held formerly, and it has consistently pursued a policy which has maintained the best traditions of assistance to the profession without the political bias that is so unfortunately a feature of the modern trade-union movement.

The discussion to which we have referred revealed many differences of opinion, some of them not easily defensible. From amid these conflicting views we have tried to find a sound policy. The main question at issue appeared to be what the chemist should be paid and how chemists as such can ensure that they are adequately paid. That may not have been the most important question discussed, but it appears to be the one that was of most interest to many of those present.

A chemist is an employee of a firm. There are chemists outside this description, but it will serve to describe the greater number of the potential and existing members of

the B.A.C. There are those who believe that salaries should be fixed upon what is termed "the well-known trade-union principle of the 'rate for the job.'" There are others who look upon chemistry as a profession in which this sort of view should not be taken.

First, what is a chemist? In the same issue of the B.A.C. Journal is quoted the old and well-known passage from *Physica Subterranea* "The chemists are a strange class of mortals impelled by an almost insane impulse to seek their pleasure among smoke and vapour, soot and flame, poisons and poverty, yet among all these evils I seem to live so sweetly, that, may I die, I would not change places with the Persian King." To this we would add that, excluding the poverty, anyone who

is not in full agreement with the views expressed by this ancient writer should not be a chemist. Chemistry is, indeed, a profession for those who like it and not just a means of earning a living.

Dr. Stoye has given particulars of standard salary scales, enlarging upon the American Chemical Society's excellent salary figures, from which it would appear that the starting salary of a graduate in the

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U.S.A. is about £325, rising after six months' experience to £381, with an average annual increment of £27 per annum up to the age of 50. The gradual improvement in scales of remuneration has corresponded to comparative figures of £540 in 1926 to £660 in 1941 for the same position. Having made his analysis, Dr. Stoye concluded that he was not greatly in favour of salary scales for the upper grades of the profession, but considered that lower grades should have them, correlated with educational qualifications, so as to provide a ladder to ascend the profession, and an incentive to do so.

This states a principle, namely, that the lower grades of chemist should have a graduated salary scale, while the upper classes are left to find their own level. With this general view we are in agreement. The young chemist, a man who has no degree or who, having a degree, has no experience, should have a standard salary which, like any other worker, he must earn, or be dismissed if he is not worth it. Chemistry in these grades is little more than craftsmanship as practised by members of other trade unions. The chemist here is often a junior analyst—a "tester"—a man doing a routine job with an accuracy similar to that of the man who operates a machine tool, and as such he is entitled to a certain "rate for the job." We should hesitate to call him a chemist in the professional sense of the word, but at least he is—or is becoming—a skilled craftsman. As such he is entitled to reasonable remuneration which could very well be fixed by normal means of trade-union bargaining. Such men, however, although they may be useful, since there must always be hewers of wood and drawers of water, are not fitted to remain chemists. They may be satisfied to do so and if so they can expect no higher salary than "the rate for the job." The true chemist must be always learning. He owes that to himself, to his profession and to his employer. That is part of his duty. He must fit himself by knowledge of science, or of any other useful knowledge that may be required, to give to the team such assistance as he is peculiarly fitted to give.

This must not blind us to the fact that the employer also has a duty. Dr.

Stoye suggested that conditions of employment should be so adjusted as to give all junior grades facilities to undertake educational courses. Dr. Fife urged that chemists should take a more active interest in the production and financial side of their firm's business. Whether they can do so or not rests largely with the employer. The employer can see that every chemist is given the opportunity to acquire this knowledge. The chemist, for his part, can search for the necessary information and experience and can find means of showing his employer that he is anxious to gain further experience and able to make use of whatever facilities are given.

It was urged by Mr. Warson that it is more desirable to cut hours of work than to increase salaries. In this connection longer holidays and greater facilities for higher qualifications and research work are to be desired, as well as a more frequent interchange of staff. Here again we should agree that hours of work are not the criterion of a chemist's value. He may do more by an hour's quiet thought than by attending for ten hours a day at a laboratory; but he must be given the time to think.

We come therefore to this conclusion: the junior chemist should be encouraged by his employer to study, and should be given the time to do so, so long as he is prepared to make use of these opportunities and so long as he remains in the lower grades. Once he becomes equal to a graduate (though not necessarily possessing a degree), or, being a graduate, has passed the preliminary period in which he is finding his feet, he should be started at some minimum which might be arranged by the B.A.C. and the Employers' Federation. Above this minimum he should find his own level. We are not in favour of rigid conditions of employment in the professions. There must be inherent in every chemist a spirit of adventure and a certain forcefulness of personality without which rigid salary scales will probably condemn him to the minimum permitted salary or to unemployment; possessing them, however, he may rise to almost any height.

The employer has a duty to see that his chemists are given opportunity. The chemist has a duty to see that every opportunity is used.

NOTES AND COMMENTS

Return of Key Men

ALTHOUGH the chemical industry has been, and will continue to be, one of the most important of the munitions industries, its normal function is mainly to supply civilian needs in many directions. The industry will, therefore, be particularly glad to have heard Mr. Bevin's reply to Mr. Ellis Smith in the House of Commons last week regarding the release of skilled workers from the munitions industries. All branches of the chemical and allied industries have been affected, and all sorts of workers have been directed away from their normal functions to duties which were considered more important to the war effort; and this applies to manual workers and to brain workers alike. As Mr. Bevin said, it is essential that skilled workers who are needed to re-establish and maintain plant and machinery in important civilian industries should be released for that purpose and resettled as soon as possible. Both sides of industry, he declared, had agreed to co-operate with him in the selection of workers required to fill priority vacancies. There is much chemical plant, as we all know too well, that is sadly in need of proper maintenance, and the promised release will mean more than just the addition of a few more valuable units to the staff. It will mean also that the plant which has been going "all out," and at the same time receiving the minimum of attention, will at last have a chance of being adequately serviced—to help all the better, we hope, in the "export drive."

Raw Materials

IN general, the third annual report of the Combined Raw Materials Board (published last week; H.M.S.O., 2d.), which covers the twelve months to January 26, 1945, indicates that the position during the period under review became gradually less stringent, notably in the important field of metals. Certain materials came into free supply, including cobalt, mercury, molybdenum, tantalite, tungsten, shellac, and certain grades of asbestos and mica. The vanadium position was satisfactory; chromite and manganese were still a source of concern to the Board, but mainly because of the

large tonnages involved; and the nickel position showed some signs of easing towards the end of 1944. Among the very few instances in which new shortages developed during the year, the chemical and allied industries are concerned with platinum, casein, and animal glue-making materials. Some anxiety is expressed regarding the future position of lead, a material which was in fairly comfortable supply at the end of 1943, but a year later was affected by increasing demand and deteriorating supply. Maintenance of the very fair equilibrium now obtaining depends on two factors: the alteration in the military situation; and the needs of the liberated countries. The liberated nations of Western Europe and UNRRA are fully cognisant of the need of keeping up the war effort, and are collaborating with the Board in arranging the sources from which provision of materials in short supply can be made to them; but it must be realised that the requirements of liberated Europe will represent an additional call on many categories of raw material which will not be correspondingly increased; though there will, of course, be benefits accruing from the industrial potential of Western Europe. At all events, the Board, considering its terms of reference, will continue to operate for the duration of the war against Japan, with the increasing collaboration of the other United Nations most directly concerned.

The Recognition of Science

"HITHERTO," says the military correspondent of *The Times*, "no British Government has ever taken active steps to meet the possibility of war ten years ahead." We have often maintained, and we still maintain, that many Government departments preserve, even to this day, the 1939 outlook, or even the 1918 outlook. But there are signs of something moving beneath the dust of years. There is a beginning of acknowledgement that science can play a useful part in the administration of the country. The military correspondent aforementioned indicates ways in which the Military College of Science may be kept up to date. Actually, the War Office has shown signs of being well in advance, from the point of view of

recognising the utility of science. It appointed not long ago a committee under the chairmanship of Dr. H. L. Guy, a distinguished engineer with long industrial experience, to examine and report on higher technical training of officers, and this report is now under consideration by the Army Council. It is, moreover, the intention of that Council that professorial chairs at the Military College of Science shall be filled by men eminent in their respective subjects. The Ministry of Works has also acquired merit by appointing a remarkably strong committee to undertake a programme of building research. The composition of this committee is indicated on a later page of this issue, and it will be seen that the claims of physics and chemistry, as well as of engineering, are recognised in the appointments made. It has often been claimed that scientists should have a place in the national administration: it would now appear that the justice of this claim is being fully admitted, at any rate on the deliberative side.

“Artificial” Fertilisers

A SHREWD blow has been struck in print against the prejudiced opponents of those fertilisers which have, for no special reason, been denoted as “artificial.” Its publication, in the somewhat rarefied official atmosphere of the *Scottish Journal of Agriculture* (January, 1945), has only lately been brought to our notice; the authors are those unexceptionable authorities, Dr. W. G. Ogg, Director of Rothamsted, and Dr. Hugh Nicol, F.R.I.C., both of the Imperial Bureau of Soil Science. We have consistently advocated the wise use of “artificial” in agriculture, and have deprecated the uninformed attacks that have been made on them in many quarters; but we have not yet seen a defence at once so comprehensive and so well documented as this article. All the classic bogies are set up, one after the other, and as regularly knocked down on the grounds of “no evidence.” Fertilisers are accused of poisoning the soil, of bringing about erosion, of injuring the quality of the crops and lowering the ability of plants to resist disease, and so on and so forth. The accusers have, however, in the words of the article,

“brought forward no sound experimental evidence of their own in support of their claims.” The real truth of the matter, and a truth which the authors bring out repeatedly, is that “whether organic manures, or fertilisers, or both, are used, what is required is a proper balance to supply the plant’s requirements and the nutritional needs of the human or animal consumer.” The trouble with fertilisers is that “because of their concentrated character and rapid availability, they can be readily misused.” The same might be said of anaesthetics, but we have yet to meet an advocate of the surgical methods of the Napoleonic wars. As the authors point out, it is a poor lookout for a policy of land fertility if this is to be based on the prejudices or the ineptness of people who are unwilling or unable to utilise chemical assistance in the prescribed manner.

