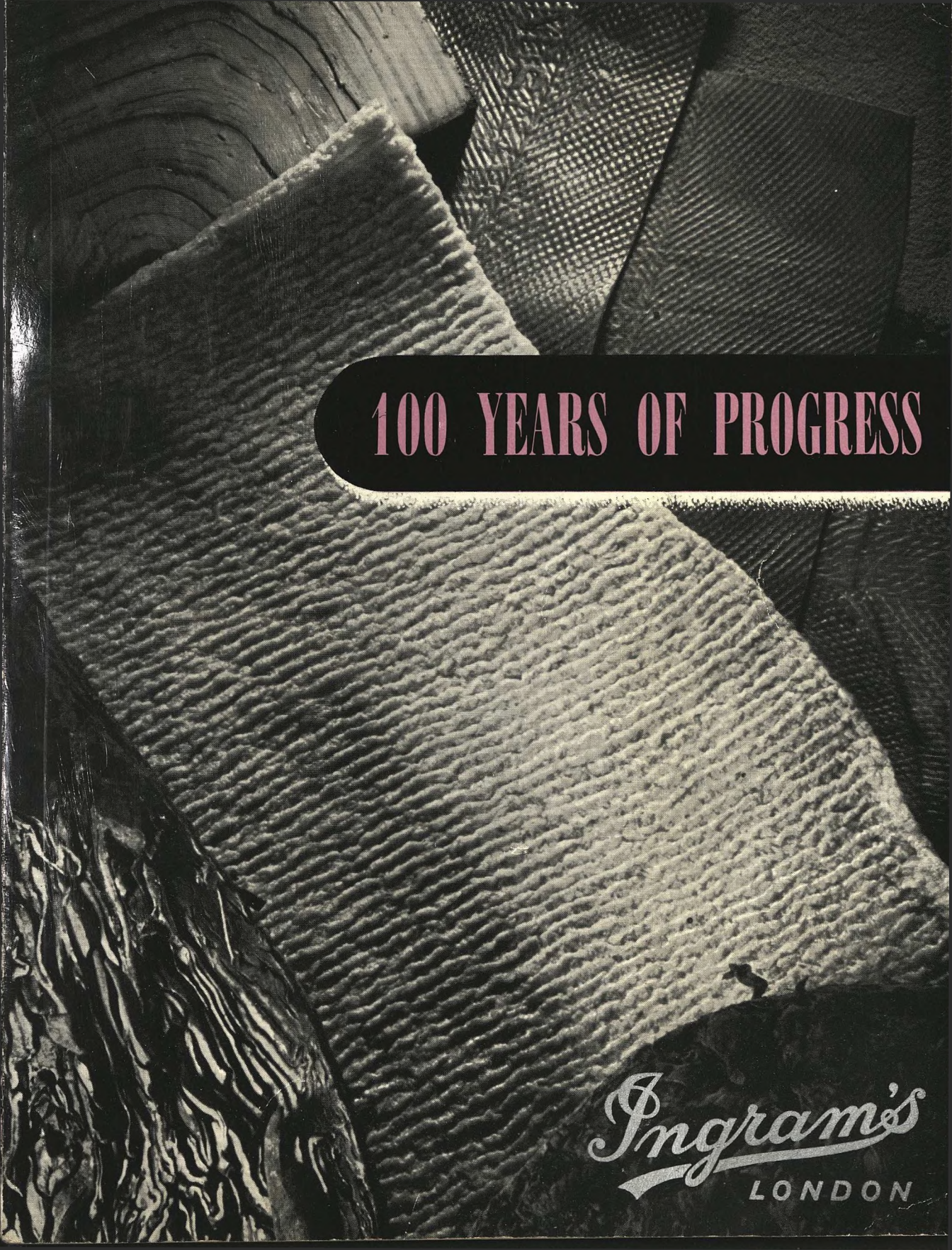
100 YEARS OF PROGRESS
Ingram's
LONDON


Ingram's
Perfex
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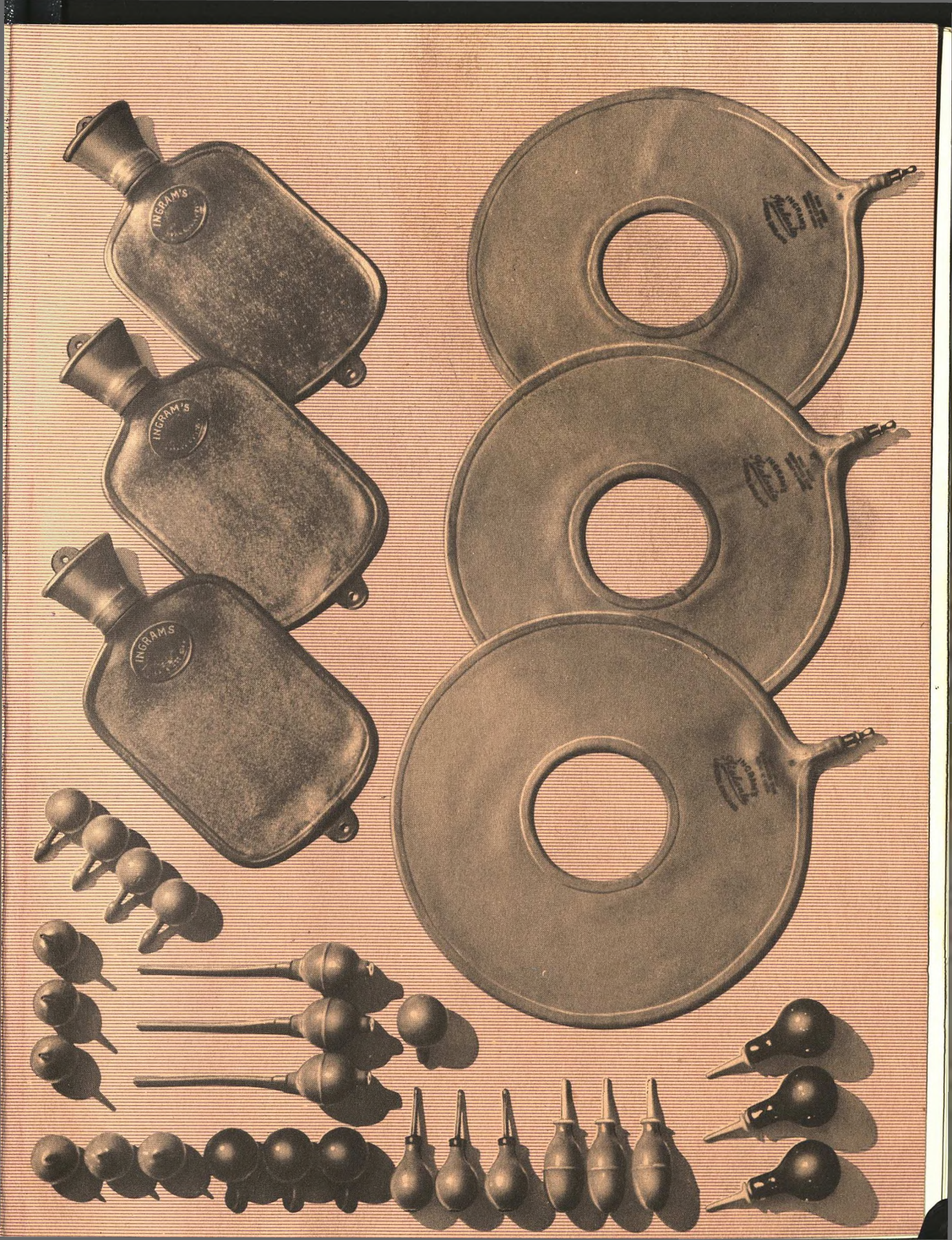
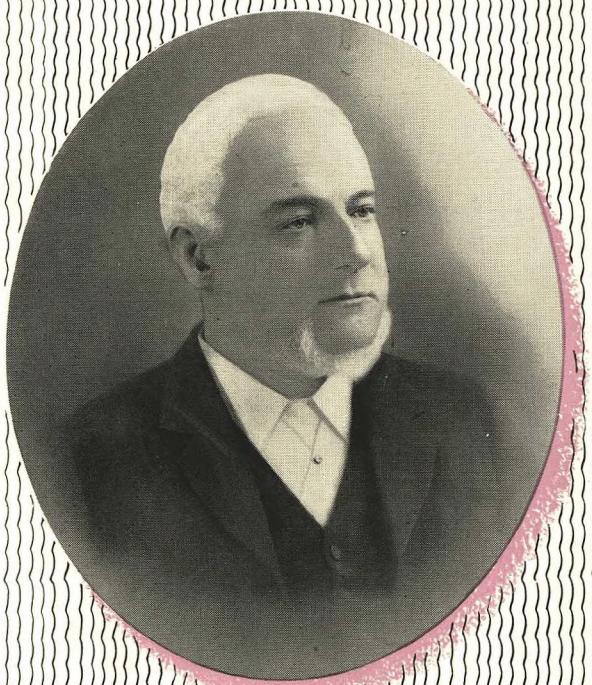

