

## Survey of the REED PAPER GROUP *development and expansion*

**E**QUIPPED with the confidence, experience and resources gained from sixty years of pioneering achievement, the Reed Paper Group has entered the most energetically progressive phase in its development to date. Some indication is given in the following pages of the scope of the Group's current activities—its creation of the largest organisation in Britain devoted to corrugated case production; its constantly increasing production of kraft paper; its extensive interests in other branches of the packaging industry and in the manufacture of cellulose wadding for handkerchiefs and other toilet products; its participation in a major project in New Zealand.

The spirit of enterprise imbuing these activities is reflected in the important developments now being carried forward at Aylesford in Kent, the principal centre of production in the Reed Paper Group where over half the total number of the Group's workers are employed—the heart of the Reed organisation.

Production of kraft, newsprint and other wrapping and printing papers by the existing mills at Aylesford at present totals approximately 4,500 tons a week. The

installation of two new machines at present under construction—No. 12, a machine for producing glazed kraft papers, and No. 13, a machine for making printing papers—will shortly result in the raising of this output by more than 25 per cent. This is to say nothing of the production of the other five paper mills in the Group. To handle this substantially increased production with speed and economy, and to provide an administrative layout appropriate to the needs of a com-

plex and fast-growing organisation, a comprehensive programme of building and engineering construction has been planned, to be completed in two to three years at a cost of some £5,000,000.

#### EXPANSION AT AYLESFORD

Of the 450 acres occupied by the Aylesford site, about 340 acres consist of farm land, playing fields and parklands, while the combined sites of the paper mill and its associated converting factories amount to

over 110 acres. The new building projects now in hand will add nearly a fifth to the present total working area. These include a completely new finishing department to serve the Aylesford mills, a three-storey Group administration block designed for expansion, and new factories and stores. In addition, new railway sidings are being constructed which will increase the factory railways to an overall length of nearly ten miles, and the factory road system will be extended to a length of nearly four miles.

The new finishing department will be equipped throughout for modern high-speed operation. Floor conveyors and other mechanical handling methods will be fully utilised.

The building programme also provides for the completion this year of an entire new factory for the manufacture and conversion of cellulose wadding.

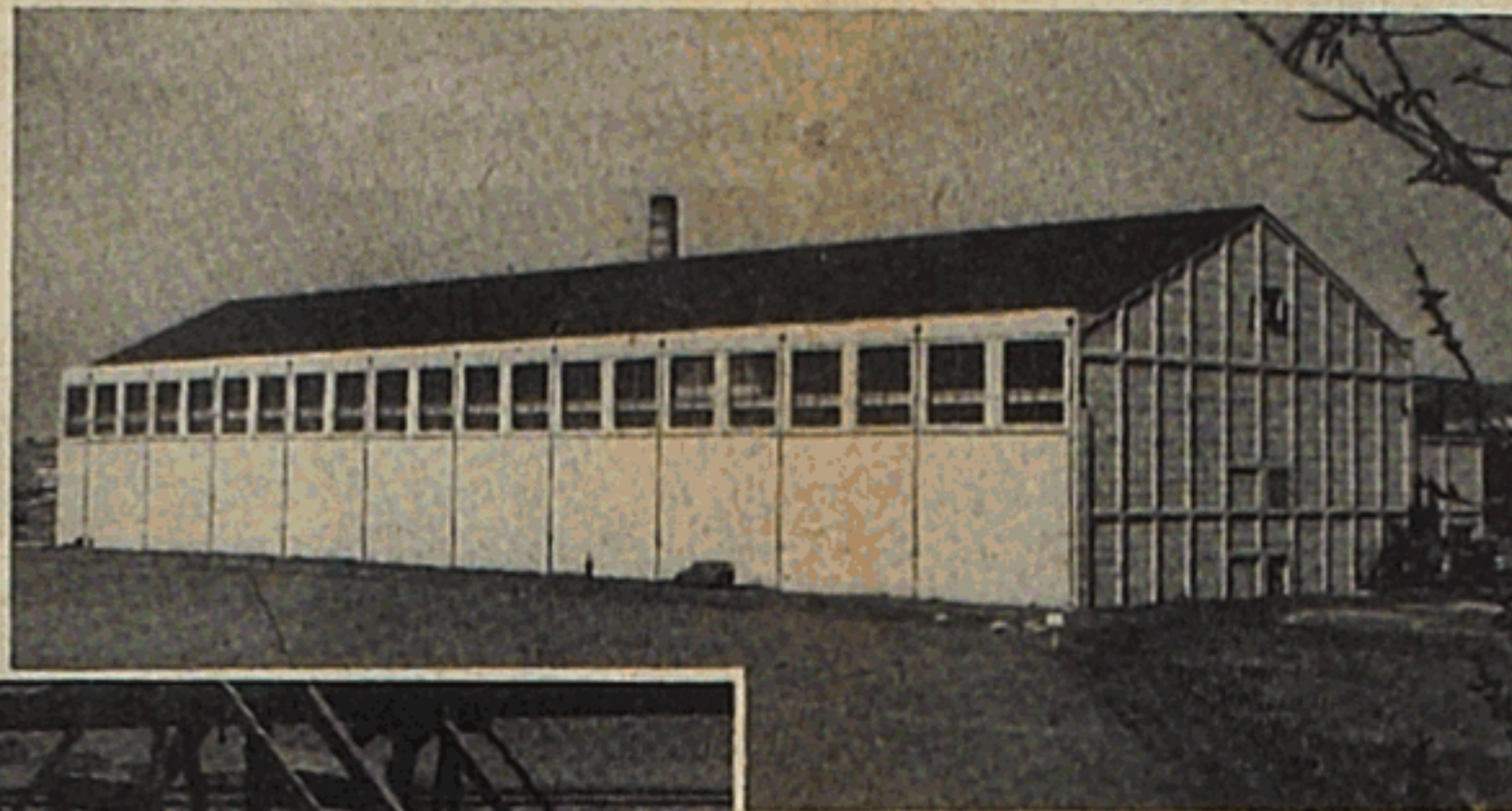
The Aylesford mills and factories of the Reed Paper Group, showing the sites of new developments.

# TWO NEW PAPER-MAKING MACHINES

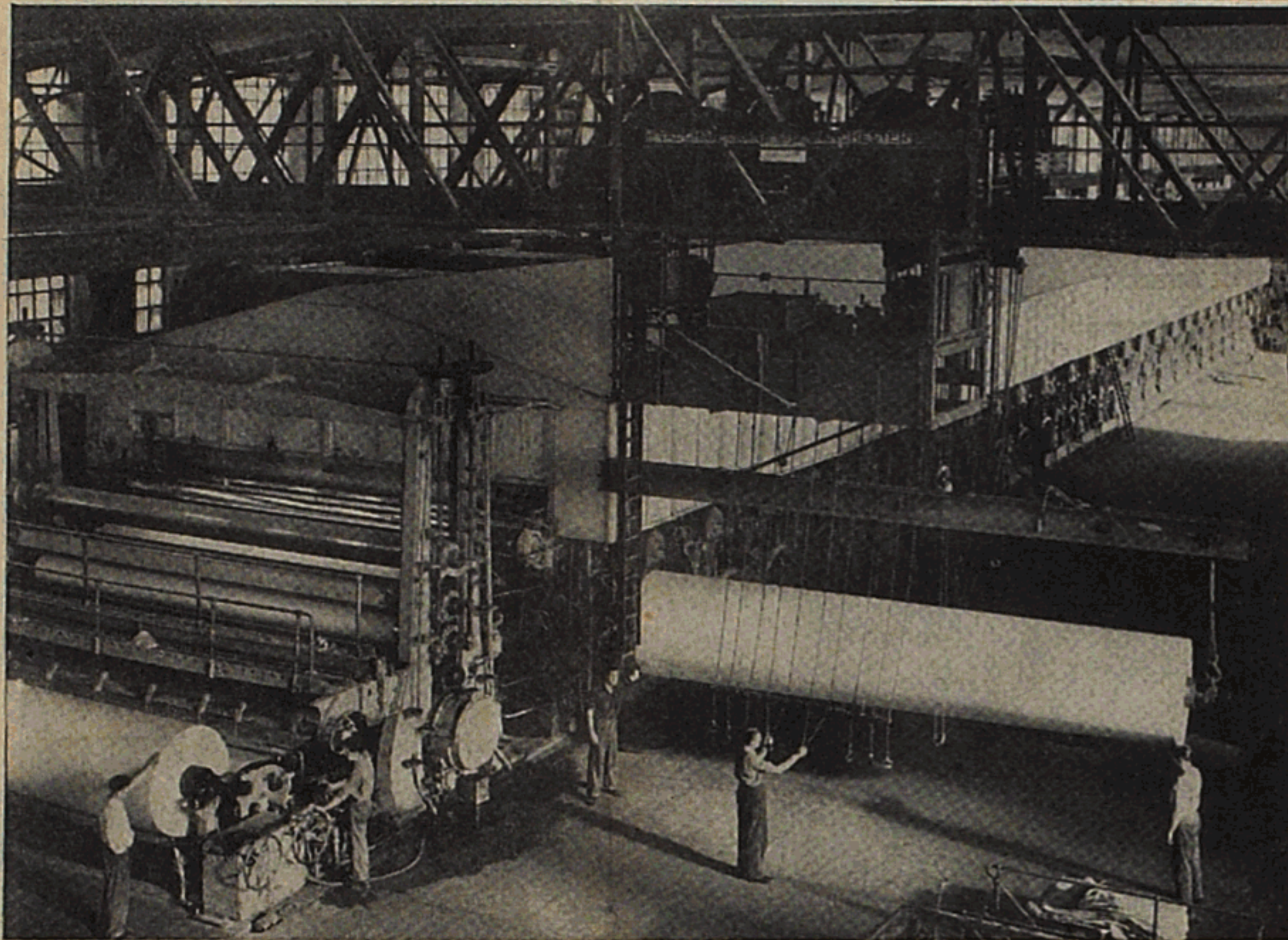
## Expansion at Aylesford— the Largest Mill in Europe Making a Mixed Range of Papers

The installation of two new paper-making machines is the most important development at Aylesford. The new No. 12, a machine 200 inches wide, is dealt with in some detail on the opposite page, where the many applications of the tough kraft

Softened and conditioned water is heated in the boilers to provide superheated steam to drive the turbines, which in turn provide power for the great paper-making machines, while other water, carefully purified, is used in the paper-making process. To meet



The new No. 13 printing paper machine, the first machine to be installed in No. 3 mill (seen above), will be similar to No. 9 machine illustrated on the left.



Group will step up its intake of woodpulp by approximately 100,000 shipping tons a year—from Norway, Sweden and Finland, from Canada and the U.S.A., from Portugal, and from Czechoslovakia and the U.S.S.R.

Against the consistently growing consumption of the mill must be balanced the irregularity of the shipping carrying these supplies, resulting from the annual freeze-up of the Baltic Sea. On a short term basis such factors as wind, weather and the different speeds of the ships have to be taken into account as well. To maintain stocks at the necessary level and preclude any limitation of output, importation from the various countries is being organised on a tactical basis. Freeze-up delays cannot be avoided but careful planning helps to ensure that sufficient stocks are built up during the rest of the year to offset these delays.

The additional woodpulp will come to the Port of Rochester for transhipment into the lighters which will carry it up river to the Aylesford mills. Through this port too will come the extra waterborne coal that will be required.

Again many more voyages will be required of the small coasters that ply from the Cornish ports of Par, Fowey and Charlestown up the Medway to the Aylesford mill with cargoes of china clay\*, an important raw material which helps to give a fine printing surface to certain types of paper.