Wallpaper

AMONG the many industries allied to the chemical industry is one which has had little scope for expansion and development during the war. We are referring to the wallpaper industry, and we feel that its exponents can look forward to a more constructive period in the future than they have enjoyed in the immediate past. At all events, they have made a useful step towards immediate development by organising, in London, an Exhibition of Historic and British Wallpapers, which remains on view at the Suffolk Galleries until May 29. The opening ceremony, which was to have been performed by Mr. Bevin, fell on VE-Day, and was necessarily somewhat curtailed. The exhibition is well worth seeing, from both the technical and the artistic point of view. Technical exhibits include models of early and present-day presses for printing wallpaper; papers illustrating the four-colour process, and hand-painted specimens. It is interesting to note that the new designs tend toward very bright colouring—no doubt a reaction from the enforced gloom of war-time. Special days have been set aside for the entertainment and instruction of architects, manufacturers, and other technical groups, but all interested visitors are welcomed and will find on the spot representatives from the industry ready with information and advice.

Thermoplastic Linings

A Useful Adjunct to Modern Chemical Plant

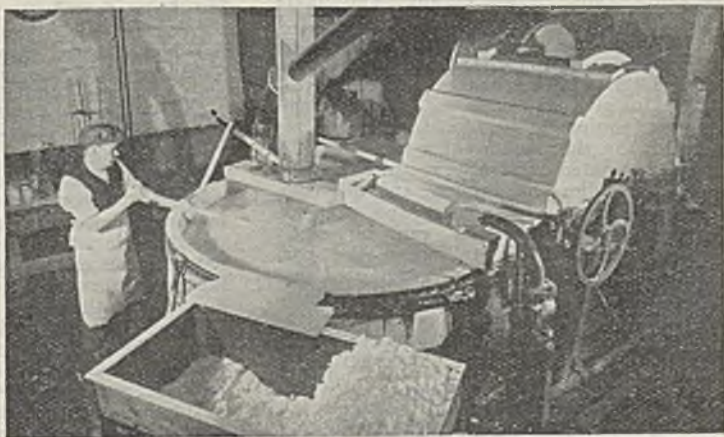
by PAUL I. SMITH

INCREASING consideration is now being given to the use of plastic materials as linings for structures and plant subject to chemical corrosion. The most promising and interesting of these materials are celluloid or "Xylonite," ethyl cellulose, and polyvinyl resins, all of which can be employed in sheet form for covering wood or

chemicals from one batch to another may result in serious contamination. It is recommended that, in all cases, actual service tests should be carried out to determine the reliability of the lining under the most drastic conditions of use likely to be experienced.

The well-known thermoplastic, celluloid,

Washing nitrocellulose in vessels lined with celluloid at the works of British Xylonite, Ltd. |



metal receptacles, work tables, chutes, etc., as well as for covering pipe-lines carrying oil and gas across country. In the U.S.A., celluloid has for some years been used for the latter purpose, especially in the case of pipe-lines to be laid in soil of an acidic or peaty nature. It might also be mentioned that celluloid is used as a protective covering for wood airscrew blades, a sheet of approximately 0.04 in. thick being used.

Before recommending any particular plastic for lining purposes, it is advisable to consider carefully the following points: (1) nature of the chemicals likely to be encountered; (2) strength of chemical solutions; (3) temperature of solutions or solids to be handled; (4) degree of abrasive action caused by solids or semi-solids rubbing against the surface of the lined vessel; (5) degree of absorbency of the plastic.

These various factors are inter-related: for instance, a certain chemical may not attack a plastic material at normal temperature, but will prove dangerous at an elevated temperature. The degree of absorbency is most important when foodstuffs or pharmaceuticals are being processed, as the ability of a lining to transfer traces of

is available in sheets for anti-corrosive use under conditions where no fire hazard may be expected to arise. "Xylonite" sheets find useful employment in the processing of celluloid, as it has been found from experience that it affords satisfactory protection to wood and metal structures and vessels liable to be attacked by the weak sulphuric and nitric acids present in the processed nitro-cellulose. Celluloid is unaffected by weak acids, but is decomposed by strong acids. It is gradually attacked by alkalis, little affected by hydrocarbons, and is soluble in alcohols and esters.

The method of applying the "Xylonite" sheets so as to obtain a continuous coating or layer on wood is first to soften them in a solution of methylated spirits, acetone, and water, and then to apply the sheets to the surface to be covered, making sure that in all cases there is intimate contact. Celluloid when softened will not stick to metal. For tank linings, the celluloid sheet can be fixed to a metal or wood support by means of screws, countersunk and with heads, covered by celluloid discs or plugs, using a suitable solvent, such as acetone.

Ethyl cellulose is a comparatively new thermoplastic and does not appear to have found any use so far as a lining for chemical

plant, or for structures requiring protection against moisture or brine. It is, however, suitable for such work and merits close consideration by chemical engineers, particularly where alkalis or weak acids are present. Unlike celluloid, ethyl cellulose is not attacked by strong alkalis and it can be recommended for use when in contact with caustics of varying strength. The ether is soluble in ketones and esters and is softened in alcohol. The method of application consists in soaking the sheets of thermoplastic in a mixture of alcohol and ethyl acetate or acetone and then applying the softened sheet to the metal or wood support. An outstanding feature of ethyl cellulose is its very low moisture absorption. The figure given for British ethyl cellulose (B.X.) is 1.25 per cent. gain in weight after immersion in water for 48 hours. Incidentally, ethyl cellulose has been used in the U.S.A. to give protection to pieces of engineering equipment to be transhipped to Britain. In the packing of a camshaft, the metal is coated with a very thick coating of ethyl cellulose by dipping, and this completely seals the component and prevents corrosion. Moreover, it can be easily stripped from the metal when the part reaches its destination. It is suggested that consideration might be given to the application of ethyl cellulose by means of the Schori pistol or similar equipment which deposits the plastic in the dry condition.

Polyvinyl Chloride

P.V.C. sheet material is being used to a growing extent for the protection of plant in chemical works in America, also for the covering of processing tables, chutes, etc., in food-processing works. The sheet is available in various thicknesses and degrees of flexibility, dependent, of course, on the percentage of plasticiser present. There is not, unfortunately, any satisfactory adhesive for bonding P.V.C. to wood, metal, etc., and it is, therefore, necessary to make use of stainless steel screws, counter-sinking and using plugs of P.V.C. to fill the holes. Alternatively, stainless steel strips may be employed.

The lining when applied has a very low moisture-absorbent coefficient, and is resistant to salt solutions, inorganic acids and alkalis, benzene, mineral oil, and paraffin oil. Compositions based on polyvinyl types suitable for trowel application are being used to-day for oil-resisting treatments over the crowns of fuel tanks in merchant ships where decks are in accommodation quarters. It is suggested that in certain industries where a high degree of cleanliness and complete freedom from corrosion is required, then use might well be made of these special compositions as an underlay with P.V.C. sheet superimposed to give a washable and impervious surface.

Melamine for Maps

Wet-Strength Treatment of Paper

THE indication which we gave last year (December 23, 1944, p. 593) that the U.S. Army was employing a melamine plastic to render fabrics water-repellent, has been amplified by Mr. C. G. Weber, senior technologist, U.S. National Bureau of Standards, in an article on Papers for Modern War-Maps (*Chem. Met. Eng.*, 1945, 52, 3, 109).

The resin, normally in the form of a fine white powder, is prepared by dissolving it in a mixture of warm water and hydrochloric acid and the solution is allowed to age for a few hours. Preliminary polymerisation takes place and the colloidal particles formed are positively charged. Cellulose fibres are negatively charged and when the resin colloid is mixed with the water suspension of fibres, it attaches itself to them almost instantly.

The most important factor in the use of melamine resin lies in the addition of the solution at the proper point in paper manufacture. Best cohesion is obtained by adding the solution to the stock at some point between the screen where coarse matter is filtered out and the point where the stock flows on to the wire. Excellent results are obtained by adding it to the stock as it enters the head box. When the sheet is formed, the resin binds the fibres together and becomes insoluble as the heat applied to dry the paper accelerates the polymerisation and cures the resin. Resin requirements for wet-strength treatment vary according to the uses or the paper. About 2.5 to 3 per cent. is required for map paper.

Maps so treated, even after being soaked in water, mud, or oil for days, will withstand rough handling and can be written on with pencil or crayon. They are practically as opaque when wet as dry. After becoming too dirty or stained to be legible, they can be washed in soap and warm water or cleaned with petrol or other solvents.

LETTER TO THE EDITOR

DDT and Gammexane

SIR,—Your correspondent, Mr. F. N. Pickett, was surely dealing with unlike concentrations in comparing commercial DDT with 666 Gammexane powder as supplied to fruit growers. The former would presumably contain 95-100 per cent. of DDT, while the latter would most likely be diluted with a very large proportion of inert dust. May one ask Mr. Pickett if both the DDT and the Gammexane dissolved completely in his solvent?—Yours faithfully,

F. C. HYMAS, M.Sc., F.R.I.C.
Chief Chemist, Spratt's Patent, Ltd.

Penicillin Progress Described

American and British Records

THE development of the large-scale production of penicillin will go down in history as one of the major scientific achievements of this war. This country was the scene of the discovery and early process development; but the large-scale industrial development has taken place in the U.S.A., and the product of that country still accounts for most of the world's output. It is not likely that the bringing into production of the Spoko factory will substantially disturb the relative outputs of this country and America.

Reader Availability

Nevertheless, taking the world supply position as a whole, the improvement in output has been such that not only have the Allies' military requirements been satisfied but American civilian requirements have been met to a very large extent. In this country the free allocation of penicillin to hospitals by the Ministry of Supply (the sole purchaser) has been extended in recent weeks to the extent that it is now possible to issue supplies of penicillin to general practitioners for treatment in the patient's own home when it is not practicable to remove the patient to the hospital to which the drug has been allocated.