INGRAM'S
INGRAM'S
INGRAM'S

A CENTURY OF PROGRESS AND DEVELOPMENT

FRONT COVER

Photograph of crude rubber as received at our works

1847



JAMES GEORGE INGRAM

1847-1947

A CENTURY OF PROGRESS AND DEVELOPMENT

OF

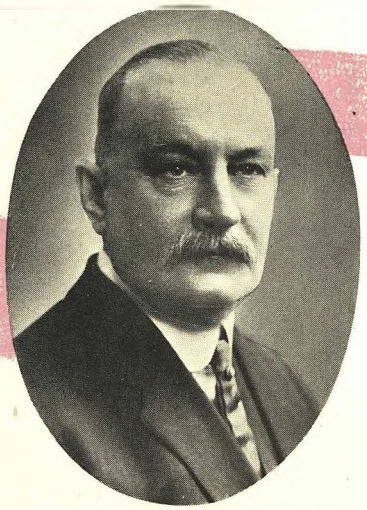
J. G. INGRAM & SON LTD

The London India Rubber Works

HACKNEY WICK
LONDON, E.9

ESTABLISHED 1847

INGRAM'S MANAGING DIRECTORS



MR. F. W. INGRAM
Managing Director, 1901–1924

MR. ARTHUR D. INGRAM
Managing Director, 1924–1946

MR. GEOFFREY D. INGRAM
Present Chairman and Managing Director

ONE HUNDRED YEARS WITH INGRAMS

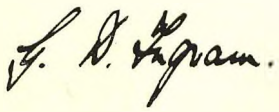
IT is my privilege to write a short introduction to this Centenary booklet in which we have tried to tell the story of the origin and growth of the Company during the past hundred years.

Although the use of rubber for manufacturing purposes was little known in 1847, my great grandfather, James George Ingram, was one of the first men to see its possibilities. With a few other enthusiasts he started the firm of J. G. Ingram & Son Ltd., in one small room, and since that day, one hundred years ago, a large modern factory has evolved and the name of "INGRAM" has become famous all over the world for surgical, mechanical and sports goods in rubber.

Ingrams is a family concern which has always given first consideration to quality. Through the skill, loyal co-operation and team spirit of our employees, we have been able to carry out this aim and to maintain a consistently high standard of efficiency.

During the last twelve months the Company has suffered a double loss, first in the death of my father, Mr. Arthur D. Ingram, our late Managing Director, in October, 1946, and more recently in the death of Mr. Ernest J. Everest, late Director and Sales Manager, in April, 1947. Both these men played an important part in the building up of the business and they will long be remembered not only by our own staff, but by their many friends in the trade.

I hope that this booklet will prove of interest, and help to strengthen the spirit of friendship and goodwill which exists between the Company and its many customers, both at home and overseas.



MANAGING DIRECTOR

THE BALE CUTTER AT WORK. When J. G. Ingram first began one hundred years ago. he had only small supplies of wild Para to work on. Now, most of the rubber comes from Malaya and the photograph illustrates a 225-lb. bale of Malayan Smoked Sheet being forced against the cutting knife by a very powerful hydraulic-operated platform.

THE CRACKING MILL. For specialized surgical work, the rubber is washed through waterfed rolls to eliminate the risk of any small particles of bark or sand finding its way into the finished product.

WASHED RUBBER. The first stage of manufacture has been completed. The washed rubber is in sheet form, ready for the drying machine.

1847—J. G. Ingram makes a start

ONE hundred years ago an engineer named James George Ingram journeyed to London from Scotland and opened a small workshop in Hoxton for the manufacture of toy balloons. Here, his experiments in rubber were the beginning of a concern that was to grow and spread rapidly. The factory is now 3½ acres in extent, has representatives in all the principal countries, and a world-wide reputation for surgical, mechanical and sports rubber goods of the finest quality.

But Ingrams is still a family concern with the kind of family traditions and standards of craftsmanship that rarely survive such rapid and extensive growth. A visitor to Ingram's factory is struck by its unusual atmosphere. For somehow, when you enter the works, you seem to be in an old family workshop, where handwork and craftsmanship mean quality, and yet at the same time, in a large modern factory where mass production methods adequately cope with quantity as well as quality. It is difficult to explain precisely how this can be and yet, as the visitor tours the large and numerous shops, where goods are being produced at the rate of thousands a day, he is conscious all the time of the personal touch, the tradition, the friendliness of the family business. Many of the workers have been with the firm for thirty, forty, fifty years and even longer.

This indefinable atmosphere has grown with the passage of a hundred years. In 1847, when James George Ingram began in the little Hoxton room off the Cambridge Heath Road, the process of vulcanization had only recently been discovered. It was a time of experiment and discovery and J. G. Ingram, working on the little toy balloons, studied the new methods being introduced and himself devised new ideas in manufacturing processes.

WEIGHING UP. The compounds for hundreds of mixings are accurately weighed before being incorporated into the rubber.

MIXING. The compounds are added when the rubber reaches a plastic state on warm rolls and the utmost care is needed during this operation. Samples of mixings are carefully checked in the laboratory before they pass into the factory for further processing.