\* It is an interesting fact that the paper industry as a whole is the biggest consumer of china clay produced in this country. Much of the china clay not required by the paper industry is exported and is one of the United Kingdom's important dollar earners.

reception and handling include an extension to the Reed wharves on the Medway waterfront. The capacity of the overhead pulp conveyors—the means by which the heavy bales of pulp are delivered to the mill from the wharves—will be considerably increased.

During the next two years the Reed Paper

paper it produces are reviewed. No. 13, the first machine to be housed in No. 3 mill, will be 240 inches wide, and nearly 100 yards long and when completed will be similar in appearance to the existing No. 9 machine, illustrated on this page. In all respects, it will be one of the most modern machines in the world for the manufacture of various types of printing papers.

Also associated with No. 13 will be the latest design of super-calender, especially developed for high-speed operation. By this series of massive rolls the required finish will be imparted to the surface of the paper after it leaves the machines. Much of the output will be gravure printing, of which a large quantity will become available for export. By developing Reed production on lines now well-defined, this machine will increase the supply of products for which there is an established demand.

### MORE STEAM, MORE WATER

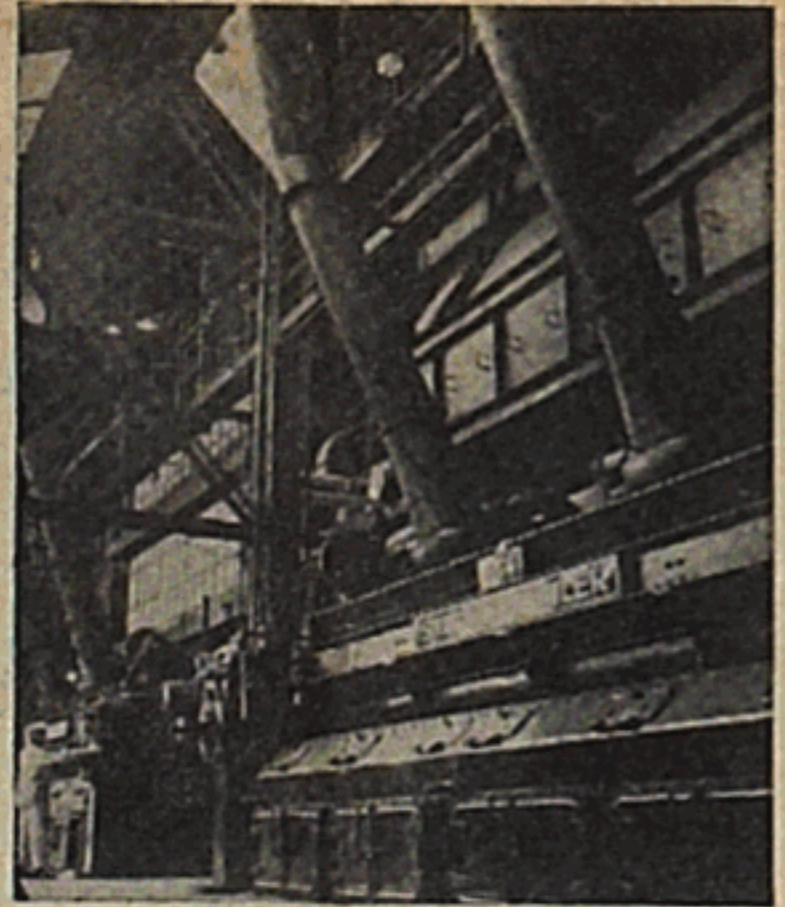
Such is the size and the capacity of the two new machines that their operation and maintenance naturally demand considerable ancillary development. They have necessitated, for instance, the augmenting of the boiler plant, which was already capable of generating 640,000lb. of steam every hour. A new boiler just installed can produce a further 116,500lb. of steam per hour at a pressure of 625lb. per square inch at a temperature of 825 degrees Fahrenheit. The fuel consumption of the boiler plant at Aylesford is about 7,000 tons a week and the total power output is in the region of 50,000 h.p.

At present about 14 million gallons of water are pumped every hour from bore holes, a stream and from the river Medway.

the demands of increasing production, £250,000 will be spent on improvements and additions to the existing pumping and water clarification systems; this will include a new pumping station. The reconstructed installation which will be used both for purifying the incoming water and clarifying the mill effluent, will incorporate plant for recovering valuable paper-making materials from the water which has been used on the paper-making machines.

### EFFECTS OF EXPANSION

More machines mean more raw materials, and measures to expedite their



Showing the extension which has been made to the boiler plant to meet the demands of the two new paper-making machines. The installation of the new boiler seen on the left of the photograph is now completed.

## INCREASED CELLULOSE WADDING PRODUCTION

The manufacture of cellulose wadding products, including paper handkerchiefs and sanitary towels, will shortly begin at Aylesford on a scale unprecedented in this country. This important development is the result of the reorganization last year of Cellucotton Products Limited, until then the British subsidiary of International Cellucotton Products Company of Chicago.

Originally an importing company, increasingly handicapped by supply restrictions and currency regulations, Cellucotton Products Ltd. arranged in 1950 a more satisfactory method of operation. This took the form of an agreement between that company, Kimberly-Clark Corporation (one of the largest paper manufacturers in the United States), and Albert E. Reed & Company Limited. Under this agreement the manufacture and conversion of cellulose wadding on behalf of Cellucotton Products Ltd. was started at Aylesford.

In the next four years the development of markets for the company's cellulose

wadding products—Kleenex handkerchiefs, Kotex sanitary towels, and Delsey toilet paper—reached a stage where the expansion of British production became necessary. Under arrangements completed in November, 1954, the issued capital of Cellucotton Products Ltd. has been increased to £705,000, of which Albert E. Reed and Co. Ltd., International Cellucotton Products Company, and Kimberly-Clark Corporation each hold one-third.

The funds made available by reorganisation, besides providing working capital for expanded operations, are being used for the construction, now in progress, of a new factory on a site adjoining the Aylesford mills. This factory will house a modern cellulose wadding manufacturing and converting plant.

Specialist technicians and expert knowledge contributed by each of the three participating organisations will be pooled to further the progress and development of Cellucotton Products Limited.

## CORRUGATED CASE FACTORIES FORM NATIONAL NETWORK

### Reed Corrugated Case and Corrugated Paper Production is the Largest in Britain

The story of the setting up by the Reed Paper Group of Britain's largest organisation producing corrugated fibreboard packaging begins in October, 1928, when the Reed mill at Tovil, Maidstone, started to supply straw paper to the Powell Lane Manufacturing Co., Ltd., of Gloucester, for the manufacture of corrugated paper. This company, taking the fullest advantage of its arrangement with Reed's, opened a branch factory at Tovil, with the result that its business rapidly expanded.

Two years later, foreseeing a growing demand for corrugated cases, Albert E. Reed & Co., Ltd., acquired the Powell Lane business at Tovil, formed The Medway Corrugated Paper Company Ltd. and built a case-making factory next door to the Aylesford mills. In 1944 the Reed Group acquired the Powell Lane company and four years later The National Corrugated Paper Company Ltd. of Manchester.

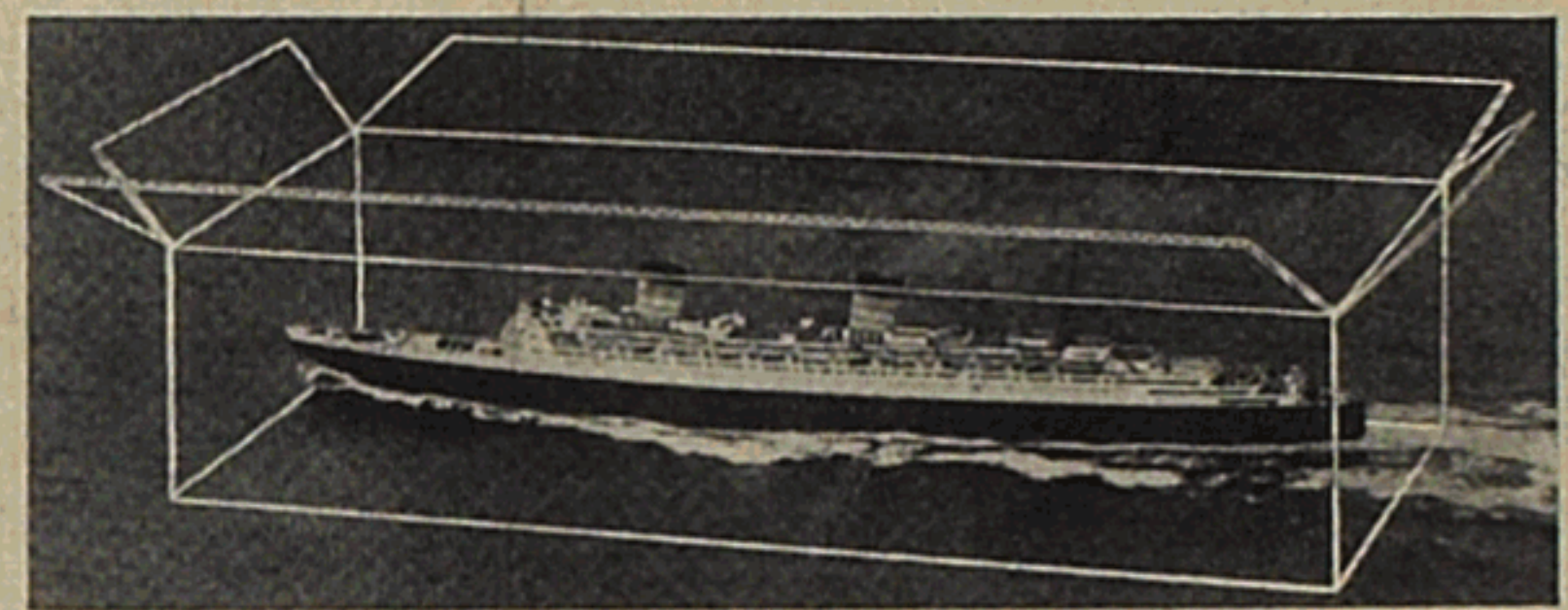
The pattern of development was extended last year with the acquisition of The Thompson & Norris Manufacturing Company Ltd., the original and largest concern in the country making corrugated cases, with factories at Brentford, Histon (Cambridge), Birmingham, Edinburgh and in N. Ireland. Pursuing its policy of integrating the manufacture and conversion of paper, the Reed Group at the same time acquired the Sun Paper Mill at Feniscowles, near



Seven corrugated case factories are strategically sited to serve the main centres of industry.

most is its unique capacity for cushioning its contents against the shocks that goods in transit must survive. Other attributes derived from its special construction are its strength, rigidity, lightness in weight and economy in volume—the two latter qualities making it eminently suitable for export use, especially where air transport is

### 45 "QUEENS" A WEEK



Every week the corrugated case factories of the Reed Paper Group have an output of corrugated fibreboard capable of packing forty-five liners each the size of the Cunard R.M.S. Queen Elizabeth.

Blackburn, which was already delivering the major portion of its output to the Thompson & Norris factories.

### 1894—A YEAR OF PROMISE

The Thompson & Norris company was the first to manufacture corrugated paper in this country, using a corrugating machine made largely of wood in a little factory in Britannia Row, Islington. It is a curious fact that the development of corrugated fibreboard containers was originated by this company in 1894—the same year that Albert E. Reed, by starting his first small mill at Tovil, laid the foundations of the Reed organisation.