The fact that penicillin is now to be made so much more freely available indicates that the point has been reached, both here and in America, at which the drug should be appraised principally for the benefit of the general practitioner who may now have the use of it. Consequently, there has been issued in U.S.A., by the Abbott Research Laboratories, of Chicago, a booklet (1944) entitled "A Review of the Present Information Concerning Penicillin"; while in recent weeks there has appeared in this country an undated booklet entitled "A British Triumph. The Discovery and Development of Penicillin," published jointly by Imperial Chemical (Pharmaceuticals), Ltd., and those five constituent members of the Therapeutic Research Corporation of Great Britain, Ltd., who collaborated in penicillin research. One hastens to add that the British publication has suffered an extended delay in the press, has been subjected to a strictly limited printing and is, therefore, not generally available; nor can any correspondence in connection with it be handled by those concerned with its publication or distribution.

The body concerned with the publication of each booklet has been associated with the development of the surface type of fermentation as opposed to the submerged mycelium type of fermentation. The development of

the latter method by three firms in America has been the means of so quickly reducing the gap between supply and demand in the past two years.

The Abbott publication runs to 100 pages with an additional nine pages carrying a bibliography of 179 references. There are 16 pages of photographs including two photomicrographs of distinction of *Penicillium notatum*. The photographs are sufficiently representative to give a fair idea of the type of plant used at all stages of the process.

The British publication is on a sadly less ambitious scale; it runs to 26 pages of print with an additional four pages of photographs which give little idea of what is involved in the processing. Two pages of selected bibliography contain 33 references; a table of contents should be included in any future edition. Neither publication carries an index; this is a serious deficiency in the more comprehensive Abbott review, but, perhaps, does not much matter in the British booklet in its present form.

Both publications are directed principally towards the harassed general practitioner, with the implication that he should supplement his reading from the bibliographies offered. In this country the supplementation will have to be on such a considerable scale that one has doubts concerning the wisdom shown in presenting the booklet in its present form. The Abbott publication is much more adequate in this respect and the background is filled in with a great deal of neat abstraction from the literature of anti-bacterials at large.

Production Technique

As to penicillin production methods and technique, it is not to be expected that a large space should be devoted to those, having in view the objectives of the booklets. Nevertheless, the Abbott publication deals concisely and objectively with this matter and describes both surface culture and submerged mycelium techniques. For some astonishing reason the British production mentions no method of production beyond that originally devised by Florey and his co-workers in 1940 and 1941. Nor is there the slightest indication of the lines along which development has occurred in the past four years. Such an omission is so incredible that it must have been deliberate; yet it is hard to see the justification. Such a gap throws the whole matter out of perspective.

This bias towards clinging to one's own roots in the historic past and deliberately ignoring the great advances which have occurred elsewhere is worsened by the printing *in extenso* of the composition of the

modified Czapek-Dox medium originally used by the Oxford workers. Exception may be taken to this on three grounds: first, the space used could be ill afforded; second, no warning was given against the dangers in the use of "home-made" penicillin (adequate warning is given in Abbott publication); third, no indication is given that, in commercial production, the modified medium quoted has been even further modified and that in these further modifications largely resides the feasibility of present large-scale manufacture.

In the present rapid development of clinical applications of penicillin it is not to be expected that cognisance should be taken of work published subsequent to placing the script in the hands of the printers, and neither publication deals with most recent findings regarding the treatment of syphilis (the British publication goes no further than reporting successes in treating experimental syphilis in animals), mouth infections, and the mode of action of penicillin.

Our present knowledge of acquired penicillin resistance and the development of penicillin fastness is far from complete; but the dangers which would follow the induction of permanent, or, at least, semi-permanent fastness to antibacterial substances by pathogenic micro organisms through injudicious treatment have been sufficiently demonstrated in the case of the sulphamides to warrant the exercise of every precaution against such an eventuality in the case of penicillin. The Abbott publication devotes three pages to this aspect of the subject, while the British publication makes no direct mention of the matter.

Difference of Potency Standards

Regarding the unit of penicillin the British publication is strangely cautious in stating that pure penicillin is thought to have "an activity between 1000 and 2000 Oxford units per milligram." The Abbott publication states that the Federal Food and Drug Administration have adopted a penicillin potency standard in the form of a crystalline sodium salt of penicillin which has a potency of 1650 Oxford units per mgm.; and, further, they state that, in future, the potency will be measured in mgms. on the basis of 1650 units per mgm. This is in conflict with the recommendation of the International Conference held in London in October, 1944, under the auspices of the League of Nations Health Organisation where the international standard was agreed to be the specific penicillin potency contained in 0.6 μ gm. of the International Standard which is a specimen of Penicillin "A" or "G." No doubt this point will be rectified in future editions of the Abbott booklet. The British publication takes note of the fact that the International Conference adopted a unit which was coincident with the Oxford unit, but no attempt is made to define the unit

or to describe the methods of assay. Nevertheless, three good comparative photographs with appropriate captions illustrating the cup-plate method go some way in mitigation of the latter omission.

The Abbott publication has one curious aberration in that while it pays all due tribute to the achievements of the British pioneers in the field, it lays far greater stress on American confirmatory work. This somewhat spoils the objectivity of the treatment; but the orientation is understandable on the basis that it is the publications of the American workers in the American Press which are most accessible to those readers to whom the booklet is principally directed.

It is to be hoped that future editions of the British booklet will be expanded in content, will more comprehensively review methods of production since Florey's work will be more comprehensively illustrated and will, in general, be presented with an elegance worthy of the appeal which the story of penicillin makes "to research workers, medical men, and general public alike," as well as being worthy of the legitimate pride reflected in the title. The cohort of firms connected with the British publication are capable of achieving this and more. The Abbott booklet has set a standard for future publications of this type and, with one eye, at least, on circulation abroad, it is to be hoped that cognisance of this fact will be taken in relevant quarters in this country.

PALESTINE DEVELOPMENTS

The availability of raw materials for Palestine's chemical industry was discussed at a recent meeting of the Palestine Chemists' Association. Dr. L. Farkas, of the Hebrew University, described the ingenious exploitation of the resources of the Dead Sea, the sun being used, as in evaporating processes, to replace energy equivalent to 500,000 tons of fuel at the present rate of output. The Dead Sea was ideally situated for the production of magnesium metal from brine which was a hundred times richer in raw materials than sea-water used for these purposes in the United States. Another speaker reviewed animal life as a source of raw materials and said that glue, gelatine and certain drugs could be made in larger quantities. Insulin is now being produced on an experimental scale and there is scope for expanding the output of bone and fish meal.

Iron ore deposits discovered by recent geological expeditions in the Kuznets coal basin in Western Siberia are reported to be sufficient to supply the great metallurgical industries of the Kuznets basin which have hitherto largely depended on iron ore from the Southern Urals, a haul of over 1000 miles.

B.C.D.T.A. Annual Meeting

The Chairman's Report

THE 22nd annual meeting of the British Chemical and Dystuffs Traders' Association was held in London on May 8, Mr. G. S. Bache, the chairman, presiding. After the adoption of the audited accounts the chairman presented the annual report.

Questions relating to the operation of controls, he reported, were constantly under review by the Council and active consideration was given to the position the merchant is likely to occupy during the transition from war to peace. The measure of co-operation between the Association and the administrative officials has contributed in no small part to the smooth working of the many regulations and restrictions under which the chemical trade has been obliged to operate.

Raw Materials

The Raw Materials Sub-Committee of the Paint and Allied Trades Association has discussed with the Ministry of Supply the actual and potential raw material situation and this exchange of views cannot be other than beneficial to all concerned. "In this connection," Mr. Bache went on, "it is interesting to note that a number of materials have already been released from control and there is an indication that other vital raw materials will shortly be freed from restriction and the distribution and marketing of them revert to established trade channels. Last week the President of the Board of Trade publicly stated that his department would do their best to assist in the provision of additional labour and raw materials for the paint industry. Practically all the materials covered by the Association's Coal-Tar Products Group are subject either to Statutory Control or to some form of official supervision. Certain aspects of these controls have been examined by the *ad hoc* committees established by the Group and the consultations which have been held with the Ministry of Fuel and Power have been of great value. At the invitation of the Ministry the Association appointed a representative on the Benzol and Coal Spirit Advisory Committee.

Distribution of pharmaceutical drugs organised by the Drugs and Pharmaceuticals Importers' Section of the Association has operated smoothly. The Association has recently undertaken the work of arranging import allocations for a number of products which are to be permitted to be imported in limited quantities, under licence, through commercial channels.

The Association has contacted the Board



Mr. G. S. Bache.

of Trade and the Ministry of Supply on the subject of the orderly disposal of Government surpluses of chemicals. So far as pharmaceutical chemicals are concerned arrangements are well in hand for disposal through trade channels, and surpluses of such products as are normally distributed through the merchant will come under a Disposals Scheme organised by our Association. In other sections of the trade it is known that official departments propose, in appropriate cases, to arrange for the return of the surpluses, if any, to the producers.

"It is recognised," the chairman said, "that all problems can and will be surmounted in the passage of time, but there is a danger that an over-cautious policy will hold up the flow of available supplies to industry during the transition period. It is hoped that every opportunity will be taken by the controls to release material which will enable British industry to satisfy the essential consumer needs of the home market and also give that vital assistance which is imperative if we are to witness a speedy re-development of British overseas trade. To achieve these purposes the Association will press for a bolder import policy for raw materials. While the supply position of a number of chemicals might necessitate the continuation of a certain measure of control, we must be vigilant to see that controls which have outlived their usefulness are removed or considerably modified.

"The Association has been able to demonstrate that, given the opportunity to co-operate with Government Departments, trade can organise its affairs to meet the wishes of the Government with the minimum of interference with the trade itself. Our Association is a non-trading body, it neither interferes with trade nor regulates prices. It can, and does, speak with authority on behalf of chemical merchants and distributors and, as an independent and representative body, enjoys the confidence

(Continued on p. 442)

SAFETY FIRST

Common Accidents

by JOHN CREEVEY

BECAUSE the war in Europe is over so far as fighting is concerned, it does not follow that those who work in factories, and in industry generally, may now relax in the precautions they have been following in the matter of safety first. When numbers of the men return to civilian occupation once again, there must not only be a continuance of all that concerns safety, but possibly even greater care will need to be exercised. Many of these men have been accustomed to such risks in the course of their service duties that they may have, on their return, some tendency to disregard minor things in the generally safer atmosphere of industry. But it must be remembered that a very large percentage of common accidents have always resulted from general carelessness and that slight disregard of precautions which may seem trivial. So, too, with those workers in the chemical industry who will pass from the immediate danger of the manufacture of high explosives and related dangerous products to the less dangerous manufacture of many chemicals used in peace-time industries. It is not only the high explosives which offer danger in manufacture, or in use,

Injuries to Limbs

for chemicals are peculiar products and their nature must not only be properly understood but also respected.