UP-TO-DATE MACHINERY in the Calender Shop, which many years ago had the old steam-driven plant eventually replaced by modern electrical plant. Fine rubber sheet is run off the large highly-polished rolls in readiness for making up rubber goods.

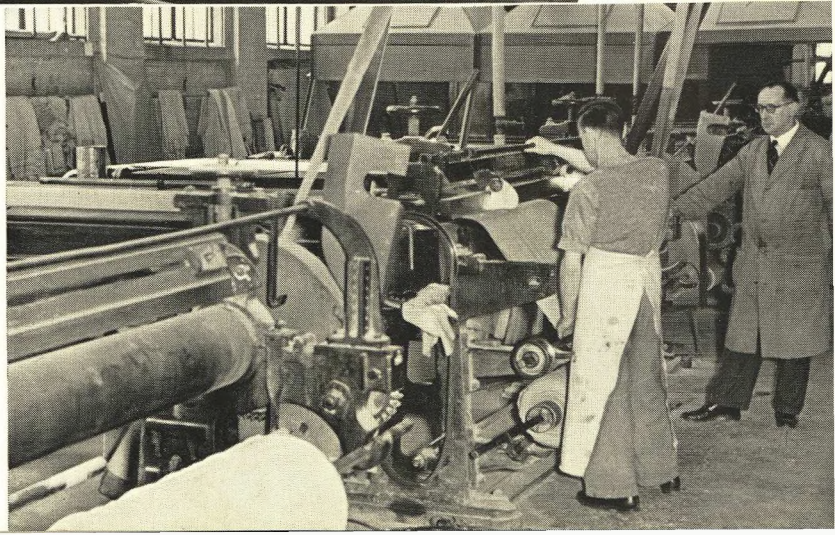
ENGINEERING EXPERIMENTS

J. G. Ingram brought his engineering skill and knowledge to the manufacture of rubber goods, making invaluable contributions in the early pioneering days. He designed a machine for cutting rubber into fine sheets. The "cut sheet" process as we know it to-day had not yet been invented. It was the experiments of men like J. G. Ingram which finally led to the rapid development of the manufacture of surgical rubber goods. While he continued to make balloons and experiment on the engineering side, he soon realized the enormous possibilities of rubber. He was frequently asked by the local hospitals to carry out special work for them. The doctors would visit him asking, "Can you make this in rubber?" and showing him a vague sketch that they wanted copied. In those early days it was difficult to get the rubber vulcanized, but "J. G." was seldom defeated by the problems presented to him. He was in continual consultation with his friend, Thomas Hancock, who assisted him with the vulcanization process.

There is not much recorded information about these early days. And yet one can imagine the scenes—the excitement and enthusiasm over each new article produced. Within a few years J. G. Ingram had become well known in the chemical and medical professions and was doing highly specialized work for them. He made bulbs and syringes of different kinds and went on to tubing made from cut sheet for chemical laboratory work, as well as many other surgical articles. But far more important than these for the development of Ingrams, was the invention of the seamless enema. It was some years before the first seamless enemas were on the market, but it was in the Hoxton workshop that the idea originated.

EXTRUDING. Miles of machine-made tubing, for surgical and industrial purposes, run down these conveyors every year.

COILS OF QUALITY. High-grade hospital drainage tubing made by hand.



A part of the spacious Spreading Shop, where rolls of Hospital Bed Sheeting, Hot Water Bottle Fabric and other kinds of proofed fabrics are produced. This shop was completely burnt out by incendiary bombs in 1941 but was quickly rebuilt for the production of materials for the aircraft programme.

1866—The Move to Hackney Wick

THERE were still only a few workers in the little firm, but the room in Hoxton was becoming cramped. J. G. Ingram, after a brief sojourn in Rainham, Essex, which he found too remote from town, decided he must have a larger and more central factory, and with that end in view, purchased some farming land at Hackney Wick, where the present factory now stands. The scene in 1866 was very different from what it is to-day. Half the ground now occupied by the factory was then still farm land, but by 1874 the factory had been enlarged for the manufacture of the seamless enema. These were an immediate success with the medical profession, and have continued to be in constant demand ever since. There has been continual experiment to improve them, new types appearing in the catalogues frequently through the years. At the same time, experiments with other surgical lines were going forward, and Ingrams were already trying out ideas for feeding-bottle teats, hot-water bottles, air cushions and other new uses for rubber.

As these experiments led to more and more goods being manufactured, the factory increased in size and new plant and new methods of production were introduced. Before the nineteenth century closed, surgeons and doctors overseas were asking for Ingram's goods. In particular, cut sheet tubing found a ready export market. Already, the brand INGRAM'S EXPORT QUALITY on goods specially prepared to withstand tropical climates was becoming well-known.

In 1901 J. G. Ingram died, leaving to his son, Frederick William Ingram, a well established firm which had now passed its fiftieth anniversary. During the twenty-three years until 1924, while "Mr. Fred" was the Managing Director, the commercial expansion of Ingrams continued steadily and without setbacks.

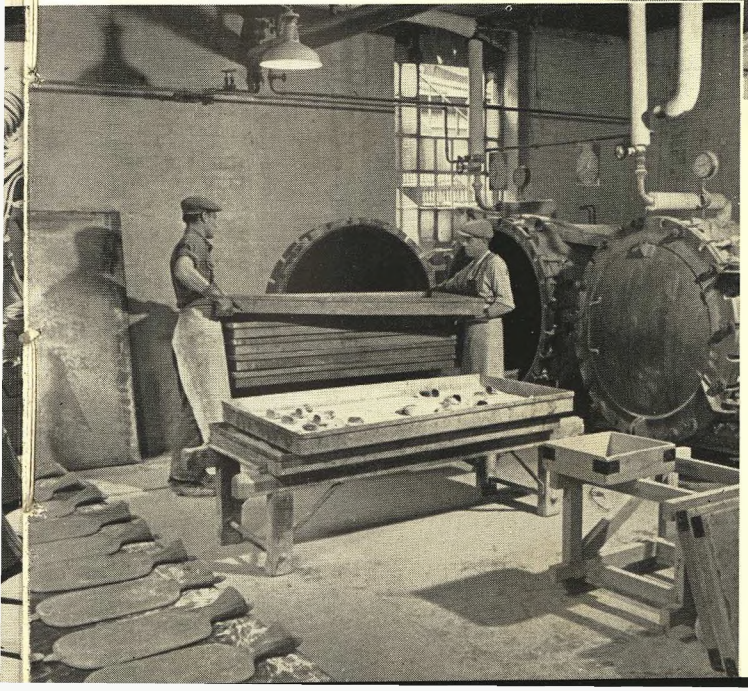
ENLARGED AND COMPLETELY RE-DESIGNED. A section of the Moulding Shop recently installed and working by the most modern methods. The erection of all plant and the manufacture of intricate moulds is undertaken by our engineering department.

A WELL LIT, MODERN SHOP where the best quality Hot Water Bottles and Air Beds are hand made by skilled workers.