To-day the Reed Paper Group operates the largest number of factories in Britain producing corrugated cases and corrugated paper, with the largest output, the longest experience and the best technical resources in this field. To the customer, the advantages of the country-wide distribution of the factories are numerous and important. Deliveries are frequent and consistent. Continuity of supply, even should production be interrupted at any of the factories, is assured.

The activities of the sales organisation, which covers the whole of the British Isles and is staffed by technical representatives fully trained in the factories, are similarly decentralised. Close and individual contact is maintained between customer and representative, who acquires as a result of this personal service an intimate knowledge of the customer's products and his special packaging requirements.

So widely has the corrugated case been accepted as the ideal container that its qualities deserve a brief description. Fore-

involved. Neat in appearance and with an ideal printing surface, the corrugated fibreboard case provides an attractive and economic advertising medium wherever it travels. Folding flat for storage before use, it saves valuable space and, being non-returnable, it eliminates much unproductive work. Exporters, too, now recognise the advantage of this form of packaging and a large and increasing variety of goods is sent overseas in corrugated cases.

### NEW DEVELOPMENTS

A recent development was the introduction of a corrugated case made of weather-proofed fibreboard. After trials which included twelve months' exposure to the weather, cases of this type were adopted by the War Department. They were also extensively used by the successful Everest Expedition, and are now being used commercially for export to tropical countries, where they can be stored in the open.

Still more recently the Reed Paper Group has perfected exclusive linen-grain and coloured finishes for corrugated cases, which give them a positive value for use in retail displays. A complete range of merchandising units which can be adapted to form "help-yourself" displays has also been introduced.

Millions of corrugated cases are produced by the Reed Paper Group every week—cases for groceries and gardening tools, for detergents and pharmaceuticals; cases for eggs and car parts; cases for beer and bicycles. Such an output and such variety are possible because the Reed organisation encompasses a sum of pioneering experience covering every aspect of the corrugated paper and case industry.

# TASMAN MILL INVESTMENT IS NEW REED INTEREST

## Active Participation in New Zealand's Largest Industrial Project

The first man-made forest of such a size to be used for large-scale paper-making will provide the raw material for the 300-acre combined pulp, newsprint and timber mill which is starting production this summer at Kawerau, a few miles from the Bay of Plenty in the North Island of New Zealand. In this important enterprise, New Zealand's largest industrial project up to this time, the Reed Paper Group has acquired a quarter interest, with representation on the Board of Directors of the Tasman Pulp and Paper Company Ltd. which will operate the scheme. Reed participation also includes the appointment of a resident Director of Operations, while all the experience and technical resources of the Group

will be placed readily at the disposal of the New Zealand company.

Logs from the Kaingaroa Forest, the largest of New Zealand's State Forests, are already being collected at Murupara for transportation to Kawerau, about 40 miles away. Planted during the nineteen-twenties, the forest consists largely of radiata or Monterey pine. In the mild North Island climate, this remarkably fast-growing importation from California reaches maturity more rapidly than anywhere else in the world. The balance is made up of Douglas fir and Corsican pine, and the New Zealand Forest Service estimates a sustained annual yield of 30,000,000 cubic feet.

### COMPLETE INTEGRATION

To utilise this rich harvest a plant has been built on the banks of the Tarawera River at Kawerau, where two years ago only scrubland existed, which is a rare and impressive example of an integrated pulp mill, paper mill and saw mill designed as a whole on a new site. Engineers and architects have done full justice to their opportunity, and the resulting layout ensures the most economic use of every cubic foot of timber—including the bark—and the virtual elimination of waste.

The logs will be fed directly into the mill by the railway line from Murupara. After the bark has been removed hydraulically, they will be sorted according to their suitability. Some will be cut into lengths for the groundwood mill, where they will be reduced mechanically to the type of pulp required for newsprint manufacture. Others will be chipped in readiness for the chemical process by which kraft pulp is produced. Logs selected for sawn timber will be passed to the saw mill, where a further

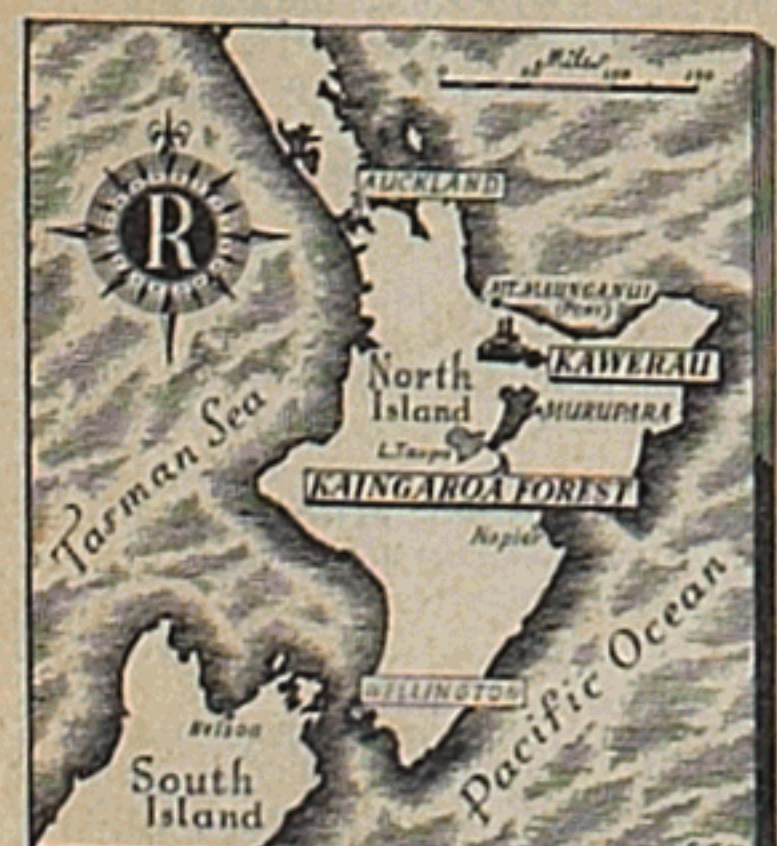
chipper is installed to utilise the wood waste there.

The Tasman mill has been designed to produce an annual output of 75,000 tons of newsprint, 36,000 tons of kraft pulp and, in addition, 72,000,000 board feet of timber. The 284-inch-wide newsprint machine is designed for a speed of 2,000 feet per minute, and is one of the largest to be installed in recent years. Provision has been made for a second machine which would increase the production of newsprint to an annual total of 150,000 tons.

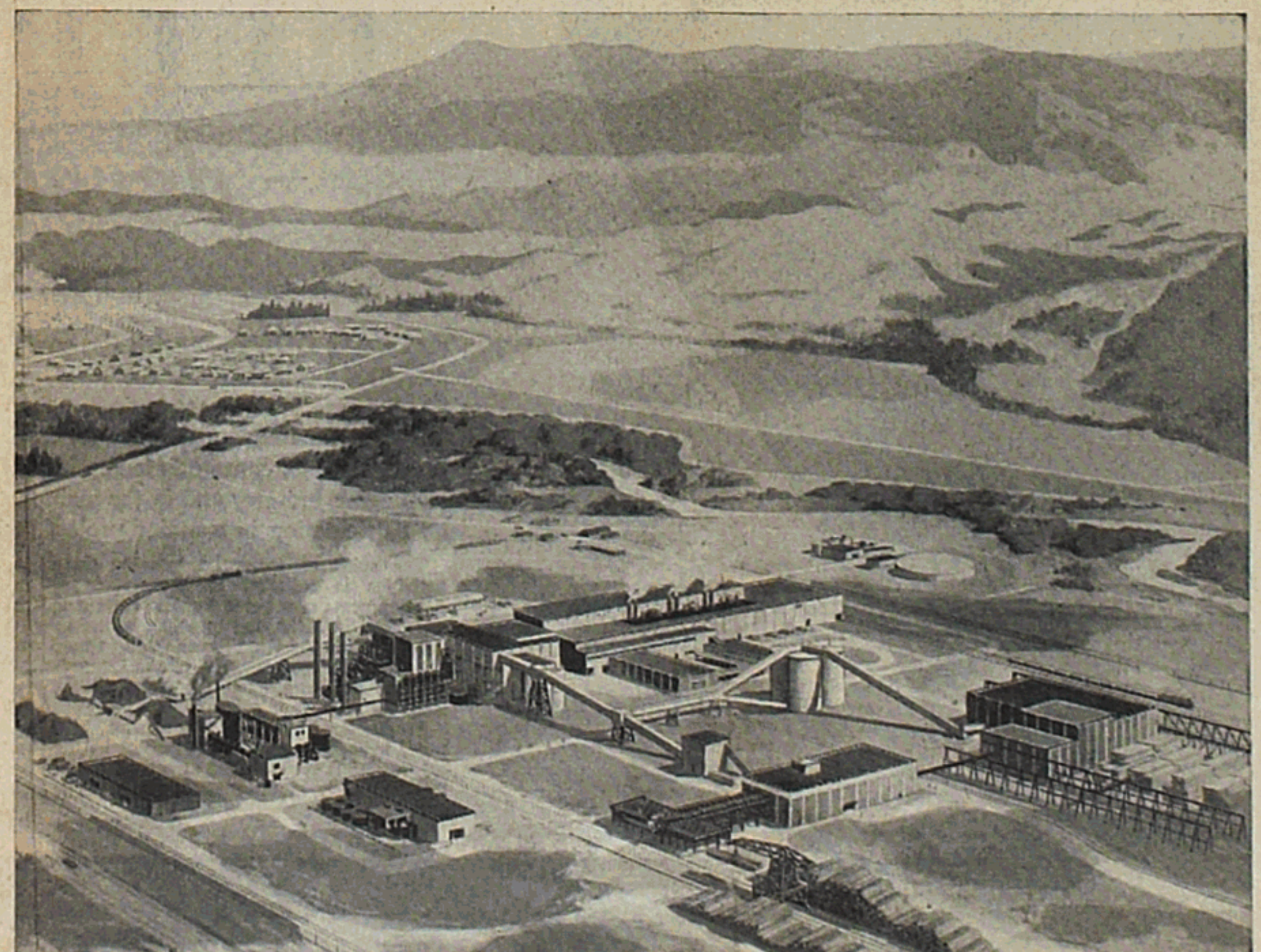
### GEOTHERMAL STEAM

Water for the mill will be drawn from the Tarawera River at the rate of 10,000,000 gallons a day, while hydro-electric power will be supplied by the national grid. An interesting possibility is the exploitation of geothermal steam—steam generated naturally below the surface of the earth—although the mill is in no way dependent on it. If, as seems likely, its use proves practicable, operating cost might be appreciably reduced. One experimental boring to a depth of 1,700 feet has been piped with a 4-inch pipe, and has been "blowing" steadily for some time.

In all, about £17,500,000 is being spent on the Tasman Project, while the New Zealand Government is spending a further £15,000,000 on the completely new town that is growing up around it, on power, rail and other services, and on the construction of a new deep-water port at Mount Maunganui. From this port will be shipped the large tonnage of newsprint—probably as much as 50,000 tons a year—which, together with considerable quantities of kraft pulp and sawn timber, is to be exported to Australia.



The Tasman pulp, paper and timber mill at Kawerau is midway between the largest of New Zealand's State Forests and the new port at Mount Maunganui.



An artist's impression of the Tasman company's plant as it will appear when construction is completed.