Almost any pre-war survey of accidents in industry will show that about 33 per cent. of cases calling for compensation concerned injury to hands and fingers, about 24 per cent. related to legs and feet, and 12 per cent. to arms. The remaining 30 per cent. included injury to the trunk, the head, and the eyes. In matter of compensation, limb injuries absorbed about half the total amount awarded. Some injuries resulted in permanent disability; others, temporary disability. Of permanent disability, roughly 50 per cent. of cases have been the loss of finger or thumb, perhaps more than one finger. Complete loss of an eye or a hand accounts for 5 per cent. in each case. These figures, which should show that accidents are a matter of concern to employees and employers alike, come from a survey made just before the outbreak of war in 1939 under conditions to which industry will shortly be returning. Of the total injuries resulting in permanent disability 17 per cent. of common accident arose from falls, and nearly 8 per cent. from falling objects; machinery accounted for 25 per cent.

The risk of falling is by no means always due to moving to a different level: objects may be left lying in the path of a man's feet

with disastrous consequences, and it need not be a solid object, such as tools, for carelessness in letting oil drip from an oil can in transit can be equally hazardous. Distractions are another notable cause of common accidents, especially in the use of tools in presence of machinery; and in handling chemicals there is almost equal risk, for a man cannot pour acid from a carboy with perfect safety if someone is chattering away as he stands watching or in passing. Risks from falling objects are often attributable to tools or pieces of equipment left lying on an overhead platform, especially in badly lighted situations. A man can readily stumble over such an object, and fall; at the same time the object may drop from its overhead place of temporary rest and fall on another man passing below. This is not a hypothetical case, for I know personally that it happened, and that there were two stretchers occupied in the ambulance, and that there was permanent disability in one case and a long period of temporary disability in the case of the other man. But the fellow who left that small piece of iron upon the overhead platform went unscathed, for he was well away from the place of danger at the time of the "accident." Indeed, when he came to hear about it in the course of the morning, he admitted that he left that small piece of iron there two days back in course of his work at that spot on the plant, not thinking that it was likely to be dislodged by the foot of another man passing. So, for two whole days there had been a hazard threatening. A man need not walk under a suspended load which he sees hanging from a crane (yet there are people who do); but when a man walks beneath an overhead platform, as he often must in the course of his work, he cannot be expected to be aware of a small piece of iron just waiting to be dislodged.

Safety Literature

The judicious display of posters calling attention to common types of accident has done much to reduce their incidence, and such concerns in the chemical and allied industries as have favoured the printing of such posters with a picture and a few pointed words of advice are to be congratulated upon what they have achieved. Such posters can be obtained from our recognised guardians of safety matters, the Royal Society for the Prevention of Accidents, who also issue the useful *Industrial Accident Prevention Bulletin* and related literature. Taking up one of these bulletins at random from a pile of them, I have opened it at a place where

there is a suggested standard code of signals for use between slingers and the drivers of cranes. Illustrations are given concerning signals by hand, and also a code in long and short blasts for signal by whistle. For hand signals the slinger should always stand facing the driver of the crane when giving his signals, unless he is unavoidably placed between driver and load, yet too often this simple precaution is ignored. Likewise, in giving signals by whistle there should be some prior practice of making one long blast (without ever failing) precisely equal to three short blasts; if a slinger cannot do that as perfectly as a bugler sounds his collection of recognised calls he should be found some other employment in the works.

It is not only the employee who is at fault with regard to common accidents. Employers must see that conditions do not arise which make it easier for a man to fall, or to receive injury in other ways, even if by his own negligence. A man may or may not be suitable for particular work, and this must be detected by observation on the part of overseers, and by occasional tours of inspection by someone really in authority.

Where safety devices are provided for use, because of a recognised hazard, the use of those devices must be enforced, preferably in a quiet unassuming manner, the employee being brought to see how desirable such precautions are from his own point of view. Bad lighting and bad ventilation both increase the risk of common accidents, yet I suppose there are many who will say that bad ventilation never made a man fall from a ladder or tumble over a small piece of iron. Yet it is so, and the carelessness of that man who left the piece of iron might also be traced to fatigue of the brain caused by working in a stuffy atmosphere, or by irritation of vision in a badly-lighted place.

When the men return again to civilian industrial occupations, try to remember that some of them have been away nearly six years, and that others will be entering upon work in which they have not hitherto been engaged, and that a proportion of them may have peculiar moods and characteristics, requiring personal observation on the part of employers to allot them suitable work—and not the dictation of the labour departments of the State.

Industrial Safety Gleanings

Paint Spraying

IN the "Technical Notes" recently submitted to the executive committee of the Association of Manufacturers of Bituminous Protective Products, Mr. L. G. Gabriel, B.Sc., F.R.I.C., M.I.Chem.E. (chairman of the Association's technical committee), is included the following item concerning certain hazards involved in paint-spraying.

The Association was approached, he says, by the Paint and Painting Industries' Liaison Committee to assist in clearing up a situation which had occurred in the spraying of various military buildings with bituminous paints. Owing to the nature of the paints involved, and the difficult working conditions, toxic effects were becoming evident on the operators, and it became necessary to inquire what steps could be taken to formulate paints which would not produce these effects. The advice of Mr. Gabriel's committee was that, whereas an amelioration of the conditions would take place by substituting an all-petroleum base paint for the tar varnish type of material previously used, entire avoidance of the trouble would necessitate the use of a water paint. The discussion of these matters is still proceeding, and in the meantime the situation has been eased by the adoption on the part of the Air Ministry of an all-petroleum base paint, which has been specified under Specification A.M. 573563/A. Unfortunately, this specification in itself contains many objectionable features, and an invitation from the Air Ministry Inspec-

tion Department to discuss these points has been received.

One matter on which the technical committee feels strongly is the inclusion in this specification of the Ford Cup Viscometer. Members who have had experience of this viscometer are unanimous that while it is suitable for control purposes, or rough-and-ready testing in a factory, it should not be used in connection with standard specifications. In particular, it has no adequate means for controlling the temperature at which the measurements are made, and in this respect the Redwood No. 2 Viscometer—though more involved—is more suitable.

Mr. Bevin on Safety

In opening a conference on works safety in London towards the end of April, Mr. Ernest Bevin, Minister of Labour, made the following points:

"The non-fatal accidents in factories, from a war-time peak of over 313,000 in 1942, had fallen to nearly 280,000 last year, and the fatal accidents from a peak of 1646 in 1941 had fallen to 1000 in 1944. This fall has been due to many causes other than the work of the Accident Prevention Campaign, but the latter has had its effect in making firms realise the . . . advantage of having a trained safety officer and safety committees in their works.

"The future of industry, to a very considerable extent, lies in training in many directions. . . . When I hear of a large

firm that has not had an accident on moving machinery to any of its young persons for six months and then find that all these young persons attend a good training scheme in the local technical college, I cannot refrain from linking the two together as cause and effect.

"We have not much evidence that the production committees take sufficient interest in accident prevention and I would suggest that it would be very useful if joint meetings of the production committee and the safety committee were held for the consideration of this problem and, in particular, for the consideration of accident reports. . . I would like to see accident reports placed on the agenda of meetings of Joint Industrial Councils so that they, too, could give fuller consideration to the prevention of accidents.

Some Medical Advice

"There are all sorts of diseases employers and sometimes even the workpeople regard as the fate of mankind," said Dr. Ronald Hunter, director of the London Hospital's research in industrial medicine, in a lecture at the London School of Hygiene on May 13, when he urged medical officers of health to take a firm stand in factories against tools which might cause what he called "unpleasant symptoms." To illustrate this he mentioned boilermakers who became so deaf that they could not bear to listen to a "talkie." Certain chemicals, Dr. Hunter said, lead to social complications because they cause extremely unpleasant breath, and every doctor had a mission to persuade people that these things need not be. Professor Ida Mann, surgeon at Moorfields Eye Hospital and director of the Nuffield Laboratory of Ophthalmology, said that the greatest ophthalmic need in industry was to-day the production and popularisation of a comfortable and effective protective goggle, supported by a goggle-maintenance service, such as existed in several factories in the United States.

A Sheffield Celebration

Newton, Chambers' Anniversary

ADDRESSING the company at the annual general meeting on Wednesday last week, Sir Samuel Roberts, Bart., chairman of Newton, Chambers & Co., Ltd., noted that the chemical branch had practically maintained its previous level of profit, despite difficulties and restrictions, largely as a result of their wide range of products and the extensive markets served. They had already received a dividend from Yorkshire Tar Distillers, Ltd., to whom they had sold their tar business, while

Thorncliffe Coal Distillation, Ltd., though it had not yet resumed dividends, was once again on a profit-earning basis.

Miss K. H. Newton, a direct descendant of one of the company's founders, had generously given £1000 to be used as a scholarship fund to encourage their young people to take full advantage of technical and commercial training facilities. The 150th anniversary of the foundation of the company in 1793 by George Newton and Thomas Chambers could not, owing to the war, be observed as it should have been, but they were hoping to commemorate the inauguration (in 1795) of foundry production at Thorncliffe by a pageant which their own people would present at the City Hall, Sheffield, during the second week of July.

New Control Orders

Plastics

IN accordance with the Control of Plastics (No. 3) (Revocation) Order, 1945 (S. R. & O. 1945, No. 539), dated May 15, licences are no longer necessary for the acquisition, disposal, or use of plastics in the form of moulding powder, in the production of which formaldehyde, phenol, cresol, urea, thiourea, and cellulose acetate are involved, or synthetic resins in which formaldehyde, cresol, phenol, urea or thiourea has been used. Use of cellulose acetate moulding powders, however, must still be restricted and releases will be on substantially the same basis as hitherto. For the present there will be no change in the existing method of voluntary control of other types of plastics or of plasticisers.

B.C.D.T.A. Meeting

(Continued from p. 439)

of H.M. Ministries and of the trade in any work it is called upon to undertake."