NINETEEN COMPONENT PARTS go to make up Ingram's famous Hot Water Bottle. Here you see the skilful assembling of the funnels.

YEARS OF EXPERIENCE and experiment have gone into the production of the hand-made fabric bottles. The tape-reinforced inner seam prevents bursting, while a special washer insures against leakage. After the initial spreading and stamping processes, every stage of the work is carried out by hand.

ANOTHER EXCELLENT PRODUCT is the new type of all-rubber Hot Water Bottle with reinforced seams.



THE LAST STAGE in the manufacture of the hand-made Hot Water Bottle is the vulcanization of the rubber in these large heaters.

A BEAUTIFUL PHOTOGRAPH of the circular rubber shapes that are being transformed by skilled hands into air cushions for hospitals all over the world.

INFANTS' FEEDING-BOTTLE TEATS. made in various shapes and sizes are built up on moulds dipped into transparent rubber solution by automatic machinery.

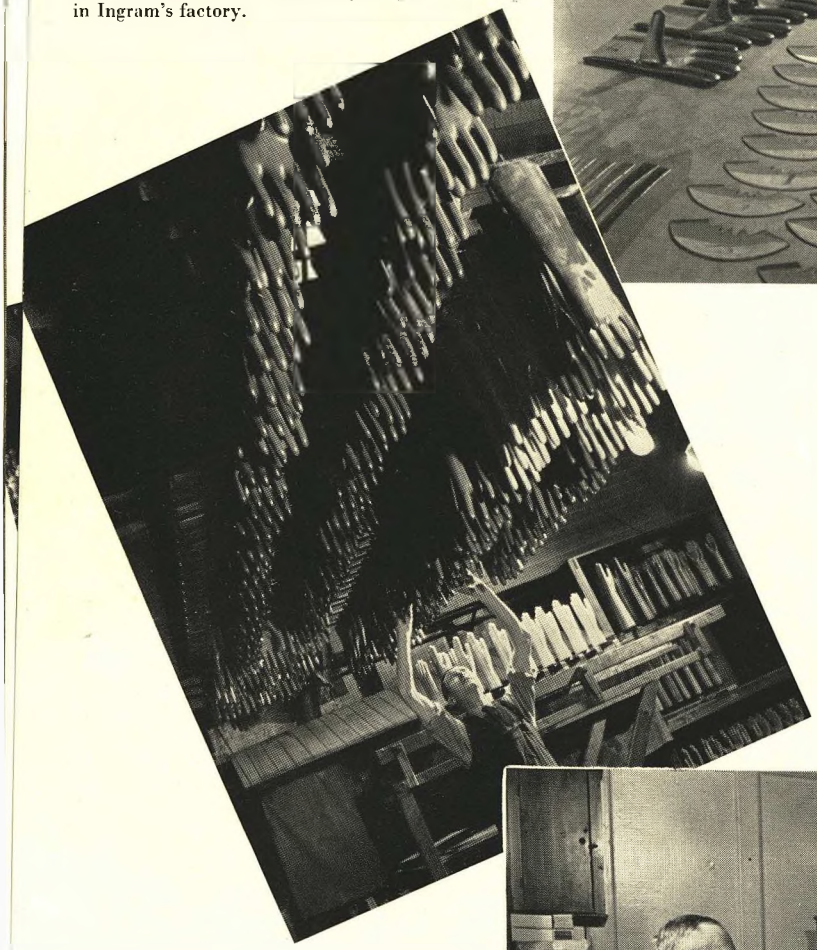
FROM THE DIPPING SHOP the teats are conveyed to skilled women for completion and dispatch.

BULBS AND SYRINGES of first-class quality and finish have been made by Ingrams for many years.

"IT FEELS LIKE SILK." This is the fine quality cut sheet used for surgical work. It is 100 per cent. pure rubber and the craftsmen, who have been at the job for years, can, to use their own words, "cut it almost as thin as fag paper." All cut sheet surgical appliances have to be made entirely by hand.

THE SPORTS SECTION turns out Football Bladders made of high-grade calendered sheet from the best quality rubber.

MACHINE-MADE DIPPED GLOVES for industrial and household purposes are made with the same care as everything else in Ingram's factory.



TESTED UP TO 10,000 VOLTS. Hand-made Electrical Gloves.

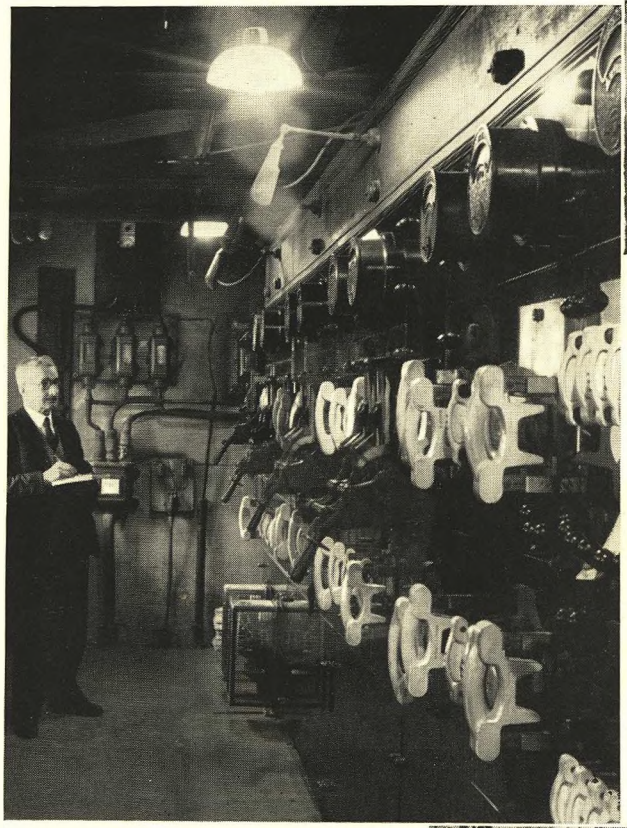
IN THE LABORATORY. For a hundred years, ever since J. G. Ingram first consulted with his friend, Mr. Hancock, the production experts have worked in close co-operation with the chemists. Routine jobs, such as testing the mixed batches before further processing, customers' problems and constant experimental work keep the laboratory staff hard at it.