# AYLESFORD KRAFT—MOST VERSATILE OF PAPERS

## NEW MACHINE WILL INCREASE PRODUCTION OF GLAZED KRAFT BY 30%

An important addition to the national output of machine-glazed kraft paper will be made by the new No. 12 machine now being installed at Aylesford. With a capacity of approximately 250 tons a week, it will increase Aylesford's production of machine-glazed kraft by nearly one-third, and raise the total Reed output of glazed and unglazed kraft to some 130,000 tons a year. Such is the progress made in this field by the Reed Paper Group since it originated large-scale manufacture in this country in 1929.

This was a venture undertaken and carried to completion in the face of a fusillade of adverse comment by authorities on paper-making in many parts of the world. Previously kraft paper had been produced by Scandinavian mills, which prepared their own pulp and used it as soon as made in the so-called "slush" condition. It was said of the Reed project that to operate at such a distance from the source of pulp supply would be economically unsound. It was said, too, that pulp dehydrated for export could not yield the true kraft paper—and that even if it could, kraft could never be made on wide, high-speed machines.

In their development of super-calendered newsprint production, however, the Reed technologists had gained much paper-making knowledge, including an exceptional mastery of big-machine techniques, and this they applied to their self-imposed problem. They devoted two years of preliminary work to the design and installation of their first kraft machine, a giant of fabulous proportions by the standards of that time. They imported pure kraft pulp, ensuring that quality and moisture-content were carefully controlled, and perfected the means of restoring it to the ideal condition before passing it to the machine.

The machine began to run, and ran well. The paper flowed, and, after exhaustive tests, was found to be true kraft. Since

But it must not be thought that this is the extent of Aylesford Kraft's usefulness, for both the glazed and unglazed types are made in many calipers for an almost incredibly varied range of applications.

As an export wrapping, for which protective strength is an essential requirement, Aylesford Kraft has earned an unrivalled reputation. In particular much of it goes to make Union Kraft, with a bitumen lamination, to be used for lining bales and cases. Kraft paper in the form of industrial crepe kraft serves as a reliable wrapping for articles which would otherwise be difficult to pack. Cut into coils, this is the perfect solution to the problem posed, for instance, by bicycles and bicycle parts.

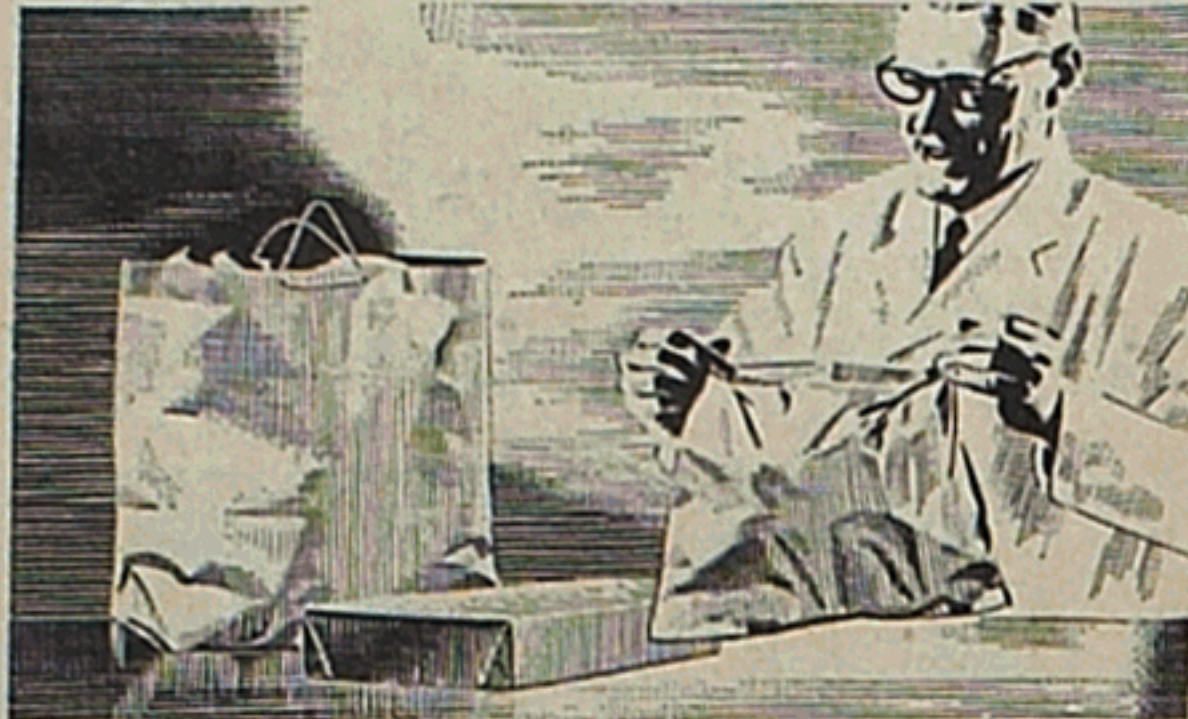
In the manufacture of multi-wall paper

special transformer, the order came to the Reed Paper Group and the reel was despatched from Aylesford. No other mill in Europe could supply kraft paper to such a width.

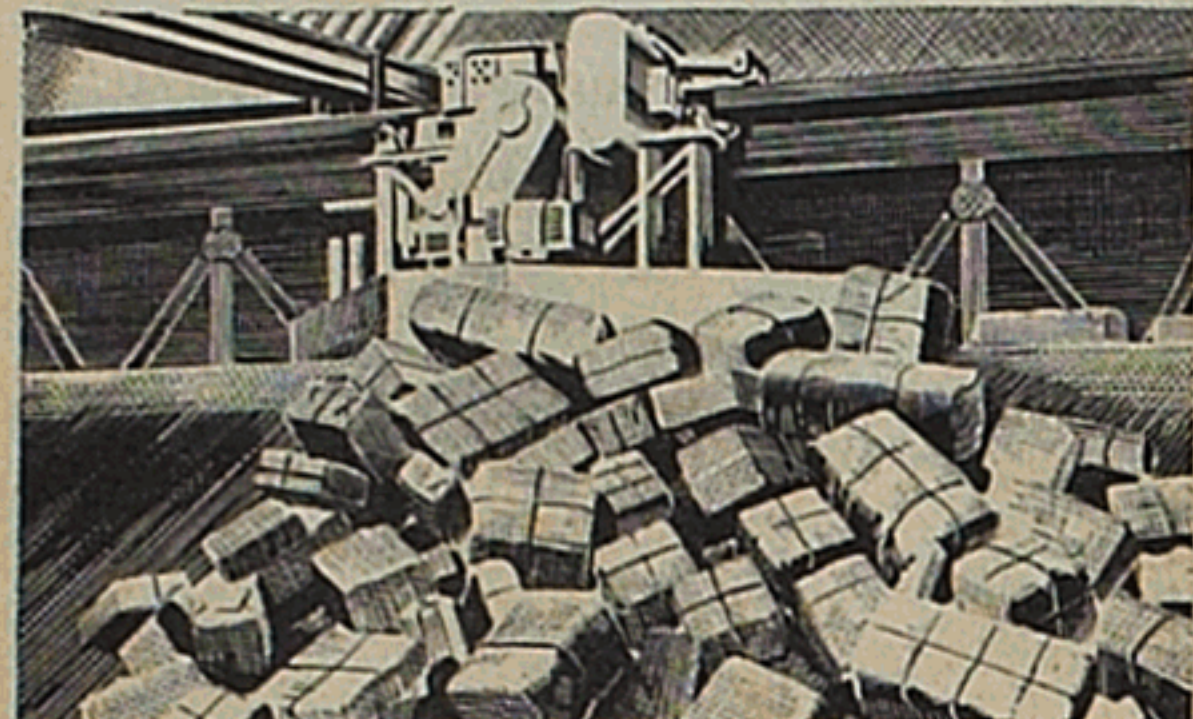
The development of plasticised panelling has been welcomed by everyone, from architects to housewives, as a colourful and practical contribution to the contemporary scene. Aylesford Kraft, as you may have guessed, is an indispensable ingredient in its production. Layers of kraft, bonded together with a plastic resin and brightly surfaced, make a decorative and almost indestructible material. In the shining surfaces of an up-to-

date kitchen, or in the external cladding of a modern building you may see no suggestion of paper; but there none the less may be Aylesford Kraft.

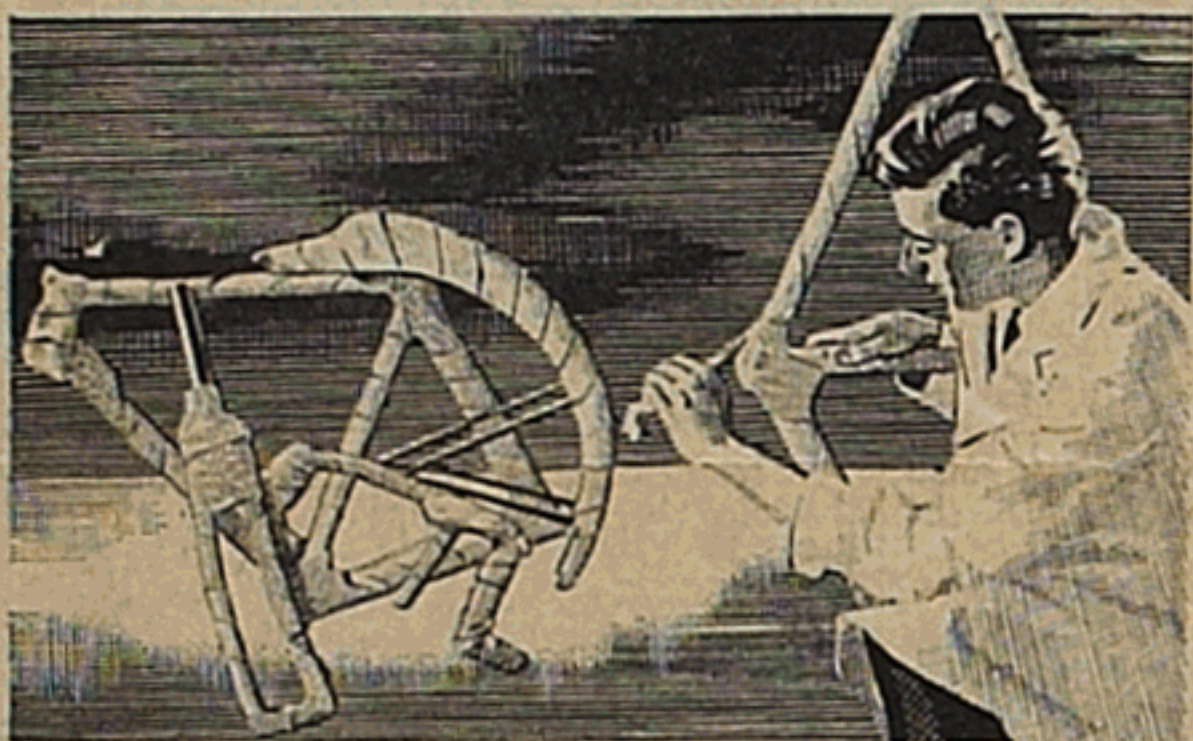
There are further functions of kraft paper, there will undoubtedly be still more, and the likelihood is that Aylesford Kraft will be used for most of them. The good reasons for this forecast are the established qualities of this most versatile of papers, and the fact that more kraft is made by the Reed Paper Group than by any other manufacturer in Europe.