Officers for the Year

The following officers were elected: *President*, MR. VICTOR BLADEN; *vice-president*, MR. S. J. C. MASON; *chairman*, MR. C. W. LOVEGROVE; *vice-chairman*, MR. W. S. ADPAR JONES; *hon. treasurer*, MR. E. F. J. ARNOLD; *hon. auditor*, MR. B. C. HUGHES. *Executive Council*. MR. H. GILLAT (E. G. Jepson & Co.), MR. C. H. WILSON (Cole & Filson, Ltd.), MR. G. S. BACHE (James Beadel & Co., Ltd.), MR. D. G. D. GREENHOUGH (George Boor & Co., Ltd.), MR. A. NASH (Hughes & Hughes, Ltd.), MR. A. S. TODD (Biddle Sawyer & Co., Ltd.).

Ciba Report for 1944

The Situation in Switzerland

IN our issue of April 28, reference was made to the financial results and change of name of the well-known Swiss chemical concern, *Gesellschaft für Chemische Industrie in Basel*. In the company's report for last year, a copy of which has just reached us, it is noted that the vast changes, military and political, arising out of the war have had their inevitable effect on the company's activities. It is pointed out, however, that while demand from every quarter has been on the up-grade, the transport and supply situation has been a powerful impediment to business.

Dyestuffs and Textile Chemicals

It has been impossible to meet demands for dyestuffs and textile chemicals, which had shown a considerable increase, probably because German dyestuff plants had either been switched over to other activities or else damaged or destroyed. Significantly enough, the report points out, Switzerland is the only country that possesses an efficient dyestuff industry, apart from the chief belligerents. The elimination of German dyestuff supplies, which dominated many of the world's markets, has brought about a universal shortage of dyestuffs.

In connection with the much discussed post-war competition between natural and synthetic fibres, it is interesting to note that Ciba expects the "classical natural textile fibres, such as wool and cotton" to regain before long their position with the consumer; the concern's facilities for the production of wool and cotton dyes have accordingly not been merely maintained, but have been expanded in several directions.

Research activities have been successfully continued on a broad basis. New uses have been found for the Coprantin dyes, while the Orema dyes were a new development. Improvements have also been made in a number of textile finishing products.

Pharmaceuticals

The section dealing with pharmaceutical products—one of Ciba's chief spheres of activity—states that for the first time in recent years sales figures have shown a decline. Research work has not been interrupted, however, and a number of new specialities have been marketed. The report contains a brief reference to the company's interest in penicillin, and the hope is expressed that Ciba will take its part in supplying pharmaceuticals to the war-stricken nations of the world. Turnover in plastics showed a marked decline as a result of considerable difficulties in obtaining raw materials, while the properties of the Melocel glues received increasing recognition.

On the whole, production in Switzerland

has declined, but a careful policy, combined with certain adjustments in production and the expansion of the Swiss tar-distillation industry, have made it possible for the management to cover internal needs. The recent decline in coal imports as a result of events in Germany affected the output of tar products, as well as of heavy chemicals, at a time when the supply position for imported raw materials and intermediates had taken a distinct turn for the worse. In view of the transport chaos inside Europe, the company does not expect an early resumption of supplies from its customary sources, while the establishment of new connections is hampered by the lack of goods and shipping. To meet this emergency Ciba has intensified the mining of Swiss coal from mines in which it has a share. It is worthy of attention that so far no unit has had to be closed down, while the number of workers has not been reduced appreciably below that of last year.

Report on Subsidiaries

The branch plant at Monthey worked satisfactorily, although indigo production had to be cut down. The plant at St. Pons, near Lyons, reports a marked decline in output, and the same applied to the Laboratoires Ciba at Lyons. The subsidiaries in Poland (Pabianice) and Italy (Seriato) seem to have escaped any large-scale damage. No details are given about the chief interests of the parent company in this country (Clayton Aniline Co., Ltd., and Ciba, Ltd., Horscham) and in the U.S.A. (Cincinnati Chemical Works, Inc., and Ciba Pharmaceutical Products Inc., Summit, N.J.). Connections with these units, which are the parent company's leading licensees, have been promoted as far as possible, despite financial difficulties.

SWISS INSTRUMENT EXPORTS

According to advices from Switzerland, an association has recently been formed in Berne with the object of promoting the export of precision apparatus, measuring instruments, and kindred equipment. The association, which bears the title *Exporting für schweizerische Präzisions-Messinstrumente*, embraces not merely large and well-known establishments, but also medium and small companies. By joint planning and co-operation, it is hoped to sell a wide range of equipment in foreign markets under the same trade-mark. Each member-firm will contribute to the joint programme by producing finished products or spare parts according to its equipment and special experience. This arrangement, it is hoped, will standardise quality and enable prices to be lowered.

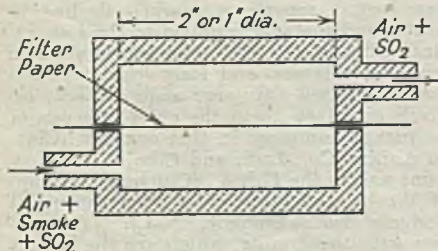
Atmospheric Pollution

A Simple Smoke Filter

SUMMARISING investigations on atmospheric pollution made during the year ended March 31, 1944, the D.S.I.R. reports, through its committee on the subject, that although the downward trend in sulphur dioxide emission, noted last year, did not continue, there is still a small but significant reduction in 1943/44 compared with 1941/42, amounting to about 3 per cent.

The Atmospheric Pollution Research Committee, in response to numerous inquiries from town-planning officers, has published a leaflet entitled "How to Make Rapid Surveys." The methods recommended therein are intended to provide the quickest possible information about the relative distribution of pollution, not to arrive at absolute values.

In consonance with the increasing need for instrumental observations of smoke, a smoke filter has been devised (and is illustrated herewith), which offers a simpler method than the automatic filter for observing the daily mean concentration of smoke.



Smoke filter clamp.

It can be used in conjunction with the volumetric sulphur apparatus, or independently. By its means, the smoke from 50 to 100 cu. ft. of air is transferred to a filter paper as a uniform stain. The weight of material in the stain can be estimated by comparison with the Owen's scale of shades.

Indian Fertiliser Plant

Bihar Site Chosen

WHEN India's fertiliser production programme was discussed in THE CHEMICAL AGE of December 2, in connection with the technical mission headed by Mr. G. S. Gowing, of I.C.I., which recommended the construction of a single plant near Aligarh, we voiced certain doubts as regards the wisdom of this policy. According to latest advices received, the Government of India has, after considerable controversy, decided to erect the new plant at Sindri in the coal-producing area of Bihar. The capacity of the plant remains un-

changed at 350,000 tons of sulphate of ammonia. It is important to add that this project holds out the possibility of developing subsidiary industries from nitrogenous products. The Government is also investigating the prospects of erecting another plant with a capacity of some 100,000 tons south of the Vindhya, not far from Bombay.

The Government of India has also come to the conclusion that the new Sindri plant should be State-owned and State-controlled, this being the first step towards central control proposed in the Government of India's recently published 5000-word report on the country's industrialisation. However, while the factory will be run by the Central Government, ways and means are under consideration of how to associate the Provincial Governments in the new project.

The Alternative Sites

As stated in para. 89 of the Gowing Report, the mission examined in detail two sites, one at Sindri, in Bihar, the other at Harduaganj, near Aligarh. The factors favouring each site are fully discussed in para. 90 and may thus be summed up: a factory in the Bihar coalfield would take advantage of empty waggons returning from the collieries for bringing in gypsum supplies and the raw material supply position would, it is contended, be better than at Aligarh. A plant at Sindri would also be slightly better situated from the distributive point of view and would take advantage of any future development of low-grade fuel. At Harduaganj, on the other hand, water supply was certain, whereas at Sindri, the difficult Damodar river would necessitate provision against flood damage. Further, the site was more level, and had two buildings and a railway, both of which were lacking at Sindri. Taking account of all these factors, the mission came to the conclusion that the difference in the capital cost, amounting to Rs. 41 lakhs, favoured the erection of the plant at Harduaganj. The Government, in giving preference to Sindri, probably had in mind a long-term development of the Bihar industrial area, which might possibly take the form of a Damodar Valley Authority, modelled on the TVA.

A technical mission, consisting of Sir James Pitkeathly, Dr. Qureshi, and Dr. Chakravaty has already arrived in this country, whence they will proceed to the U.S.A. to negotiate the purchase and erection of the new plant.

Recent reports from Poland state that in Warsaw (including the suburb of Praga) 369 industrial undertakings are now working, out of which 37 are chemical enterprises, 60 are metallurgical establishments, and 22 are tanneries.

British Association of Chemists

London Section's Annual Meeting

THE annual meeting of the London Section of the B.A.C. was held in the Chemical Society's rooms, at Burlington House, on May 9, with Mr. Thomas McLachlan in the chair. The committee again reported a satisfactory year's work, with considerable increase of activity. In accordance with the policy decided on last year, a beginning has been made of the formation of branches within the section, the first of these having been inaugurated at Welwyn Garden City, with a most successful meeting last September. Mr. J. Wilson represents the new branch on the committee.

Owing to the proper definition of the sectional boundaries within the Association, a measure long delayed, 182 members of various classes were transferred to other sections during the year, mainly to the new Bristol and S.W. Section. The total deductions from membership amounted to 269, while additions totalled 74.

Conclusions drawn from the questionnaire addressed to members last year have been approved by the committee as follows:

(1) That the time most suited to a Section meeting is Tuesday or Wednesday evening at 6.30 p.m.

(2) That a large majority is opposed to weekday afternoon meetings, but that a substantial number can attend on Saturday afternoons, the best time being 3 p.m.

(3) That there is a very strong demand for more lectures on technical subjects, next to which lectures or discussions on professional subjects are preferred. Many would like the showing of scientific films.

(4) The formation of branches on a geographical basis would receive much more support than groups in factories.