Power and Light

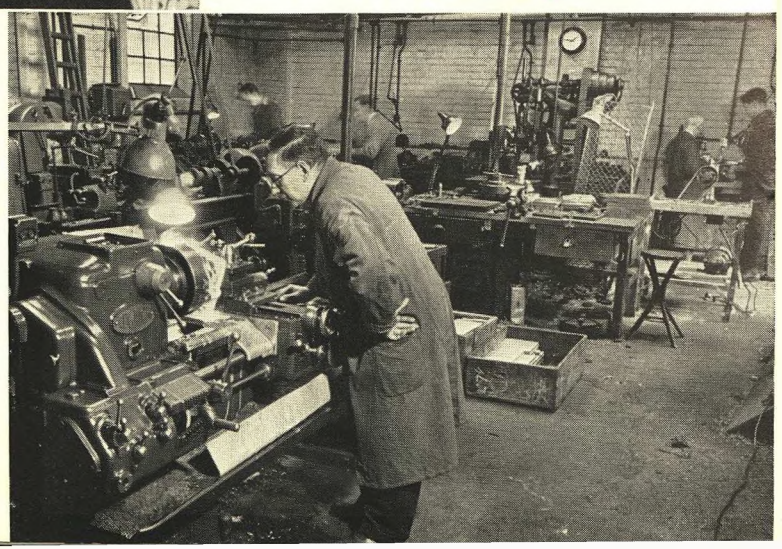
IN 1906, Mr. Hunt, who is still with the firm, was engaged to introduce modern methods of power and lighting throughout the works. When Mr. Hunt arrived, steam-engines were in use and lighting was by means of naked fish-tail burners. Where the naked light was dangerous, the burners were placed in lanterns outside the window—a far cry from the fluorescent lamps which to-day give brilliant lighting to the shops. At the same time, work was begun on replacing the steam-engines by electric motors. This was achieved without any stoppage of work, the actual changeover taking place during week-ends.

Through a whole century of progress, experiment has never ceased, neither in the laboratory where the testing and analysing are carried out, nor in the factory, where the ideas are born which the production staff take to the chemists for testing. Many ideas to speed up production or improve an article in some minor detail are the result of "brainwaves" by craftsmen in the factory who have an interest in their skilled work, which is rare in these days of mass production. Their kind of enthusiasm for the job results in the development of new ideas. For instance, Ingrams have introduced several special features into the manufacture of hot-water bottles, including the famous reversible washer which is really two washers in one bottle, and the equally famous hand-made seams, which Ingrams use on one type of hot-water bottle as a safeguard against bursting. These are more recent ideas. But twenty, or even thirty, years ago, Ingrams were producing hot-water bottles incorporating new features, for example the ECLIPSE bottle with the "patent neck fitting"—the brass socket embedded in the rubber neck.

AT THE SWITCHBOARD. The Chief Electrician looks with pride at his first-class installation which supplies power to the whole factory. Mr. Hunt remembers the change-over to electricity from the fish-tail burners and steam engines at the beginning of the century.



THE BOILER HOUSE. Rubber manufacture calls for a good supply of steam for processing and heating. Up-to-date oil burning equipment has been installed to ensure efficiency and cleanliness throughout the factory.



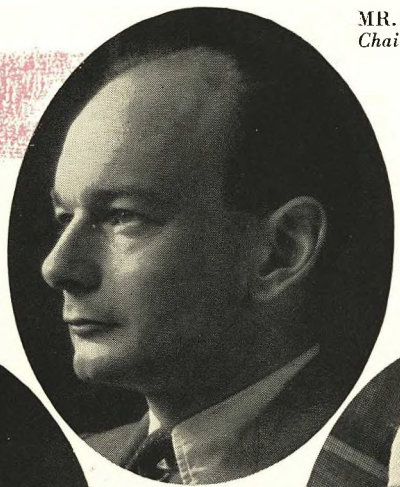
INTERNAL MAINTENANCE. Modifications to plant, machinery and mould-making require a staff of highly skilled engineers, plumbers and carpenters.

Ingram's teats are also world-famous and new ideas in teat manufacture are always being examined, though no one has yet improved upon the AGRIPPA patent band teat, with its extraordinary transparency and the gripping power provided by the patent interior band.

Ingrams also have a fine record in sports goods; particularly with their football bladders and their designs for the handle grips of cricket bats and tennis rackets. Ever since those early days when the local doctors called on "J. G.", the firm has grown and expanded until to-day Ingram's rubber goods find their way to all parts of the world, while, at home, customers include wholesale houses, local government authorities, the Admiralty, the War Office and the Ministry of Supply.

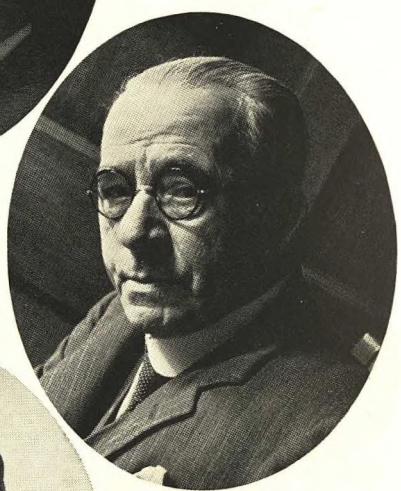
DISPATCH DEPARTMENT. When the goods have reached the stage of being packed in cases, they have been made by an organization with one hundred years' experience behind it and are guaranteed to be of the finest quality.

Directors



MR. GEOFFREY D. INGRAM
Chairman and Managing Director

MR. H. TODD
Director and Secretary



MR. T. C. STOKES
Director and Buyer

MR. ERNEST J. EVEREST
late Director and Sales Manager

Mr. Ernest J. Everest died in April 1947

The Family Tree

THROUGHOUT this hundred years of progress, the Ingram tradition has been handed down from father to son. After J. G. Ingram, his son, F. W. Ingram, succeeded in 1901. It was while F. W. Ingram was Managing Director that a good deal of the modernizing of the factory and plant was carried out. In 1924, Mr. F. W. Ingram's son, Arthur Dennis Ingram, succeeded to the title of Managing Director. His three younger brothers, F. J., L. and W. Ingram, became his co-directors. "Mr. Arthur," as he was known to his staff, outlived his three brothers, and died last year, after devoting 42 years to the business, just missing the centenary year to which he had looked forward with pride and pleasure.

A TRIBUTE TO MR. ARTHUR D. INGRAM FROM A MEMBER OF THE STAFF

After forty years' close association with the late Mr. Arthur Ingram, it was a terrible shock to me to be told of his sudden death. He took a great personal interest in everyone who worked for him, and the writer can recall many interesting incidents and friendly arguments. Any employee, whatever his or her position, could approach him and he would listen to a suggestion or complaint as long as it was based on sound lines and common sense. He has befriended many people, but in such a quiet manner that the extent of his generosity was known only to a few.

In his early days with the firm he worked directly under the guidance of his father, F. W. Ingram, so that when he took over the responsibilities of Chairman and Managing Director he soon proved that he had a real understanding of what Management meant, and thus gained the confidence of his staff. In his passing, we lost a friend.