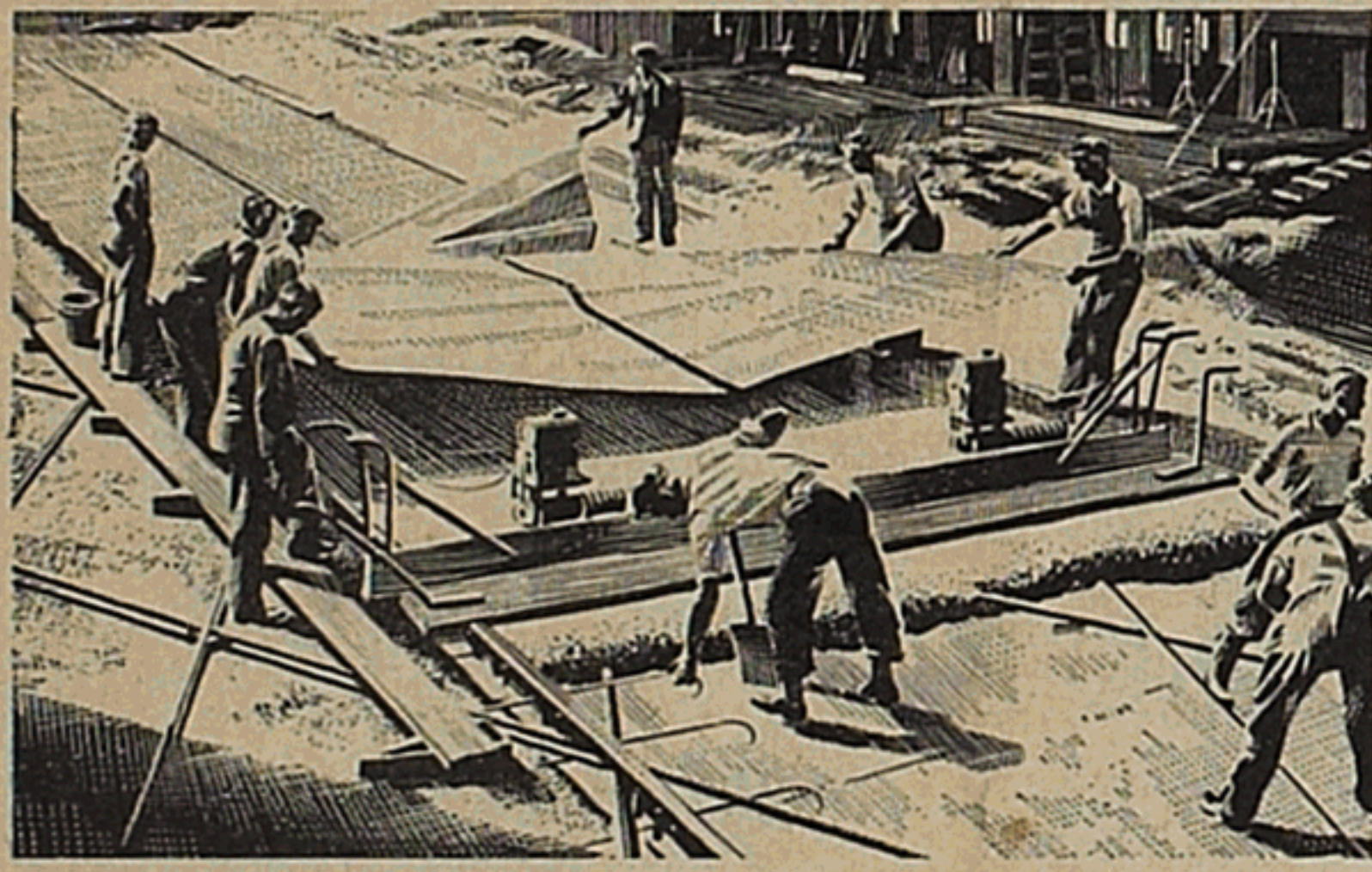
Kraft paper carriers, bags or wrappings are used by every kind of retail shop.



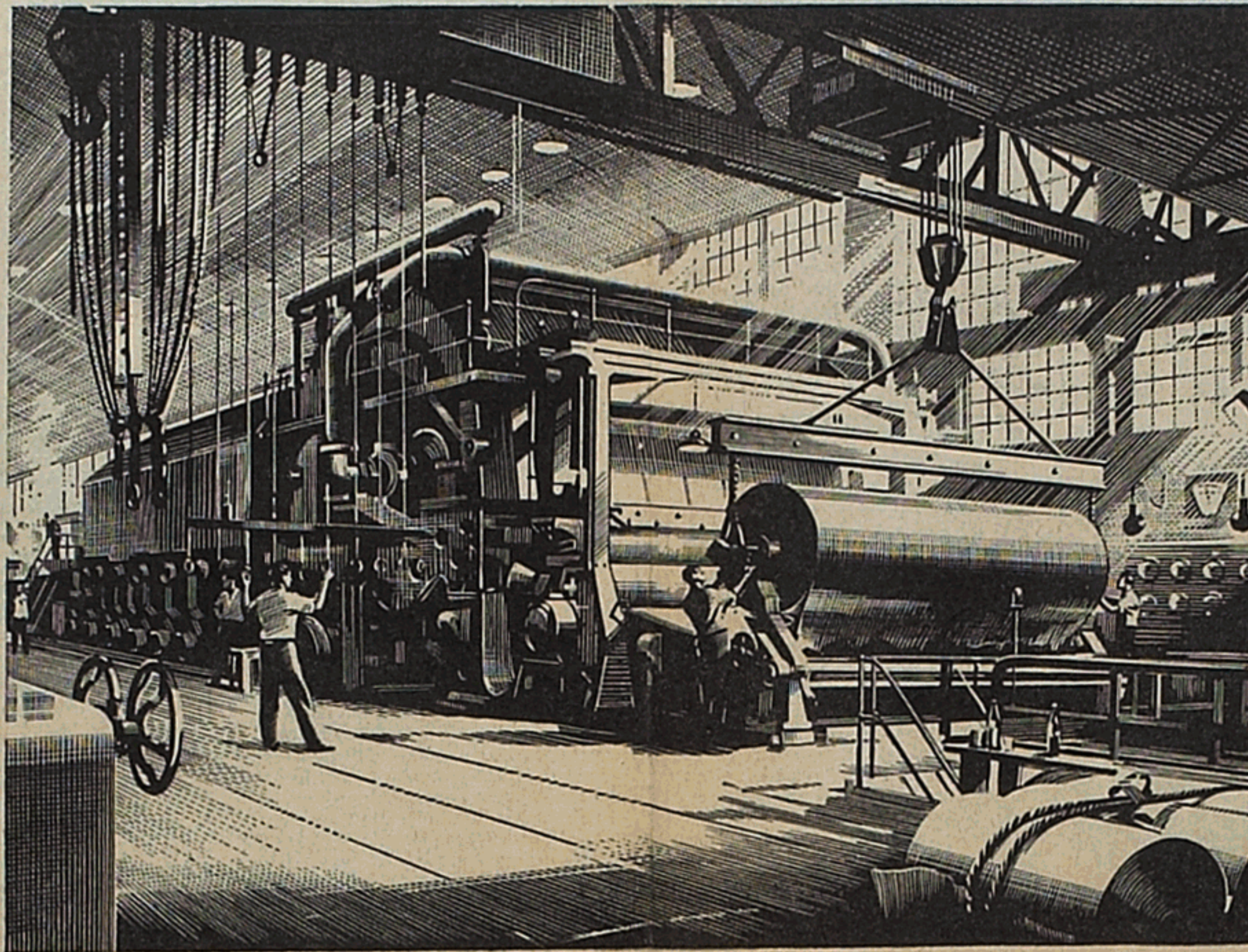
BY COURTESY OF H.M. POSTMASTER GENERAL  
Kraft paper is in general use for the protection of postal packages—a section of the parcels office at Mount Pleasant, London.



For export packaging industrial crepe kraft is treated with bitumen or cut into coils for the wrapping of awkwardly shaped articles such as bicycles or the bicycle parts which are here seen being packed for dispatch.



In the laying of concrete roads kraft paper specially treated with bitumen and reinforcing material is used both as an underlay and a curing blanket. Here is "Sisalkraft" in use.



MAKING MACHINE-GLAZED KRAFT

then production has been steadily expanded, and the name of Aylesford Kraft has become synonymous with strength, resilience, and toughness wherever paper pre-eminent for these qualities is needed.

### OVER SIXTEEN FEET WIDE

The new machine, 200 inches wide, which now joins the impressive array of kraft machines at Aylesford—an indication of its stature is given by the accompanying illustration—will be fed by its own completely new preparation plant.

This incorporates a battery of the most modern refiners—machines which carry out in one combined operation the final stages in the preparation of the pulp after it has been disintegrated by the hydropulpers.

No. 12's output, which has already been largely sold in advance, will enable Reed customers to employ it for new developments and products, for which in many cases their plans are already prepared. Because machine-glazed kraft combines robustness with attractive appearance—it can be produced with a striped or ribbed finish—it is used for the manufacture of a great variety of bags, carriers and wrappings. In this form Aylesford Kraft is being increasingly specified by shop and store managements, who realise how important to their prestige and goodwill is the manner in which a purchase leaves their premises. From the growing number of self-service stores will come a progressive demand for extra-large carrier bags, and this too No. 12 machine may help to meet.

sacks Aylesford Kraft is the basic raw material. Then there are the convolute and spiral-wound tubes upon which paper is wound when made up in reels in paper mills, and which are similarly used for textiles and plastic sheeting—these again are made of Aylesford Kraft.

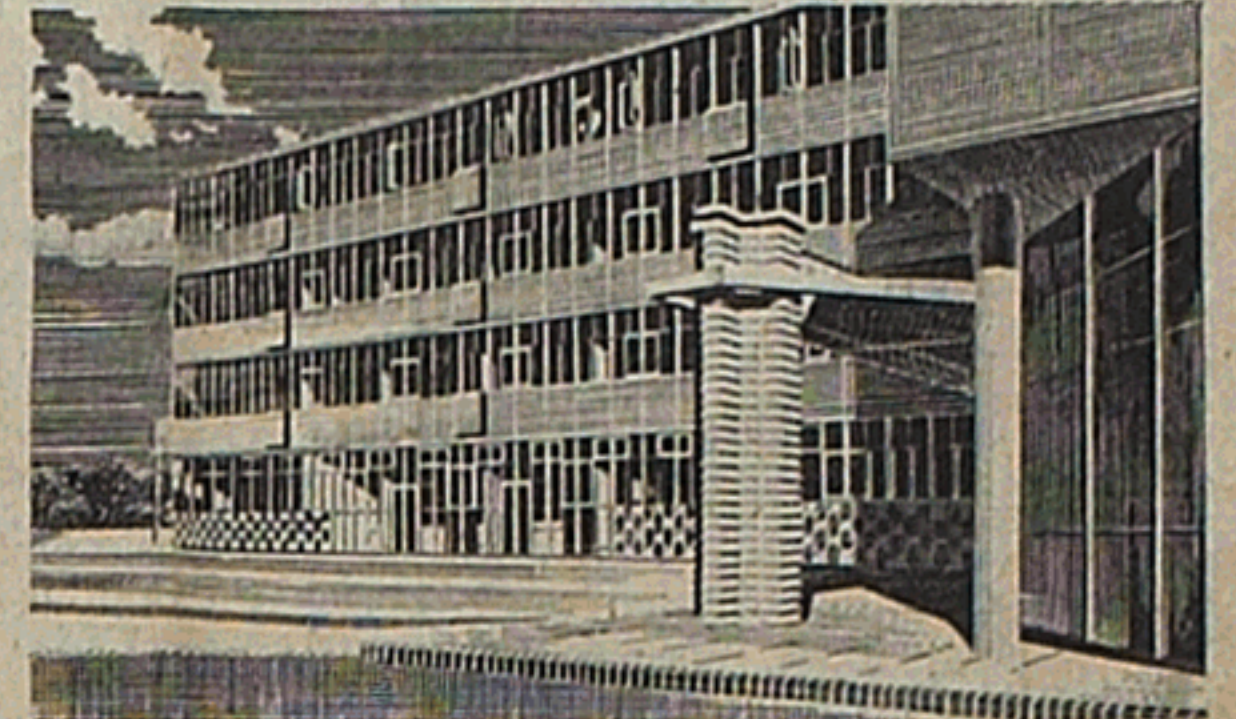
Beyond these perhaps more familiar uses, this remarkable paper is called upon to play a vital part in widely different processes and industries. It provides a base, after special treatment, for the laying of concrete roads, and is also employed to cover them until construction is complete. In building it is used to line roofs and to make walls and floors airtight and damp-proof.