New Officers

The following officers were nominated for the coming year, and, as the number of nominations did not exceed the vacancies, they were declared elected: *Chairman*, Mr. J. STEWART COOK; *vice-chairman*, Dr. F. W. STOYLE; *hon. treasurer*, Mr. G. H. CLARKE; *hon. secretary*, Mr. NORMAN SHELDON. *Section Concillors*: MESSRS. S. H. BIGGS, G. H. CLARKE, E. L. HOLMES, L. L. PEARSON, and J. WILSON. *Section Committee*: MESSRS. J. E. EDWARDS, R. GAZE, D. E. B. GREENSMITH, G. T. GURR, Dr. A. T. HEALEY, MESSRS. W. T. HERBERT, H. L. HOWARD, A. J. MILLS, W. C. PECK, I. C. P. SMITH, W. A. SNOW, and MRS. S. M. L. TRITTON.

At the conclusion of official business, the retiring chairman, Mr. T. McLachlan, gave an address on "The Organisation of Chemists."

Building Research

Scientific Committee Appointed

THE Minister of Works has appointed a scientific advisory committee to advise on and to suggest lines of scientific research; to suggest where this research could best be carried out and to keep it under review; and to advise on the practical possibilities and further development of the results of current research.

The committee is: Professor J. D. Bernal (Physics), Birkbeck College, London University (chairman); Dr. E. F. Armstrong, member of Building Research Board; Professor J. F. Baker (Mechanical Sciences), Cambridge University; Professor P. M. S. Blackett (Physics), Manchester University; Professor W. E. Curtis (Physics), Durham University; Dr. C. C. Douglas, Oxford University, chairman, Joint Committee on Heating and Ventilation (Building Research Board and Industrial Health Research Board); Professor C. D. Ellis (Physics), King's College, London; Professor I. M. Heilbron (Organic Chemistry), Imperial College, London University, Scientific Adviser, Ministry of Production; Professor J. M. Mackintosh (Public Health), London University; Mrs. J. V. Robinson, lecturer in Economics, Cambridge University; Sir Ernest D. Simon, chairman, Advisory Council, Ministry of Fuel and Power; Mr. F. E. Smith, chief superintendent, Armament Design Department; Professor W. N. Thomas (Engineering), University of Wales; Professor S. Zuckerman, Oxford and Birmingham.

Mr. I. G. Evans, Director of Building Research; Lord Amulree, Medical Officer, Ministry of Health; and Dr. R. S. F. Schilling, secretary, Industrial Health Research Board, Medical Research Council, are assessors. Sir Reginald Stradling is executive officer.

Starch Order Contravened

£1800 Fines for Conspiracy

FINES totalling £1800 were imposed at Slough on Thursday last week on three men who pleaded "guilty" to a charge of conspiring to contravene the Starch Control Order by buying 33 tons of arrowroot for £1953 from Aspro's, Ltd., and selling it without a licence for £5646. David Rich Anstee, of Slough, was fined £1000, William Robert Spence, of Dorney Reach, Taplow, £600, and Lawrence John Rickards, of Watling Street, London, E.C., £200. In each case costs of 40 guineas were fixed. Similar charges against Aspro's, Ltd., and its managing director were dismissed under the Probation of Offenders Act on payment of 40 guineas costs each.

Dehydration of Alcohols

Papers on Azeotropic Distillation

AT the last meeting of the North-Western branch of the Institution of Chemical Engineers, held at the Manchester College of Technology on April 28, two papers on the Dehydration of Alcohols by Azeotropic Distillation were presented. The first, dealing with ethanol, was by Mr. W. S. Norman, M.Sc.

In a modern continuous process of dehydration, he said, 94 per cent. ethanol is fed to an intermediate plate of a fractionating column; the ternary azeotrope, consisting of benzene, water and ethanol, distils off the top plate of the column and anhydrous alcohol is withdrawn at the base of the column. The ternary azeotrope is condensed, separated into two layers, the benzene being returned to the column while benzene and ethanol are recovered from the water layer in auxiliary columns. Experimental methods were given for obtaining data for equilibria on the following systems: binary vapour-liquid; two-phase liquid-liquid at normal temperatures and at the boiling point; and ternary liquid-liquid.

The molar fractions of benzene, water, and ethanol respectively, in each phase were represented by B , W , and A . Activity coefficients for each component were plotted against their molar fractions in the liquid phases and were checked by the Gibbs-Duhem equation. The activity coefficient equals the ratio of the total pressure to the partial pressure of the component at the boiling point of the mixture multiplied by the ratio of its molar fractions in the vapour and in the liquid phases respectively.

Number of Plates Required

Correlation of data was obtained by plotting $\frac{B}{B+W}$, $\frac{W}{W+A}$ and $\frac{B}{B+A}$ concentrations for the liquid against the vapour; these quantities were used in the design calculations. A stepwise method of calculation was used to determine the number of theoretical plates required in the column, the compositions of feed, product and overhead vapour, with feed at the boiling point being assumed. A materials balance was made and the compositions of vapour and of liquid on each plate were calculated. Twenty theoretical plates were needed, the feed entering on the fifteenth plate where

the ratio $\frac{B}{W+A}$ in the liquid on the plate

has the same ratio in the feed. The bottom nine plates contain little water, but the benzene concentration increases until it reaches a nearly constant value on the tenth plate; above the feed plate the benzene concentra-

tion on each plate increases sharply then remains constant, while the concentration of water steadily increases on each plate from the tenth plate to the top of the column. The results show that the standard McCabe-Thiele diagram can be applied to this problem.

Allyl Alcohol

The second paper, dealing with allyl alcohol, by Mr. C. H. G. Hands, B.Sc., and Mr. Norman (read by Mr. Norman), showed the advantages of trichlorethylene as an entraining agent. The investigation of the properties of the three components, water being the third component, followed a pattern similar to that given above, but some new methods and modifications were employed. In the design of the plant, the McCabe-Thiele graphical method was used to obtain preliminary results and was followed by more accurate stepwise calculations and by a materials balance. Using 43.3 molar per cent. allyl alcohol with the entrainer, both fed to the top plate of the column, eight theoretical plates were required to produce anhydrous allyl alcohol, a condenser and decanter being used, but no reflux being required. With a feed containing 80 molar per cent. allyl alcohol, a reflux is necessary, three theoretical plates above and nine theoretical plates below the feed plate are needed.

A hearty vote of thanks was given to the authors who were acknowledged to have presented a valuable contribution to the existing knowledge of alcohol distillation.

The restoration of the famous tractor plant in Stalingrad—which had seen some of the bitterest fighting of the war—is proceeding. Eight open-hearth furnaces have been restored, and the "Red October" iron and steel plant is again producing.

The Ministry of Supply announces that from May 11 applications to the Non-Ferrous Metals Control for licences to acquire copper and zinc for consumption in the U.K. will be considered without restrictions in respect of the type of article to be manufactured. Certain restrictions on the release of copper and zinc will, however, continue to be imposed as regards export orders. The statutory provisions regarding the acquisition and disposal of these metals are still in force and the present procedure of submitting to the Non-Ferrous Metals Control, Grand Hotel, Rugby, schedules of orders with applications for licences must be followed.

Personal Notes

The retirement is announced of SIR EDWARD B. BAILEY, F.R.S., director of the Geological Survey of Great Britain.

SIR DONALD FERGUSSON succeeds SIR FRANK TRIBE as Permanent Secretary of the Ministry of Fuel and Power.

PROFESSOR A. V. HILL, F.R.S., who sits for Cambridge University, has announced that he will not stand at the General Election.

MR. E. L. HANN, chairman and a managing director of Powell Duffryn, Ltd., has been appointed a director of the Westminster Bank.

SIR TRACY GAVIN JONES, who has become president of the Economic Reform Club in succession to the late Sir Reginald Rowe, is managing director of the Cawnpore Chemical Works.

MR. W. J. THEUNISSEN has been appointed controller of non-ferrous materials in the Union of South Africa, in succession to MR. B. J. CRAMER, who has been recalled to the United Kingdom.

SIR ALEXANDER FLEMING received on Thursday the freedom of the borough of Paddington, in which is situated St. Mary's Hospital, with the laboratory where he made his original observations on the activity of penicillin.

DR. J. D. M. ROSS, lecturer in physical chemistry at University College, Dundee, delivered the tenth Sir James Walker Memorial Lecture on Thursday last week before the Edinburgh University Chemical Society. His subject was "Racemates." Lady Walker was present at the lecture.

DR. G. F. NEW is relinquishing his position with British Titan Products Co., Ltd., and MR. S. G. TINSLEY is taking over the responsibility for the sales service activities of the company. Dr. New will become general manager and secretary of the Fertiliser Manufacturers' Association on June 1.

Two members of the staff of Scottish Agricultural Industries, Ltd., who are due to retire were the guests at a dinner given by the firm last week. They are MR. CHARLES DAVIDSON, chief chemist and director of the Western Group, and MR. JOHN MURRAY, travelling representative. Each has 54 years of service and was given a presentation from the staff.

MR. R. J. BARRITT, M.A., M.I.Chem.E., has joined Powell Duffryn, Ltd., as chief chemical engineer. Mr. Barritt was previously with Simon-Carves, Ltd., for 16 years, latterly as senior technical assistant to the chairman. In 1943, together with Major V. F. Gloag, he was awarded the

Moulton Medal by the Institution of Chemical Engineers for a paper on sulphuric-acid plants.

SIR JACK DRUMMOND, F.R.S., D.Sc., F.R.I.C., Chief Scientific Adviser to the Ministry of Food, has been appointed to the post of Director-in-Charge of the whole of the scientific research organisation of Boots Pure Drug Company, Ltd. Sir Jack Drummond has resigned the Chair of Biochemistry at University College, London, which he has held since 1922, but will not take up his new appointment until the food situation has improved.

Obituary

MR. JAMES HENRY HOPE, lately chemist with Scottish Oils, Ltd., has died in an Edinburgh nursing home.

MR. ALBERT LUCAS ENTWISTLE, F.R.I.C., M.Inst.M.M., who died at Ottawa on April 28, was chief chemist and assayer at the Royal Canadian Mint.

MR. JAMES KEAR COLWELL, F.R.I.C., who died in Finchley Memorial Hospital, London, on April 26, aged 79, was well known as a public analyst and consulting chemist. He had served as public analyst to Bedfordshire and to the borough of Finsbury, and as consulting chemist to the Harpenden and Luton water companies. A Fellow of the Royal Institute of Chemistry since 1892, he was a member of Council in 1900-3 and 1904-7. He was also interested in trade journalism, having been a director, since its foundation, of Practical Press, Ltd., publishers of the *Caterer*, the *Hotel Review*, and other periodicals.

