To: [Name]
From: [Name]

Aug 25th 1940

Dear [Name],

Some time ago Mr. [Name] asked me to send you any recollections I had of my contact with Mr. George Eastman. As these recollections are embodied in notes about the early Kodak days at [Name], which I handed him some years ago, I am taking the liberty of sending you a copy of these notes and hope they may prove of use to you.

With kind regards,

Sincerely yours,

[Name]
September 1922.

Dear Mr. Bent,

Some little time back you suggested that those of us who were associated with the Kodak Company in the early days might do worse than record their recollections before they got too dim. This is my contribution.

I first heard of the Kodak Company about the end of 1890 or beginning of January 1891. A friend of mine, Mr. William Griffin, son of Colonel Griffin who was a Director of the Eastman Photo Materials Company Ltd, London, wrote me asking whether I would be inclined to consider the proposition of joining the Company as their chemist at the new Works which were being built near Harrow.

Mr. Walker had been spending an evening at their house, and had mentioned that he was on the look out for a chemist. Mrs. Griffin, who was a great friend of my Mother, had suddenly thought of me, and had suggested my name, hence the enquiry. My ignorance of photography, I was told, would not be an objection for, as a matter of fact, Mr. Walker held that it would be easier to train a man in the Company's methods who was ignorant of photography and was less likely to have pre-conceived ideas of his own.

I was at this time working in the laboratory of a large brewery (Warwicks & Richardsons) in Newark on Trent, Notts, and on occasion had to act as one of the assistant brewers. The idea of photographic manufacture appealed to me. I came up to town and saw Mr. Walker, and it was finally arranged that as soon as my employers had taken steps to replace me at the brewery I should join our Company.

About March 1891 I came up to London and I then arranged with Mr. Joseph Thatcher Clarke, whom Mr. Walker had handed me over to, that pending the completion of the Harrow Works, I should work for the time being at organic chemistry in the University College laboratory.

I had hardly started working there when I received a note telling me that Mr. Eastman was over here and that he wanted to see me. At the time appointed I called at the Oxford Street shop and immediately
afterwards Mr. Eastman walked in and I was introduced to him.

About the first thing he said was that he considered that my time could be far more profitably employed by going over to Rochester so as to get a good insight into the work over there. He had, he said, a spare berth in his cabin - how soon could I be ready to go. Of course I said "At once!" Such a chance was not to be missed.

The incidents of that trip are indelibly impressed on my memory.

Hanging over the rail of the tender which was taking us down Southampton Water to join the Hamburg America liner "Havel" Mr. Eastman said to me "You, in England, are too cautious and afraid of making mistakes. We in the States make our mistakes and straighten them out before you even begin to make them". Another thing, he said, the essential common sense of which impressed me at once was, "Mr. Krohn, a lot is being talked about colour photography. Give me a good gelatin silver chloride F.O.P. it is worth all the photography in colours in the world". Of course, he was right. In the one case he would have to educate a public so as to create a demand, in the other he had a big market ready for him and anxious for the goods if he could deliver them. I have probably not given Mr. Eastman's exact words, but the gist is there.

Mr. Eastman was ten years my senior and my "boss" but no one could have been more kind, natural and considerate. He never for one moment let you feel other than absolutely natural with him. Is it wonderful then that it did not take you long to feel not only a great respect for him, but great affection and absolute loyalty? I never saw Mr. Eastman in a temper. You therefore knew instinctively that he could control and lead men for he possessed the first essential of a great leader, control of himself. Mr. Walker was a different type of man. If things went wrong he would go off the deep end, almost stamping about the room and letting himself go wholeheartedly. Five minutes later, having relieved himself, he would be apologising to you for having lost his temper. Mr. Dickman, who was our "boss" over here later on, was like Mr. Eastman - a calm, self-possessed
man, an infinitely painstaking man, and a very lovable man. Both Mr. Eastman and Mr. Dickman were always good friends with their employees, but never made themselves cheap.

Two incidents in New York remain in my memory—one amusing, the other throwing a sidelight on to Mr. Eastman’s character.

From the landing stage at New York we took a cab to the hotel. We had just got to our rooms when a porter came up and told Mr. Eastman that the cabby was not satisfied with his tip. Mr. Eastman made no bones about it, and gave an extra tip at once. For a moment I thought Mr. Eastman had found someone who had been able to beat him, but what it really meant was that he was not going to waste temper and time over a relatively trivial matter.

Again, just before dinner we were waiting in the big entrance lounge when Mrs. Eastman, his mother, and some friends who had come down from Rochester to meet Mr. Eastman, walked in. Mr. Eastman walked up to his mother and gave her a hearty kiss. You will say, "Why not, surely perfectly natural." True, and yet to me, having Scots blood which makes it difficult for the possessor to show his deepest feelings of affection in public, the simple, natural act was impressive simply because of its naturalness. I felt that a man who loves his mother like that is sound at heart; he is a white man.

Mr. Eastman had business to transact in New York so I went ahead to Rochester. DeLancey had been asked by Mr. Eastman to find diggings for me, and he got me put up in an annex to the boarding house where he was then living. By the way, a Mrs. Herriman was living in the same boarding house, an old lady of 90 years who could remember Rochester as a stamping ground of the Indians when she was a girl.