Members of the Ingram Family

PAST DIRECTORS

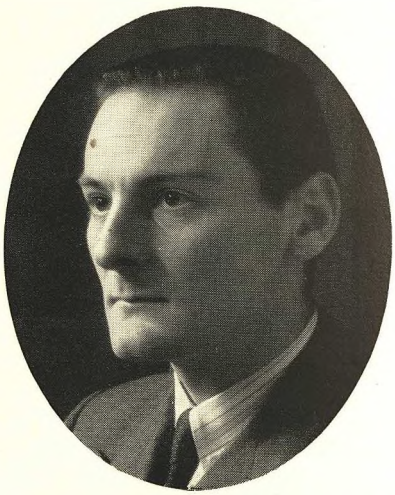
FREDERICK J. INGRAM

LEONARD INGRAM

WILLIAM INGRAM

MEMBERS OF PRESENT EXECUTIVE STAFF

KENNETH R. INGRAM
General Manager of Engineering

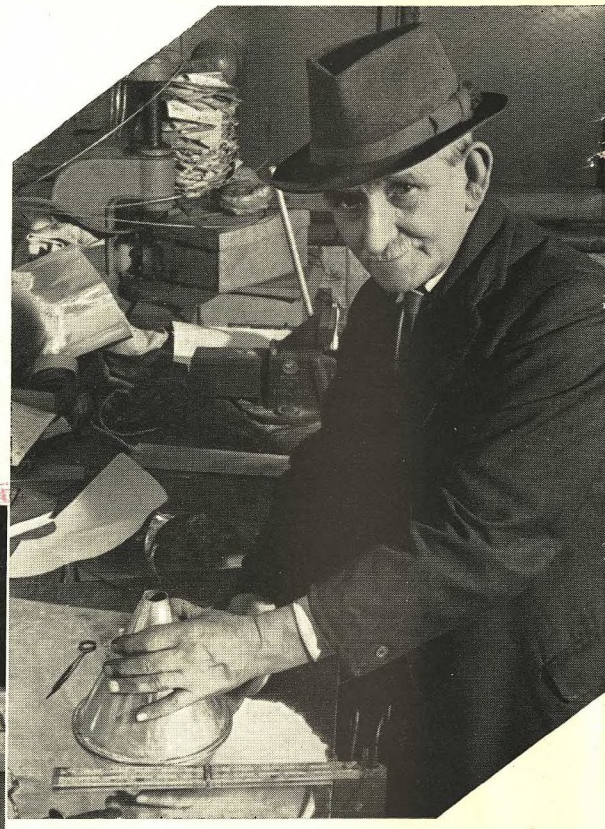


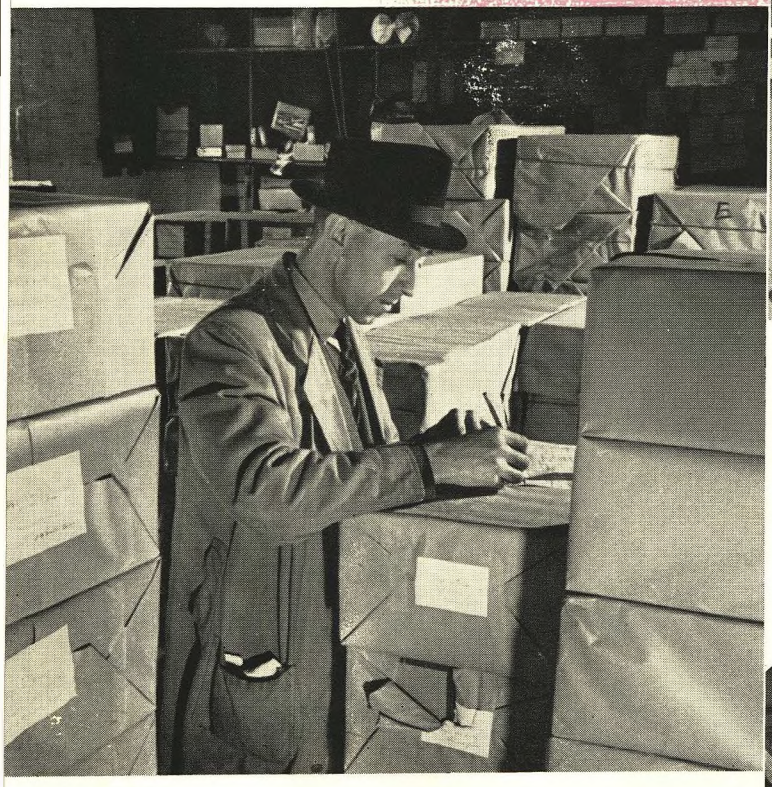
FREDERICK W. INGRAM
Works Manager

The Tradition of the Family

JUST as in an English village, it is not only the squire who can trace his history back for a century or more, but also the farmer and the farm labourer, so at Ingrams, many of the workers in the shops and in the offices are as proud of their long family connections with the firm as are the Ingrams themselves. There is a great pride in the skilled craftsmanship which only comes with years of practice, length of service, and enthusiasm for the job. All round the Boardroom are photographs of employees who have served the Company for 50 years or more. Some of these are still actively employed in the factory. Mr. Jarvis, chargehand, plumber and tinsmith's shop, and Mr. Brown in washer, wheel and roller shop can claim continuity of service in direct line from father to son since 1847; Mr. Elson can claim continuity of family service for 80 years.

MR. JARVIS
(Plumber and Tinsmith)





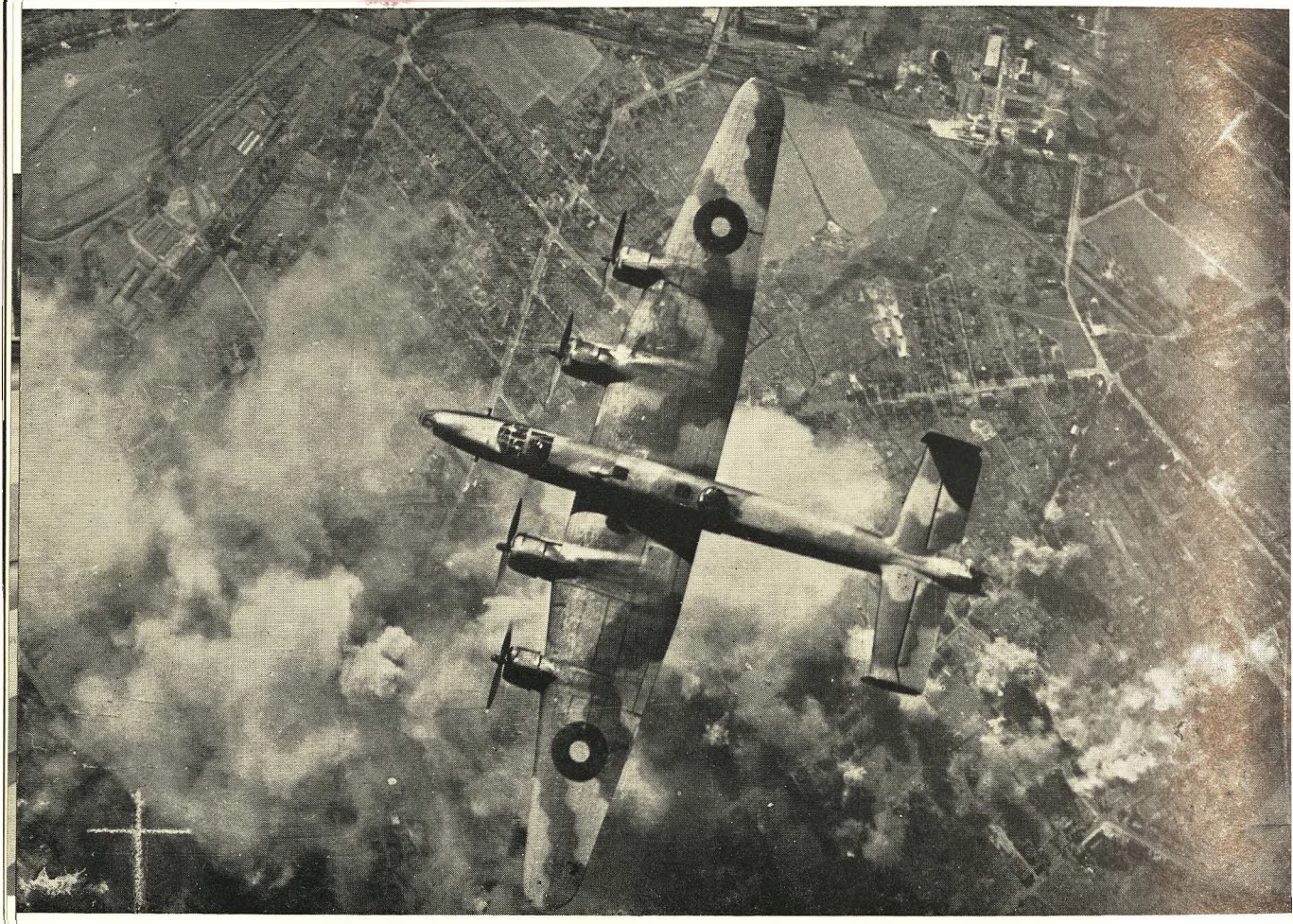
MR. FRED ELSON
(Chief Factory Store-keeper)