Parliamentary Topics

Silicosis and Pneumoconiosis

IN the House of Commons recently, Mr. James Griffiths asked the Minister of Fuel and Power whether he had any statement to make concerning the progress of the efforts to combat pneumoconiosis among coal-miners.

Major Lloyd George: Arrangements have been made between my Ministry and the Medical Research Council for further investigations into the cause, prevention and treatment of pneumoconiosis. They have undertaken to establish and maintain a research centre in South Wales, and have appointed Dr. C. M. Fletcher to direct the work. Additional physical and chemical investigations and reports will be made. A joint committee of the Ministry and the Council has been appointed to assist in the development and co-ordination of research.

Replying to the same Member, Major Lloyd George said that the number of new cases of silicosis and pneumoconiosis certified by the Silicosis Medical Board for total

disablement and suspension from the industry between January 1, 1939, and March 31, 1945, was 6483, and that during that period 647 death certificates were also issued.

In reply to Professor Gruffydd, Mr. T. Smith said that the number of cases of underground workers in slate mines in North Wales certified by the Silicosis Medical Board for total disablement or suspension since January 1, 1940, was 85. Wet drilling or other appropriate methods of allaying dust had now been adopted in place of dry drilling, and these and the other precautionary measures should in time result in a decreased incidence of the disease.

Penicillin

Mr. G. Griffiths asked the Minister of Health whether a National Health Insurance employed contributor who requires penicillin was enabled to get it free under the same conditions as a diabetic gets insulin.

Mr. Willink: No, Sir. I regret that there is not yet enough penicillin for all restrictions upon its use to be removed. Penicillin cannot be supplied on a doctor's prescription either for insured or for private patients. It is available only through hospitals, and in most cases it should be administered in hospitals by staff specially trained in its use. I am advised that supplies are sufficient for all urgent cases likely to benefit from its use.

Oil Fuel

In reply to Sir I. Albery, Major Lloyd

George said that the use of oil fuel to assist the coal position must depend on Service demands.

Paper Making Material

The Minister of Production informed Mr. G. White that he had arranged for the import both of esparto grass from North Africa, and of substantial quantities of wood pulp from Sweden.

Pottery Industry

Mr. Dalton assured Mr. Ellis Smith that, subject to the availability of labour and premises, he would release the pottery industry from the operation of the concentration Order. So far, it had not yet been possible to reopen any closed factories.

Coal By-Products

Mr. Thorne asked the Minister of Fuel and Power what amount of benzol and tar was obtained from coal for the year ended 1944; giving the quantities in gallons for benzol and tar and the total weight of ammonia.

Major Lloyd George: The quantity of crude benzol obtained from coal for the year 1944 amounted to 100,300,000 gallons. The small amount of benzol obtained from the distillation of tar is not included in this quantity. Production of tar for the same period was 2,100,000 tons or approximately 416,000,000 gallons.

General News

A Franco-British Industrial Liaison Committee has been formed as a result of the recent visit of a group of French industrialists.

The Power-Gas Corporation, Ltd., Stockton-on-Tees, has just published a leaflet describing hydrogen production by the steam-iron process. It contains a flow sheet, interesting operating data, and photographs of plant installations.

The following summer courses have been arranged by the Department of Metallurgy of the Birmingham Central Technical College: Modern electro-plating practice; alloy cast irons; surface-hardening processes; and alloy steels in the light of recent research.

British Coal Distillation, Ltd., report the acquisition of options to purchase a bituminous colliery and an anthracite colliery, both in Wales. Negotiations are also in hand to erect and equip at least one "Suncoke" distillation plant for the conversion of 150,000 tons per annum of high-volatile bituminous coal, with plant for the treatment of coal derivatives at a total cost of £400,000.

From Week to Week

The Board of Trade announces that the issue of policies of insurance under the Commodity Insurance Scheme, the Business Scheme, and the Private Chattels Scheme, has ceased. Current policies will remain operative until their dates of expiry.

"The Mining of Oil-Shale in Scotland" is the title of an article written by the late Mr. H. R. J. Conacher, a well-known authority on the Scottish shale-oil industry, and published in the May issue of the *NAFT Magazine*.

Sentences ranging from five years' penal servitude to 18 months' imprisonment were passed at the Old Bailey on Monday on 17 men appearing on charges concerning illicit dealings in linseed oil and castor oil. In two years the amount of linseed oil received at a wharf belonging to two of the accused was stated to be 214½ tons, and of castor oil 4 tons. In addition, 16,365 gallons of solvents were stated to have gone, over the same period, without a single record of a legitimate purchase.

About 150 rubber technicians attended a symposium, arranged by the Midland Section of the Institution of the Rubber Industry, on May 12 at Birmingham. Nine papers were presented on the general subject of: "The Physical and Chemical Break-down of Rubber."

British industrial concerns who are anxious to support B.E.T.R.O. (British Export Trade Research Organisation) are reminded that the formation committee has decided that the first governing council of the organisation must be elected by founder members who have enrolled by June 1.

The British Standards Institution has constituted a committee to deal with a specification for industrial adhesives, states the *Bulletin* of the Association of Manufacturers of Bituminous Protective Products. Attention is also being devoted to the nomenclature of bituminous materials.

The Prime Minister is to receive the Albert Gold Medal, the highest award conferred by the Council of the Royal Society of Arts. Former recipients of the medal, which was struck in 1864, were Edison, Pasteur, and Madame Curie. President Roosevelt and Field-Marshal Smuts were medallists in 1941 and 1942.

The Institution of Factory Managers announces that the Sir Henry Fildes Medal, established in 1940, will be awarded to the best essay submitted on the subject: "Training for Factory Managers: Practical, Administrative, which should be First and Why?" For conditions apply to the general secretary, 63 Gayton Road, Harrow, Middx.

At the annual general meeting of the British Oxygen Co., Ltd., on Wednesday last week, the chairman, Mr. S. J. L. Hardie, announced that further extension of activities and new developments were still in progress and under consideration, over and above the expansions made necessary by the war.

Speaking at a luncheon of the Scientific Instrument Manufacturers' Association of Great Britain last Monday, Lord Sempill declared that we must recapture the position we once held in the supply of scientific instruments, and provide for the world a large share of the equipment which came from Germany during the last 60 years.

Nine Indian industrialists, whose visit to this country had been prepared for some time, are expected to arrive by Whitsun. The visitors, who are coming as private individuals and not as an official mission, wish to discuss the supply of capital equipment and to further India's post-war industrial expansion. They will be accompanied by a number of technical advisers and are expected to remain here about two months before going on to the U.S.A.

The Ministry of Aircraft Production has undertaken to provide up to £4250 during 1945 for research on the mechanism of friction and lubrication. The research will be carried out in the sub-department of physical chemistry in the University of Cambridge, under the direction of Dr. F. P. Bowden, lecturer in physical chemistry.

In a series of addresses to be given at Winchester House, Old Broad Street, London, E.C.2, a number of well-known speakers, including Sir Andrew McFadyean, Professor Allan Fisher, of the Royal Institute of International Affairs, and Mr. A. S. Comyns-Carr, K.C., will dwell on the importance of free trade. The lectures will be delivered at 5 p.m. on Tuesdays up to July 17.

A gentleman's gold watch was found at the Savoy Hotel following the luncheon of the British Standards Institution held on March 6. No inquiries have been received from any of the members attending the luncheon and all efforts to trace the owner have been unsuccessful. If it remains unclaimed at the expiration of three months from the date of the luncheon, i.e., June 6 next, it will be handed back to the Savoy Hotel management whose property, we are advised, it will then become.

Foreign News

Work has begun again on the main building of the Soviet Academy of Sciences, which was interrupted by the war.

Reports from Rotterdam state that the Germans destroyed the facilities there for discharge in bulk of coal, coke and phosphates.

A Cape Town firm is engaged in recovering used lubricating oil in a plant with a capacity of 10,000 to 12,000 gallons a month.

A laboratory for the study of fuels and lubricants for jet-propulsion aircraft has been built at Wood River, Ill., by the Shell Oil Co.

The Canadian Chemical Conference—the first to be held under the auspices of the Canadian Institute of Chemistry—will be held in Quebec City on June 4-6.

In order to meet demand for aluminium household utensils, the Government of India has decided to release 300 tons of aluminium monthly, to be increased shortly to 500 tons.

Soap making has been developed in Cyprus, rendering the island independent of imports. Olive kernel oil, linseed oil, and coconut oil are used, while caustic soda is being shipped from the United Kingdom.

Zinc production in Australia (including the output of the Risdon refinery in Tasmania) was 79,000 tons last year, which compares with a pre-war output of about 70,000 tons. The current quotation for zinc at Risdon is about £A22 per ton.

In the Dombrova region, the eastern part of Upper Silesia, with Katowice as centre, fourteen mines, two blast furnaces, two cement factories, and one chemical plant are again working.

Penicillin is now being produced in East Africa in the laboratory of a big military hospital. Moreover, sufficient supplies are now arriving from the United States to treat 20 cases monthly.

Zinc oxide production, which has been started in Australia during the war on a scale which, it was hoped, would cover essential needs, has proved to be too small. In order to balance the supply situation, imports of 150 tons a month have been arranged with six British producers.

The oilfields on Tarakan island, off the coast of Borneo, which have been recaptured by Australian and Netherlands forces, are reported not to have been extensively damaged. Major-General Casey, U.S. Engineer Corps, has told correspondents that the oilwells can be placed in production again in time to furnish oil for the final drive against Japan.

Forthcoming Events

May 23. A.B.C.M. Fuel Efficiency Technical Discussions. Meeting Room No. 1. Gas Industry House, 1 Grosvenor Place, London, S.W.1, 2.30 p.m. Mr. W. Murray: "Inhibition of Corrosion of Metals in Hot and Cold Water Systems and Water and Steam Phases."

May 24. Association for Scientific Photography. Caxton Hall, Westminster, S.W.1, 7.30 p.m. Mr. S. H. Thorpe (Brown-Firth Research Laboratories): "Photography Applied to Research in the Steel Industry."