### KRAFT FOR INSULATION

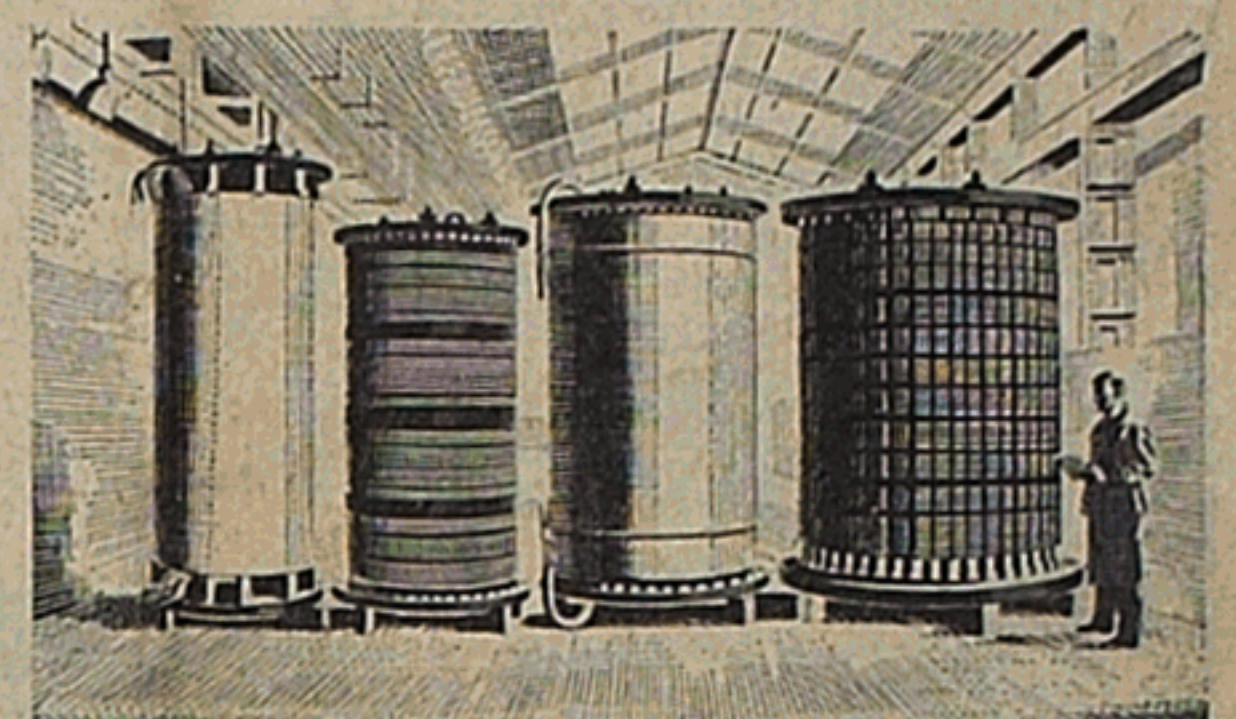
For electrical insulation Aylesford Kraft has proved itself invaluable. The British Supergrid, that vast network of cables which will carry power across the length and breadth of the country, necessitates the building of giant transformers. A single one of these may incorporate no less than twelve tons of insulation, of which the greater part consists of kraft paper. It is used to make the synthetic-resin-bonded paper cylinders on which the copper is wound, as a wire covering to insulate the copper conductors and to wrap the successive windings. And in the huge 275 kV. bushings embodied in these transformers, kraft is once more used as an insulating material.

When an Italian firm required a reel of kraft precisely 197 inches wide to insulate a

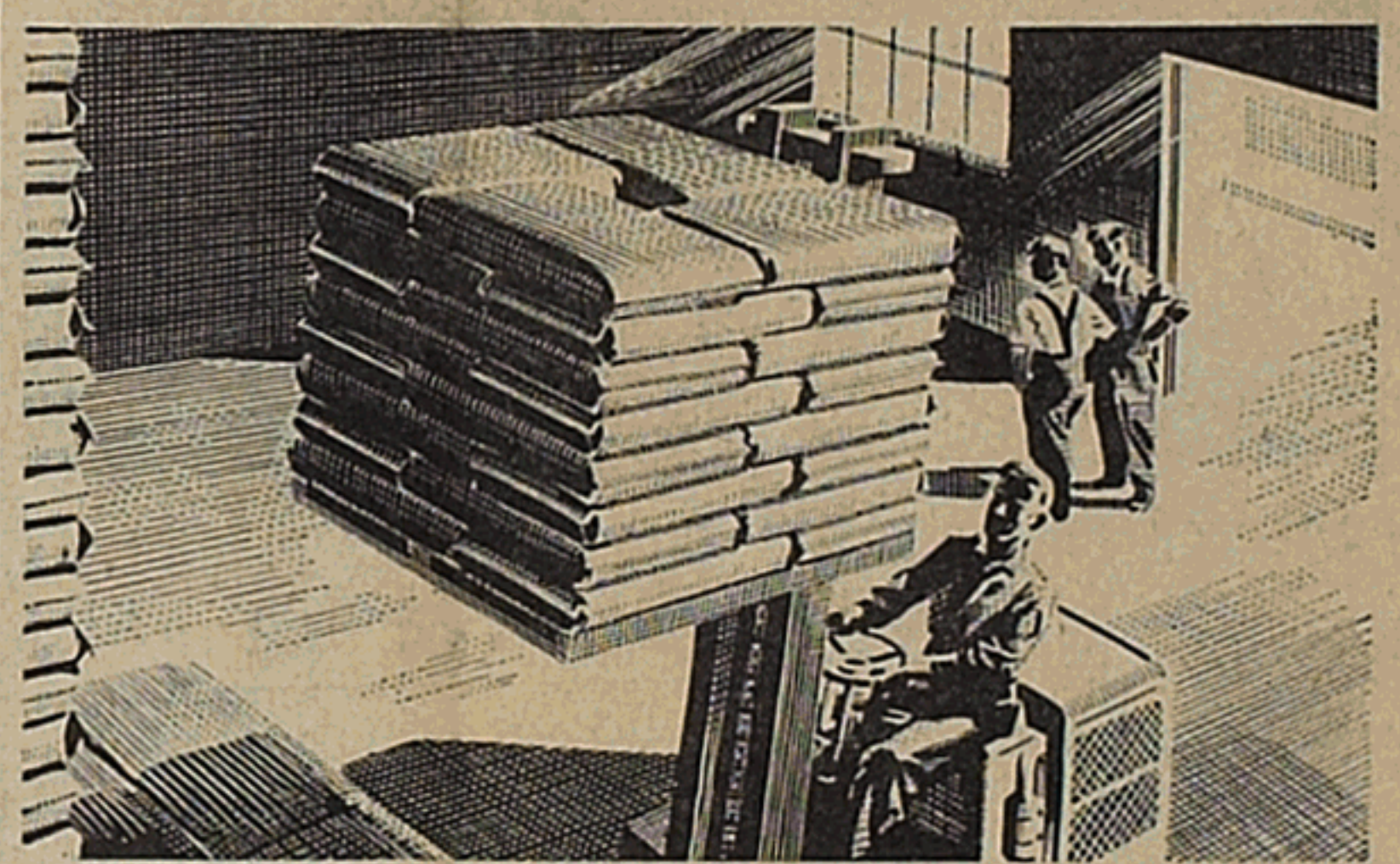
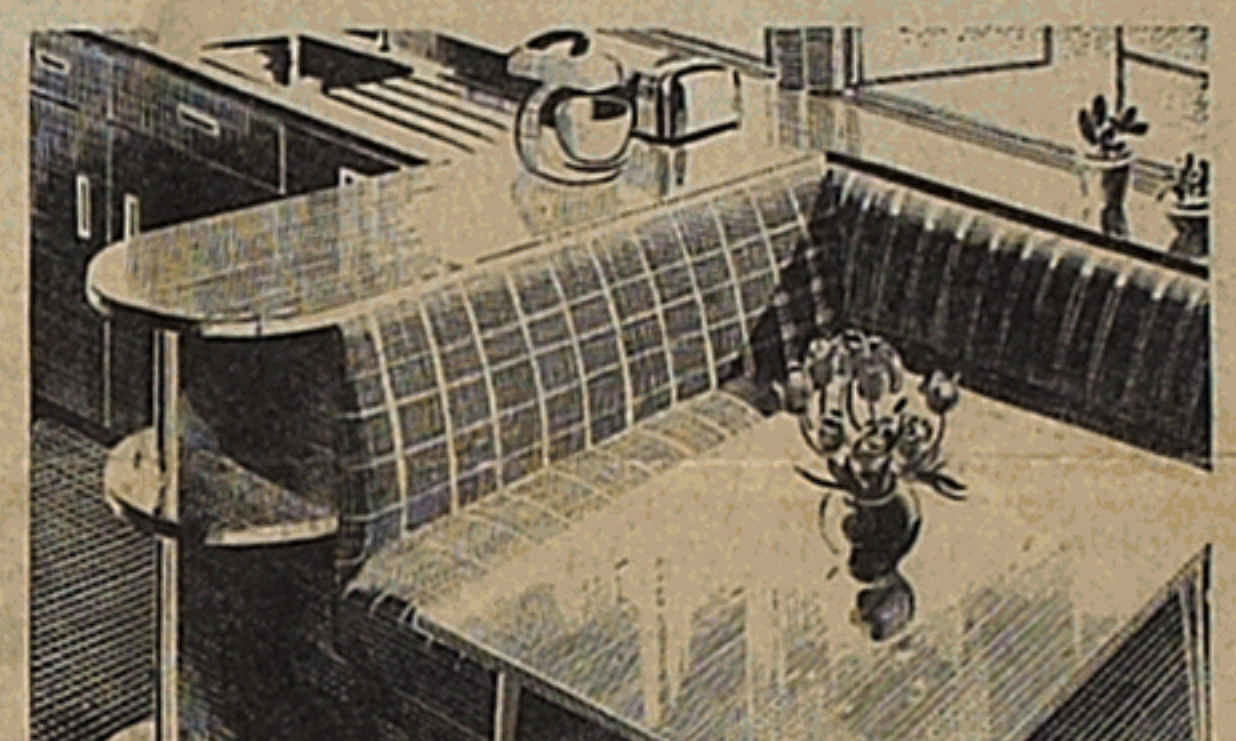
Virtually indestructible, these laminated plastics—now so widely used for wall panellings and furniture surfaces—are made from sheets of specially prepared kraft paper treated with synthetic resins and pressed together.



"Holoplast" laminated plastic structural cavities (manufactured from Aylesford Kraft impregnated with synthetic resin) were used for the interior partitioning and external cladding of the Darford Technical College.