MR. A. E. BROWN
(Washer, Wheel and Roller Shop)

MR. JARVIS (*Plumber and Tinsmith*). "I came as a boy under my father. That was sixty years ago, when I was thirteen. My father was with the firm when it started in Hoxton. It was a real family affair with the old grey-headed gentlemen. They all treated us as one of themselves. Of course, it was a small place when it started, but it turned out to be far more than I ever dreamed of."

MR. FRED ELSON (*Chief Factory Store-keeper*). "My grandfather joined the company in 1867. He began as a calender charge hand and ultimately became factory manager. My father joined in 1890 as a boy and became chief order clerk. Then, of course, I followed on, and I've been with Ingrams twenty-seven years now."

MR. A. E. BROWN (*Washer, wheel and roller shop*). "My father did forty-odd years with the firm. He was here when they just had the room in Hoxton. I was fifteen myself when I came to Ingrams and I've been here fifty-five years now. We've done a hundred years between us. When I first started I earned 6s. 9d. a week, but you would do better then on a couple of bob pocket money than you can now on a pound. I've seen two Wars with the firm—worked till ten at night in the 1914-18 war, and all through the blitzes in the last war."



Halifax Bomber attacking a synthetic oil plant at Wanne-Eickel, Germany. *Photo Crown Copyright Reserved*
The fuel tanks of these bombers were covered with self-sealing material in Ingram's factory.

INGRAM'S WAR RECORD

Over to War Production

INGRAMS has played its part in two world wars and many employees recently working on materials for bomber and fighter aircraft can remember working on military hats, hospital sheeting and gas masks in the 1914–1918 war. During World War II, Ingrams were able to give all their skill and experience to the production of goods and materials for the alleviation of suffering and the saving of life. Field-dressing stations and hospitals from Normandy to Stalingrad, from Norway to El Alamein, all received from Ingrams a continuous flow of the finest quality surgical rubber appliances. Enormous quantities were sent, through the Ministry of Supply, to all our Allies. Ice caps, air cushions, water beds, hot-water bottles, field dressings, syringes of all kinds, serum caps and vaccine caps for all the thousands of war-time inoculations—these are only some of the essential supplies turned out by Ingrams during the war.

In most of the factory departments, peace-time work on articles such as sports equipment and other non-essential goods ceased altogether, while production of feeding-bottle teats and other domestic lines was greatly reduced, and later, when rubber was in short supply, came almost to a standstill. However, this did not mean any slackening of the pace of production. There were many new and urgent requirements for the Services, the Ministry of Supply and the Ministry of Aircraft Production. In the sports goods department, in the hot-water bottle and general mechanical goods shops, the management changed

over to production of a new and vital material—the self-sealing rubber covering for the fuel tanks of bomber and fighter aircraft. The greater part of the teat shops was turned over to covering bomber tanks. In the "spreading shop," one section was soon working at top pressure on materials for aircraft fittings such as fuel hose or sealing-strip for emergency doors, and gun turrets. Other shops produced goggles for the R.A.F., the Royal Navy and Service Transport; gloves for the protection of workers on chemicals, and explosives and miscellaneous mechanicals for a hundred and one purposes. When Malaya was lost to the Allies, Ingrams performed a special service for their own and many other factories, in washing to a high standard of cleanliness the African wild rubber that, in its crude and dirty state, proved such a problem to all manufacturers.

Self-sealing Material for Aircraft Tanks

THE largest contribution made by Ingrams to the war effort was the manufacture of self-sealing Rubber Sheet for covering fuel tanks and fuel pipe systems on Fighter, Bomber and Coastal Command Aircraft, and on Motor Torpedo Boats and Motor Gun Boats. This material was developed as a result of the combined efforts of the firm's Research and Production Staffs. They devised a manufacturing process which had never before been carried out in this country, and which was to prove of vital importance. The extremely hazardous conditions under which aircraft had to fly required a protective cover around the tanks and fuel pipes made from special rubber of high-grade quality which had to withstand the intense cold of high altitudes and, at the same time, remain effective for self-sealing against the anti-aircraft fire of the enemy.

Owing to the high degree of skill necessary in the manufacture of this material, all the men and women working on it were specially trained by Ingram's own staff. Production started in February, 1941, and only about a month later, Ingram's factory was badly blitzed. Watching the blazing building in the early morning of March 20th, 1941, Arthur and Geoffrey Ingram felt that all the effort they had put into this new venture, so vital to the war effort, had been wasted. But, by what seemed a miracle, there was no serious hold-up and thanks to the courage of all those working in the offices and factory the work of producing the self-sealing material went on until the end of the war. They knew that their work was a matter of life and death to the allied aircrews. Many a pilot whose machine had been shot up during operations was able to get back to base with his crew safe because the self-sealing covering on the fuel tanks had saved the plane from going down in flames. Whenever it was reported that there had been a big raid or some specially daring operation, such as the low level attacks on railways, canals, ships, or flying-bomb sites, it was a source of pride to the workers of Ingrams to know that they had been of service to the brave crews who were risking everything in the cause of freedom.

AFTER THE BLITZ
AT HACKNEY WICK

A SECTION OF
THE FACTORY AFTER
THE BLITZ

The Blitz at Hackney Wick

ALL this vital work had to be carried on in one of the most heavily blitzed areas of London. The men and women of Ingrams came to work day after day while bombs were falling. There came a day for many of them when they had to turn up at the factory after their homes had fallen around them or been burnt out. Day after day they heard the repeated wails of the air raid siren whilst they were at work, and night after night they spent in air-raid shelters or rest centres. Those who were fortunate enough to get only a few windows smashed or the roof knocked in, considered themselves "unbombed," when so many of their fellow workers had been bombed right out in some cases more than once.