May 24. Chemical Society. University College, Cardiff, 7 p.m. Professor J. D. Bernal, F.R.S.: "The Past and Future of Crystal Chemistry" (Hugo Müller Lecture).

May 25. Chemical Society. The University, Western Bank, Sheffield, 6 p.m. Mr. R. P. Bell, F.R.S.: "The Place and Resonance Concept in Chemistry."

May 30. Society of Chemical Industry (Plastics Group). The Royal Institution, Albemarle Street, London, S.W.1, 3 p.m. Mr. H. V. Potter: "Leo Hendrik Baekeland—The Story of His Life" (First Baekeland Memorial Lecture).

May 30. Society of Chemical Industry (Plastics Group). Stewart's Restaurant, 50 Old Bond Street, London, W.1, 11 a.m. Annual General Meeting. Luncheon: 12.50 for 1 p.m. Applications from members, accompanied by a remittance for 6s. 6d., should be made to the Hon. Hospitality Officer, Mr. W. H. Langwell, The Garth, Windmill End, Epsom.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for errors that may occur.

Mortgages and Charges

(Note.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every company shall, in making its Annual Summary, specify the total amount of debt due from the company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.)

SOFNOL, LTD., London, S.E., manufacturers of water softening materials. (M., 19/5/45.) April 26, debenture, to National Bank of Scotland, Ltd., securing all moneys due or to become due to the bank; general charge. *£4725. September 20, 1944.

BIRKENHEAD ELECTRIC & ACETYLENE WELDING CO., LTD. (M., 19/5/45.) April 18, debenture, to District Bank, Ltd., securing all moneys due or to become due to the bank; general charge.

ANTISEPTIC PRODUCTS, LTD., Maidstone. (M., 19/5/45.) April 27, £3345 debenture, to G. T. Smith, London; general charge. *£1100. March 31, 1944.

CELLACITE & BRITISH URALITE, LTD., Higham, Rochester. (M., 19/5/45.) March 20, debenture, to Lloyds Bank, Ltd., securing all moneys due or to become due to the bank; general charge. *£81,400. September 5, 1944.

Satisfaction

ALLEN & LLOYD, LTD., Aldershot, chemists and mineral water manufacturers. (M.S., 19/5/45.) Satisfaction April - 26. £2500, registered June 7, 1929.

Company News

Cellon, Ltd., reports a trading profit, for last year, of £24,961 (£23,864). A final dividend of 12½ per cent., again making a total of 22½ per cent., has been declared.

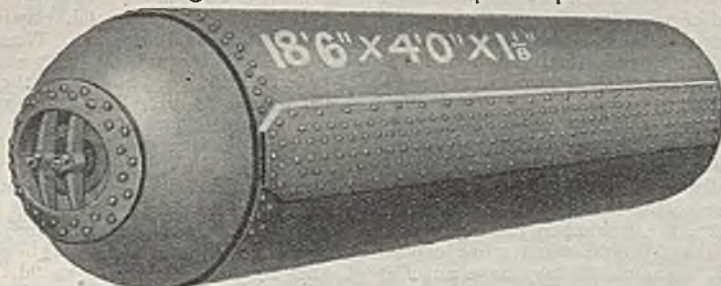
B. Laporte, Ltd., report a profit, for the year to March 31, of £179,753 (£201,939) before taxation. A final of 10 per cent., again making a total dividend of 15 per cent., has been announced.

Chemical and Allied Stocks and Shares

INDUSTRIAL shares have continued to show an uncertain tendency, but British Funds have been firmer, although business generally recorded little improvement and was centred on gold-mining shares and Far

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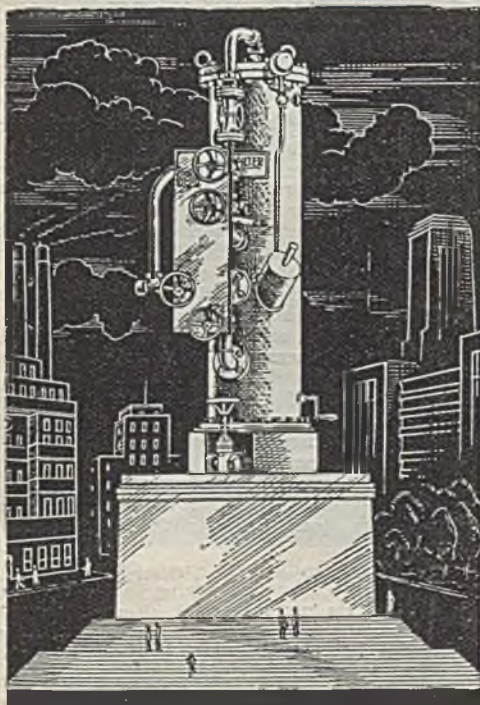
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Eastern securities. There was little selling of industrials, but sentiment reflected indications of a growing attitude on the part of buyers to await further indications of the outlook and the steps being taken to effect the switch-over to peacetime working.

Shares of chemical and kindred companies moved closely with the prevailing trend of industrials, and were mostly slightly lower on balance. Imperial Chemical, after receding to 39s. 6d., were steady on the full results. Turner & Newall eased to 83s. 6d., Lever & Unilever to 48s., and Borax Consolidated deferred at 43s. 3d. lost part of their recent advance. B. Laporte firmed up to 90s. prior to the dividend, which is again 15 per cent.; the market is talking of the likelihood that, if and when more capital is required, shareholders may have an offer of additional shares on favourable terms. British Aluminium were steady at 44s. 9d., but elsewhere Imperial Smelting eased to 14s. 3d., and Amalgamated Metal to 19s. 9d. British Celanese receded to 32s. 9d., Courtaulds to 56s., and textiles generally eased, although Fine Spinners at 25s. 6d. tended to rally on market hopes of an improved dividend. British Oxygen declined to 83s. 6d., and Crittall Manufacturing to 26s. 6d., but in other directions United Molasses remained under the influence of the results, and at 42s. 6d. fully regained the dividend deduction. The units of the Distillers Co. were 114s. 6d., with British Plaster Board 57s. 9d., Pinchin Johnson 39s. 9d., and British Match 44s. also lower on the week.

Iron and steels also reflected falling off in demand and were slightly lower, although relatively little selling was reported. Allied Ironfounders moved back to 52s., with United Steel 26s. 3d., Hadfields 32s., Stewarts Lloyds 56s. 6d., and Tube Investments 45s. In other directions, Associated Cement at 62s. were steady, awaiting the results. Babcock & Wilcox were firm at 55s. 6d. 6d., yielding 4½ per cent. on last year's increased payment of 12 per cent. De La Rue moved down to £10½, and other shares of companies with plastics interests also reflected the easier trend of markets, with British Industrial Plastics 2s. shares 7s., and Erinoid 12s. 3d. Goodlass Wall 10s. ordinary were 21s., and Burt Boulton changed hands around 26s. 6d.

Canning Town Glass have been steady, these 5s. shares changing hands around 10s. awaiting the results. United Glass Bottle tended to move higher, dealings ranging up to 78s., while among shares of other glass companies, John M. Newton 1s. ordinary have been dealt in around 8s. following the increased distribution. British Glues & Chemicals 4s. ordinary transferred at 10s. 6d., and British Drug Houses at 32s. 7½d. Business ranged from 50s. to 51s. in Fisons shares, and from 57s. 6d. to 58s. 3d. in the shares of the Valor Co. Hopes

of improved post-war results maintained firmness in Barry & Staines at 53s. 9d. Nairn & Greenwich were 77s. 6d. with Wall Paper Manufacturers deferred 43s. 6d.; Hopkinsons shares gained 1s. at 81s. on the higher dividend.

Boots Drug at 54s. 6d. regained part of an earlier small decline. Timothy Whites were 43s., Sangers 32s. 6d., and Beechams deferred 19s. 3d. Shares of the Metal Box Co. eased to 91s. 3d. Dunlop Rubber at 51s. regained part of an earlier decline; although the market is not expecting any change in the forthcoming dividend, it is being assumed the annual statement will refer favourably to prospects. Electrical equipment shares, after improving, eased slightly, General Electric being 96s. 9d., and English Electric 53s. 9d. Oil shares receded, with Shell 86s. 10½d., and Burmah Oil 89s. 4½d.

British Chemical Prices

Market Reports

OWING to the memorable events of the week there was little activity to report on the London general chemicals market and no price changes have been reported. The termination of hostilities in Europe is not likely to have an immediate influence on the supply position although supplies of some materials, hitherto required for essential war needs, are likely to be made available in greater quantities for the needs of the home market. While the process of transition will be gradual there is not the least doubt that the chemical markets can look for a long period of activity both for home and export trade.

MANCHESTER.—Arising chiefly from peace-in-Europe celebrations, trading conditions on the Manchester chemical market since last report have been quieter. With consuming works closed down for the holidays there was a noticeable but short-lived interruption of contract deliveries of a wide range of leading "heavies," including the textile chemicals, and both fresh inquiry and new bookings were also affected. Conditions however, are now much the same as they were before and more or less normal activity has been reported. No price changes of any consequence have occurred. There has been a resumed steady movement of most of the fertilisers, and also of the tar products, though in neither of these sections has there been much in the way of new business.

GLASGOW.—Business in the Scottish heavy chemical trade during the past week resumed its normal trend after two days' holiday at the beginning of the week. Prices remain firm with no actual changes to report. Export inquiries are coming in regularly now.

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WORKING NOTICE

NOTICE is hereby given that John Idris Jones, Cyril Wilfred Bonnicksen and Cefoll Limited seek leave to amend the Specification of the application letters Patent No. 560,317 entitled "Improvements in or relating to the manufacture of low density cellular material."

Particulars of the proposed amendment were set forth in the Official Journal (Patents) No. 2935 dated April 25, 1945.

Any person may give notice of Opposition to the Amendment by leaving Patents Form No. 19 at the Patent Office, 25, Southampton Buildings, London, W.C.2, on or before the 25th May, 1945.

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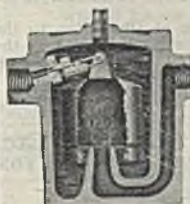
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