BY COURTESY OF FERRANTI LTD.  
In the electrical industry Aylesford Kraft is used for insulating purposes in the construction of giant transformers.



One of the most important uses of Aylesford Kraft is in the manufacture of multi-wall paper sacks, now so widely used for hygienic packaging.

## REED FLONG MAKES AN INCREASINGLY GOOD IMPRESSION



The high fidelity obtained by the use of Reed Flong in the production of printing plates for both newspaper and quality colour printing has resulted in its wide use by printers and stereotypers throughout the country. The manufacture of this moulding material, begun during the war years to replace supplies previously purchased from abroad, is a typical example of the technical services which Reeds provide for the printing industry. The latest and most important development is the manufacture of pre-conditioned flong which is supplied with a predetermined moisture content ready for immediate use without any damping or conditioning.

## SPREADING THE NEWS

### Development of Reed Newsprint and Magazine Paper Production

The manufacture of newsprint is a process calling for the utmost precision. The millions of newspapers produced every day must be printed in a matter of hours. For the ultra-fast-drying inks demanded by such speed a uniform printing surface is essential. An exact balance must be maintained between porosity and hardness, and the successful combination of consistent quality with quantity production depends largely on the efficiency with which the paper is super-calendered.

It was in 1894 that Albert E. Reed, having acquired and converted an almost derelict straw mill at Tovil, embarked on the production of super-calendered newsprint. The output of his first machines was only 6 cwt. of paper an hour—small enough by comparison with the six tons an hour which flow to-day from the great machines at Aylesford. But the superiority of his product was quickly recognised, and the subsequent development by Reed technologists of the high-speed manufacture of super-calendered newsprint has helped to establish the acknowledged excellence of British printing and photographic reproduction. The experience derived from their pioneering in this field has also contributed to other Reed developments, including the large-scale production of high-quality magazine printing papers.

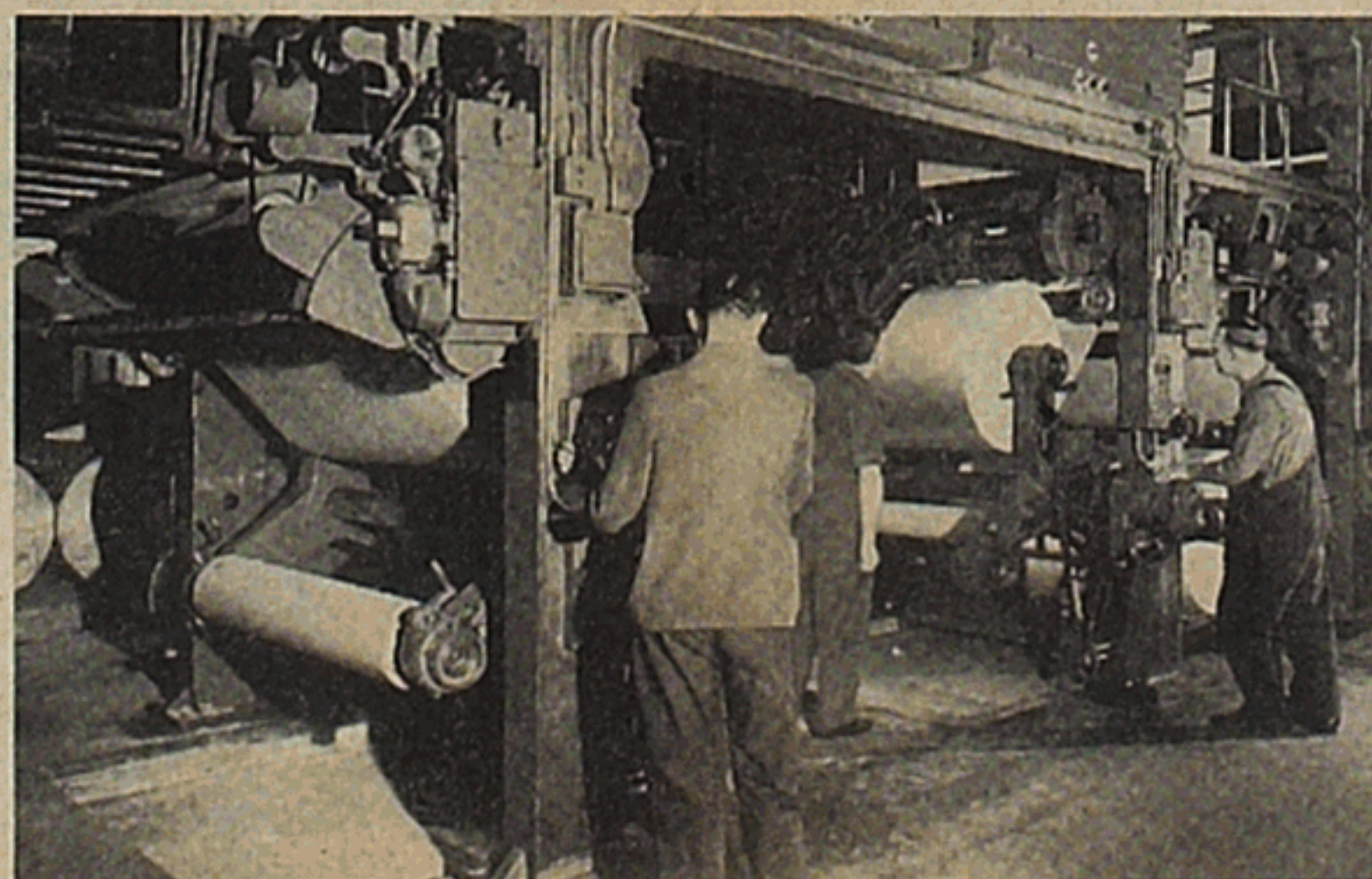
### GROWING VOLUME

Although newsprint no longer constitutes a large part of Reed production, output

has been increased in recent years and the news of events in a fast-changing world is carried to readers in every corner of the country, and in many parts of the Commonwealth, by paper made at Aylesford. To the volume of magazine paper production a significant addition—as noted on the previous page, will be made by the installation of the new No. 13 machine. More

printings and gravures will be available for the spreading of information and comment by periodicals of every kind.

Another Reed product of importance in the publishing industry is the coated paper made by Brookgate Industries Limited. Already used by several distinguished publications, this paper too will be produced in increasing quantity.



Showing an automatic reel change on one of a London newspaper's latest high-speed printing machines on which Reed's Aylesford newsprint is run at 1,300 feet per minute, printing 40,000 copies an hour.

## RECORD SACK PRODUCTION

### 56lb. Sack Gains Popularity

In little more than twenty-five years the development of the multi-wall paper sack, in which Medway Paper Sacks Limited has been largely instrumental, has established new standards of efficiency, convenience and cleanliness in the packaging of powdered and granular products.

Since its early adoption for the packing of cement, lime and similar materials, this versatile sack has been in demand for an increasing variety of products. Its wide acceptance to-day as the ideal container for such commodities as sugar and flour confirms the security of the protection it provides.

Medway's production of paper sacks, the largest in the United Kingdom, last year broke all records, and continues to increase as more and more industries find in this form of container the solution of their packaging problems. There are many reasons for its swiftly-won success—ease of handling, compactness for stacking and storage, protection against damp, prevention of contamination sifting and pilferage are some of the more important factors, adding up to a substantial all-round contribution to distributive efficiency.

Of particular interest is the rising demand for the 56lb. Medway paper sack for the packaging of feeding stuffs. Especially to the farmer does this smaller unit appeal, since it can be carried with ease by man, woman or boy, saving time and effort and preventing the wasteful spilling which

may occur with a less manoeuvrable size. A further advantage is the fact that feeding stuffs, when they are opened up for use in smaller quantities, will retain their freshness longer.

A complete packaging service is provided by Medway Paper Sacks Ltd. Besides continuously expanding the scope of its production and developing special sacks for individual industries, the Company has designed a full range of sack-filling and sack-sealing equipment. A recent introduction is a sack-flattening machine which, by reducing filled sacks to uniform, streamlined proportions, makes possible a valuable saving in storage space.

**Little "Natty" Clean-Sack.**  
The advertising personality used by Medway Paper Sacks Ltd. to publicize their new pack for feeding stuffs, the handy, hygienic 56lb. multi-wall sack.

# TOWARDS NEW TECHNIQUES AND NEW PRODUCTS

In determining trends and anticipating demands, in maintaining and raising production standards and in studying the needs and problems of its customers of to-day and to-morrow, the Reed Paper Group applies the most up-to-date techniques of management throughout the organisation. The closest possible control over production is exercised with the object of bringing down costs and eliminating waste of manpower and materials. New ways of employing the specialised knowledge and resources of the Group, to the best possible advantage to the community as well as to the Group itself, are the object of unceasing research. Every new project is based on the most careful consideration of all contributory factors.

## PRODUCTION CONTROL

In the central laboratories of the Group, senior scientists select or evolve the techniques to be used by the individual mill and factory laboratories, with which they maintain constant liaison. In these "on-the-spot" laboratories routine tests are made continuously while the machines are running, to preclude any variation in the high standards which the production staffs set themselves to ensure the fitness of the products for their tasks. To derive the fullest advantage from these tests the most modern statistical methods are gradually being introduced and as new and better ways of exercising control become available they are quickly brought into operation. In this connection various techniques of statistical control are proving of particular value in

- (i) eliminating deviation from specification, and
- (ii) eliminating variability in the product beyond that which the actual tolerance of the machine or process allows.

This second point requires some explanation. Every big paper-making machine,

even though identical with others in design, has its own idiosyncrasies, expressed in certain variations in performance which are not under immediate control. By statistical observation the tolerances of each machine are established, and these are taken into consideration in setting standards of production which are invariably higher even than is demanded by the use to which the paper will be put. To assist in the study of this type of problem, three-dimensional graphs are constructed to demonstrate certain characteristics of machine performance and variation. In addition to this stringent technical control, the latest methods of cost accounting are used throughout the Group to ensure that overall efficiency is maintained.

## TECHNICAL INVESTIGATION AND DEVELOPMENT

The long-term policy of the Group is to build up technical and statistical teams in the mill and factory laboratories, thus enabling each to undertake its own quality control and investigation of faults, and leaving the central organisation more free for research. At the same time the advice of specialists will always be available, and "operational research teams" will be held in readiness to provide assistance in case of need.

Such an operational research team might "sit" on a machine—without interrupting production—for three or four months, and produce at the end of this time a complete statistical and technical analysis of production and quality, with a report and recommendations on possible improvements.

Should a range of related problems arise—problems, for example, concerning paper-drying rates and irregularities—then a separate unit might be set up to study all factors affecting drying. This would be a central operation, since the comprehensive nature of the unit's findings would have a

future as well as a present value, and would have a bearing on the operations of the Group as a whole.

Keeping production rates and quality standards at the highest level calls for constant progress in a world in which such standards are being continually raised. To advance the Group's techniques and evolve new lines of development, the Reed technicians are systematically extending their researches, and frequently visit other great paper-making and paper-conversion centres and research institutions throughout the world to obtain the latest information on machines and methods. Every process within the Group is kept under constant observation in order to secure the highest possible combination of output and quality.

## CHARTING THE FUTURE

In planning the scope and direction of its future activities the Reed Paper Group employs the most advanced methods of preliminary investigation. This long-range reconnaissance, as it might be called, embraces the exhaustive examination of market tendencies, financial factors, supply prospects, technological developments, and industrial requirements. Comprehensive surveys are prepared in which all this information is detailed, analysed, and correlated, and which provide a basis on which decisions can be confidently taken.