The Factory Blitz

ON several occasions in 1940 incendiary bombs fell on the Works, but were effectively dealt with by the works Fire Brigade. But on the night of March 19th, 1941, there was an intensive raid on London. A tremendous number of incendiaries fell on Ingrams and were dealt with by the Fire Brigade. Then another load of incendiaries fell and almost immediately after, a landmine fell just the other side of the railway embankment. The hot-water bottle department collapsed in a blaze and before long a third of the factory was on fire. The A.F.S. arrived quickly, but was unable to do anything as the water mains in the district had been smashed by high explosives. It was nine o'clock when the fire started and it took several hours to get a large hose down to the near-by canal.

Unfortunately, when this was done it was ineffective, as it was impossible to

pump enough water through the great length of hose. Members of the Fire Brigades of Messrs. Clarnico Ltd. and Messrs. Carless, Capel and Lennard, came to help, and with Ingrams men they fought the flames heroically, but they could do no more than keep the fire from spreading. The Directors arrived on the scene at 4.30 a.m. to find the factory still burning in a fury of flame and smoke, and all Mr. Ingram could say was "That's finished it."

But Ingrams wasn't finished. When light came and the fire was finally put out, the slogan was "We've got to get going again." And we did.

The men set up machines in the open air. It was March. The conditions under which they worked can be imagined. But neither rain nor bombs could stop the men from getting on with the job. Spreading-machines were salvaged and re-erected and arrangements were made for day and night shifts, with the workers divided into two teams to keep going at the few machines available. Night shifts were continued, from then onwards, until the end of the war, on the manufacture of self-sealing material. The men and women of Ingrams who worked day and night with highly inflammable materials and chemicals in one of the most heavily blitzed areas in Britain, can be justly proud of their war record.

EPILOGUE

One Hundred Years of Rubber

WHEN Ingrams began, the story of rubber was only just beginning. The firm has grown at the same rapid pace as the whole rubber industry.
It is with pride that we look back on the past century and see, side by side with the enormous advances made in the scientific and technical development of the manufacture of rubber goods, the growth of Ingrams, with new ideas, enlarged works and increased output year by year.

In 1847 there were only a few enthusiasts like J. G. Ingram in Hoxton, patiently working on a little-known material that only these pioneers could foresee would become the basis of one of the most vital industries in the modern world. In those early days, the only importation of rubber was the wild Para from South America. Plantation rubber was unknown and the early pioneers in Malaya had a hazardous task before they established what we know now as the rubber plantations, and only during the latter half of the last century have many grades and qualities of rubber been produced to meet the requirements of manufacturers.

J. G. Ingrams, grown now from one small room to a factory covering $3\frac{1}{2}$ acres, takes its full share in transforming these raw materials from tropical lands into

miracles of modern science that are regarded as essential by millions all over the world.

To-day, very few of these products could be dispensed with, and experiments continue in the laboratory and at the factory bench. There has been no change in the century-old policy, perfecting equipment, enlarging premises, trying out new ideas, and improving the firm's products. With the support of their many customers at home and overseas, J. G. Ingram & Sons, Ltd., hope to maintain their traditional standards of quality and their policy of progress.

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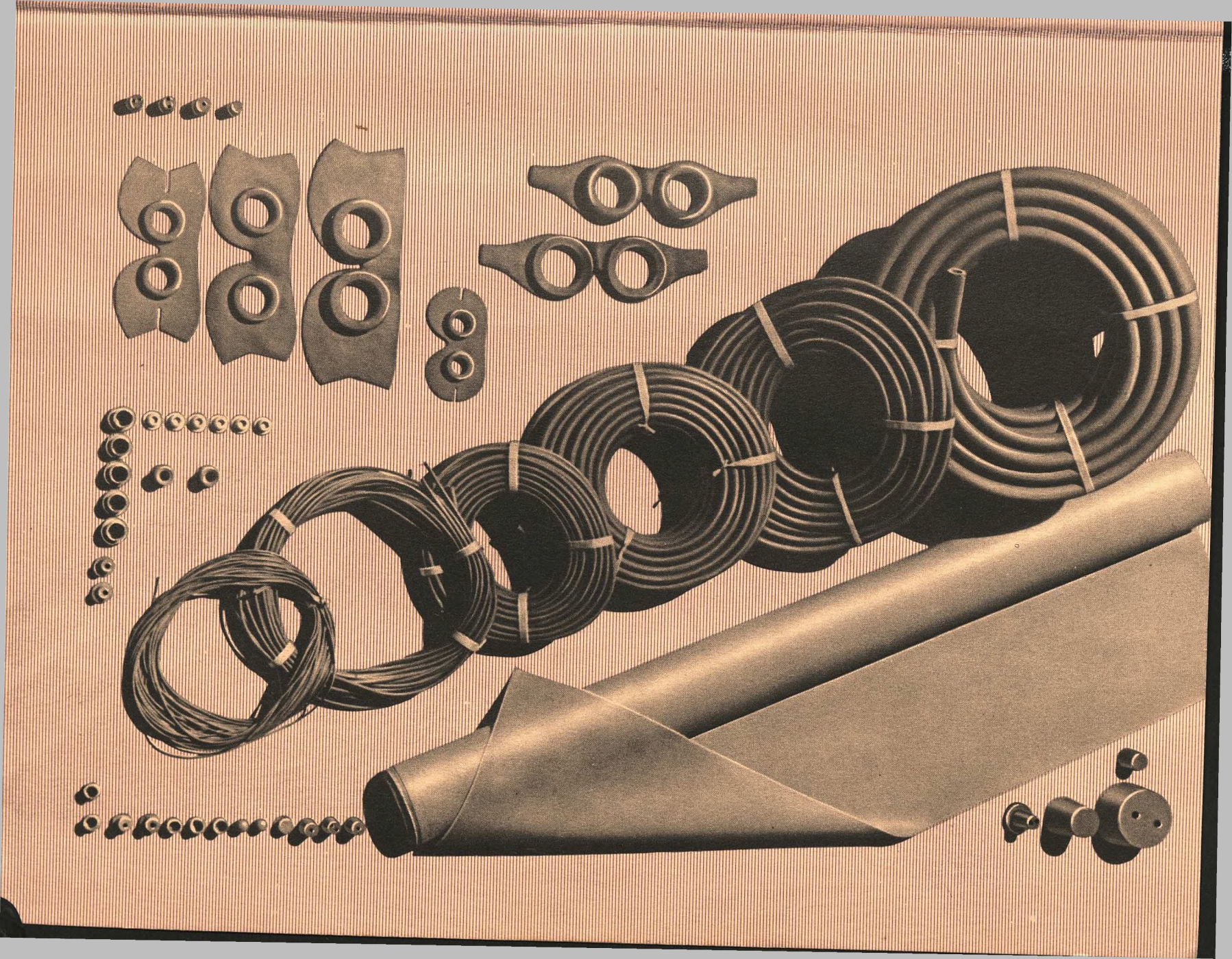


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