This unremitting research is in the interest of the customer as well as the Group, for it ensures that every Reed development is securely founded on economic realities, and is therefore able to meet the customer's needs in terms of both quality and cost.

## REED PERSONNEL SHARE GROUP PROSPERITY

### New Bonus Scheme

Of fundamental importance in the development and expansion of the Reed Paper Group has been the devoted service of its personnel, the practical recognition of which is regarded by the management as a prime responsibility. The introduction this year of a bonus scheme embracing the employees of all Reed Group Companies enables them to share in the rewards of success, and still further strengthens their sense of positive participation in the progress of their Organization.

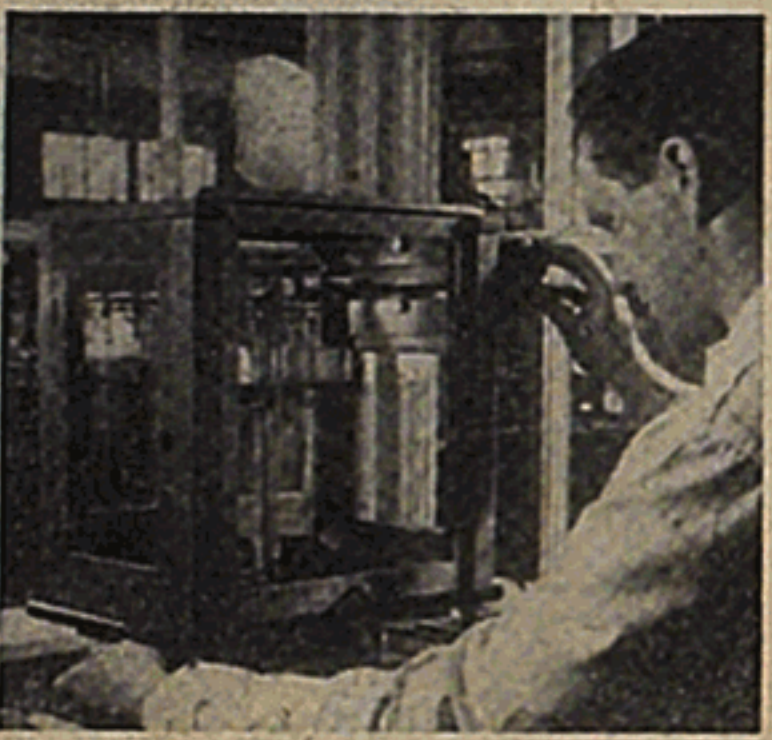
Based on the Group's annual trading results, and expressed in terms of a percentage of basic wages and salaries, the bonus is paid to all employees who have completed one year's service at the end of the financial year in respect of which the bonus distribution is being made. For the financial year which ended 31st March, 1955, a bonus of eight per cent. has been paid.

A non-contributory pension scheme has been in operation for some time. This ensures that employees in their retirement will receive an income of up to half their retiring wages or salary, according to the length of their service.

The excellent internal relations which prevail within the Reed Paper Group may well be due in part to the imagination with which the staff have always found their interests considered. Facilities provided for employees at Aylesford, for example, include playing fields, bowling greens, tennis courts, netball pitches, a rifle range, a grass running track, a nine-hole golf course, a club house, a hostel, canteens and a comprehensive medical service.

In this healthy climate of shared prosperity a spirit of united endeavour can flourish with every prospect of continuing achievement.

To assist in determining and controlling the product 3-dimensional graphs such as these are constructed to present the relevant statistics obtained from laboratory tests.



# GROUP TRAINING SCHEMES

## Education Fosters High Degree of Technical and Administrative Skill

These pages deal with large-scale production of paper on huge fast running machines and with the mass production of many paper products which play an important part in daily life. None of these machines would operate efficiently nor would the planning of production for large tonnages be possible without the exercise of a high degree of technical and administrative skill at all levels. Skill can only be perfected by education and training, upon which, therefore, great importance is placed by the Reed Group, because those responsible for its management hold a firm belief that an organisation is only as good as the men and women who run it.

The Group's education and training programme comprises a works school situated at Aylesford, apprentice courses, residential courses for foremen and special training courses for graduates; and any employee wishing to acquire a technical or professional qualification appropriate to the

Group's activities is given every encouragement and assistance.

A full apprentice training is given in various crafts, such as paper-making, mechanical engineering, electrical engineering, building, joining and motor engineering. Those selected for apprenticeships commence their training under expert instructors usually in the works school at Aylesford. The school also provides general education for all boys and girls under eighteen. This side of its work is run in conjunction with the Local Education Authority, who supply the teachers for such varied classes as English, Mathematics, Current Affairs, Physical Education, Woodwork, Dress-making and Cookery.

The Group is particularly conscious of the fact that foremen are vital links in the chain of management, and great care is taken in the selection of these supervisors, and in fitting them for their responsibilities. Residential courses are run to ensure that

all supervisors are given background knowledge of the Group's policy and are kept abreast of developments in the industry. The supervisors themselves are encouraged to take a personal interest in ensuring that all those in their departments receive thorough job instruction.

Special training is also given to graduates who enter the Group, technical students being given the practical training that will fit them for positions as engineers, chemical engineers, physicists and chemists in the technical division or in production management, according to their bent. Arts students fill positions principally on the administrative and commercial side of the organisation. In addition, grammar and public school leavers also have a wide range of opportunity and receive suitable grounding.

Wherever possible, vacancies are filled by promotion from within, and the success of this policy is ensured by careful selection and thorough training.

# HOW PAPER HELPS HYGIENE

The transition from haphazard hygiene to the high and improving standards now prevailing has been rapid—so rapid that the days seem distant when foodstuffs were commonly exposed to contamination in warehouses and shops, and passed unwrapped from producer to consumer through a succession of hands which might or might not be clean. To the Reed Paper Group there is cause for pride in the part its products have played in bringing about this welcome transformation.

Machine-glazed sulphite paper for the wrapping and protection of food and other products is produced in very great quantities by the Aylesford mills while a substantial proportion of the mills' large output of kraft paper, both unglazed and machine-glazed, is used to make sturdy bags for fruit, vegetables and the like.

The requirements of the baking and confectionery trades are served by the Powell Lane Manufacturing Co. Ltd. of Gloucester. It is nearly sixty years since this company started to produce the paper shavings which have always been a feature of biscuit and confectionery packaging. To-day Powell Lane using the most up-to-date equipment are supplying bakeries all over the country with waxed bread wrappers and are making every endeavour to extend the use of this hygienic type of wrapping where it has not already been adopted. Waxed paper is also supplied for wrapping cereals and sweets, while corrugated greaseproof paper is produced for lining tins and boxes of biscuits and for use in chocolate and confectionery boxes. A recent addition to this range is a double lined corrugated



Double-width Hi-Dri paper towels are proving an economical and hygienic material for drying silver, crockery, glasses, and cooking utensils. They are now being used for this purpose in many canteens, restaurants, and hospitals.



greaseproof carton for biscuits, an economical and hygienic type of package which has already been adopted by numerous biscuit manufacturers.

## PAPER VERSUS GERMS

Paper's role in the maintenance of public health is becoming an increasingly many-sided one. To the person suffering from a cold and to the community at large the tissue handkerchief is a modern blessing, reducing discomfort for the one and the risk of infection for the other. Kleenex tissues are being made on a large scale by Cellucotton Products Ltd. Other products of hygienic importance made by this company include sanitary towels and toilet rolls.

The spreading of germs as a result of inadequate or unsuitable drying facilities in

cloakrooms and washrooms is being widely countered by the fast-growing acceptance of the paper towel, made to be used only once and then destroyed. Here again a Reed product is helping to establish a habit which is not only hygienic and convenient but also economical. "Hi-Dri" towels marketed by Reed Paper Hygiene Limited are made from a towelling paper produced by the Tovil mill, and especially developed to combine a high rate of absorbency with such exceptional strength when wet as to prevent disintegration. These are being used in more and more factories, offices and public buildings throughout the country.

In these and many other ways paper is working in the interests of hygiene, and the endeavours of the Reed researchers and technologists are constantly concentrated on increasing and extending its usefulness.

# NEW BOARD MILL INVESTMENT

## Board for Containers and Cartons

Plans have been drawn up for the erection at Thatcham in Berkshire of a new board mill for Colthrop Board and Paper Mills Limited, on a site close by the existing Colthrop plant.

The construction of the new board mill, including an associated power station, will be financed to a large extent by new issues of capital by the Colthrop company, including the issue to Albert E. Reed & Co., Ltd., of 105,000 Ordinary shares under a new agreement between the two companies.

At present the Colthrop plant consists of two board and two paper machines. The board machines mainly produce container middles, liner for fibreboard cases, folding

boxboard for carton manufacture, and plasterboard liner. The principal products of the paper machines are wrapping papers and paper felt for roofing and felt-base flooring.

The board machine to be installed in the new mill, which is expected to start production in 1957, will have an output nearly as great as the combined output of the two existing board machines.

Under the new agreement, which provides for the election to the Colthrop Board of two directors representing the Reed Group and for full technical cooperation, a steady supply of board from the Thatcham mill will be assured to the Reed converting factories.



In a park-like setting with woodlands and running streams, the Clifford Sheldon Club House is typical of the leisure-time amenities enjoyed by all who work at the Aylesford mills of the Reed Paper Group.

# THE REED PAPER GROUP



## SALES COMPANIES

WRAPPING PAPERS  
E. R. FREEMAN & WESCOTT LTD.  
London, E.C.4

PRINTING PAPERS  
REED PAPER SALES LTD.  
London, E.C.4

PAPER MERCHANTS  
R. H. ROBINSON & CO. LTD.  
Manchester

PAPER TOWELS  
REED PAPER HYGIENE LTD.  
London, S.W.1

B. FENTON LTD.,  
Walsall, Staffs.

PRINTERS' FLONGS  
REED FLONG LTD.  
London, E.C.4

## PAPER MILLS

ALBERT E. REED & CO. LTD.  
Aylesford & Tovil, Kent

THE LONDON PAPER MILLS CO. LTD.  
Dartford, Kent

EMPIRE PAPER MILLS LTD.  
Greenhithe, Kent

THE SUN PAPER MILL CO. LTD.  
Feniscowles, Nr. Blackburn, Lancs.

## GROUP SERVICES

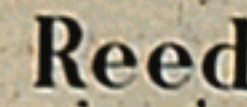
THE SOUTHERN PAPER  
STOCK CO. LTD.  
Maidstone, Kent

BROOKGATE INDUSTRIES LTD.  
(CONSTRUCTIONAL DIVISION)  
Larkfield, Nr. Maidstone, Kent

COBDOWN FARMS LTD.  
Ditton, Nr. Maidstone, Kent

SHELDONS ENGINEERING  
WORKS LTD.  
Wells, Somerset

REED TRANSPORT LTD.  
London, S.E.1, and Aylesford, Kent



## CONVERTING FACTORIES

THE MEDWAY CORRUGATED  
PAPER CO. LTD.  
New Hythe, Nr. Maidstone, Kent

MEDWAY PAPER SACKS LTD.  
Larkfield, Nr. Maidstone, Kent

THE THOMPSON & NORRIS  
MANUFACTURING CO. LTD.  
Brentford - Cambridge - Birmingham  
Edinburgh and Warrenpoint

BROOKGATE INDUSTRIES LTD.  
Larkfield, Nr. Maidstone, Kent

THE NATIONAL CORRUGATED  
PAPER CO. LTD.  
Manchester

POWELL LANE  
MANUFACTURING CO. LTD.  
Gloucester

PAPER CONVERTERS LTD.  
Aycliffe, Co. Durham