The next four months were some of the most interesting of my life. The first buildings – Power House, Emulsion Making Building, Promote Coating Building and Film Building – were being completed at Kodak Park. Production was, however, still being carried on actively at State Street and Court Street.
Bromide paper and stripping film were still being manufactured at State Street. Developing and printing on albumen paper, also enlarging, was being carried out on the floor above the coating machine room. It is a marvel that this arrangement did not result in spot trouble on the papers and stripping film. The offices and emulsion making rooms were on the ground floor. Transparent film was being coated at the Court Street Factory and plates, if I remember rightly, were also being coated there.

Miss E. Tompkins, a cousin of Mr. Eastman, was responsible for weighing out the materials for the emulsions. Reichenbach was in charge of the whole of the manufactures, and I found him a very able and helpful man. He and his brother Homer were both characters in their way, as indicated by the following remark:

Henry Reichenbach: "They say necessity is the mother of invention."

"No, K, laziness is." A little cynical, but with a big grain of truth in it. Homer: "K, if drinking beer were wrong, how nice it would be!"

Working with Reichenbach was an invaluable experience and it was interesting to watch him dealing with the difficulties which were constantly cropping up, especially at Kodak Park.

Butler was responsible for emulsion mixing, and I had a lot to do with him. He was a conscientious, hard-working chap. He gave me my first lessons in emulsion making. We got on well together. Up to a short time ago I had and constantly used a small lens which he gave me when I was in Rochester for the second time at Xmas 1893. It was one of the most useful things I have ever had for my work, and I looked upon it as a sort of mascot. Unfortunately, I lost it a few weeks ago.

Dr. Passavant was in charge of the transparent film manufacture, a nice little chap but rather excitable.

The only emulsions which were made at that time were Permanent, Special and Fearless. The former for Bromide paper, the last for film, the Special for mixing with either for the purpose of varying the quality. "Permanent" coated paper gave a slow
contrasty Bromide Paper. With the addition of Special emulsion to the Permanent emulsion we got the American Extra Rapid Bromide paper, but the quality was never satisfactory, and at Harrow we replaced the mixture very quickly, once we got into production, with an emulsion the formula for which Mr. Wellington worked out and I perfected afterwards.

The coating machine at State Street was the old fashioned one, efficient enough but rather troublesome to work as the paper, after dipping into the emulsion, passing over a turtleneck and a chilling roller, travelled downwards and then round and up close in front of the coating trough. This arrangement made it difficult to see and remove bubbles in the trough. At Harrow I eventually got over this difficulty by leading the paper under a platform and then up behind the coater so that he could work in comfort and had a clear view.

The one machine had, at State Street, as far as I am aware, to deal with the whole of the Bromide Paper and Stripping Film cut out required at that time, both for the States and the foreign market. Before I left in the summer of 1891 I believe they were coating Bromide Papers in the new buildings at Kodak Park. The manufacture of the Stripping Film necessitated three coatings, a hardened substratum, a soluble gelatin coating and finally a fast, hardened emulsion coating. The hardening, in the sub and in the emulsion, hardened the soluble gelatin in time and old Stripping Film negatives were the devil to strip.

The manufacture of Transparent Film, which was beginning to replace the Stripping Film at that time, had been worked out and perfected by Henry Reichenbach. His discovery of the use of Wood Spirit as a solvent of Nitro-Cotton had made the Transparent Film a commercial proposition. The Transparent Film was being coated at Court Street.

We had twelve glass coating-tables at Court Street, each 80 feet long. As soon as the "Dope" had been coated on these tables in the late afternoon and had set, wooden covers suspended by
cords with counterweights above the tables were lowered on to the tables to form tunnels over them through which warm air was then drawn so as to season the film. The next morning the tables were chilled by drawing air, cooled by being passed over blocks of ice, in an ice cupboard, through the tunnels. The film was then rubbed and the emulsion was coated on the film. The tunnels were then reformed and the emulsion was dried by passing warm air through them. When dry, after lunch, the finished film was stripped off the tables; these were then cleaned, waxed and coated at once with "Dope".

The tables were, if I remember rightly, 32" to 34" wide and we were, therefore, at that time, costing some 13,000 to15,000 sq. ft. a week.

In the new film building which was then being built at Kodak Park the 12 new tables were each 200 feet long. Covers were done away with and both film and emulsion drying was to be carried out by blowing or rather driving the air in the very lofty rooms down on to the tables by means of fans (two-bladed) similar to those used in the American restaurants in summer, but with very big blades. The shafts driving these fans were let through the ceiling, and were driven in the room above.

Heating was carried out by means of radiators running, if I remember rightly, the whole length of the rooms and evening cooling of the air was carried out by means of long rows of Gill radiators running along the ceiling of the room between the tables and connected with a (De la Verne) refrigerating plant.

It was then, when watching this plant being put into working order, that I fully realised the truth of what Mr. Eastman had said about making mistakes, i.e. not being afraid of making them, but then finding ways and means of getting over them as quickly as possible.

The second thing I learned, watching Reichenschach, was infinite that genius is, as has been truly said, the infmite capacity for taking pains. Week in and week out, Sundays included, he was at that time, here, there and everywhere supervising and pushing along the work. He and others made a bad mistake afterwards, but one has
to give him his due.

All the sheets of which the tables were made were polished glass sheets 16 to 20 feet long, 32" to 34" wide, and butted up against each other, the joints being carefully ground true and cemented together, and then held in position with special frames.

All these sheets had to be imported from France. I remember one case, containing some half dozen of these sheets, being opened when it was found that every sheet was split fanwise in the centre. Evidently the case had been carelessly slung when being trans-shipped and the strain on the centre of the case had been too great.

When coating film the dope hopper used to be pulled along by travelling sprocket chains to which the carriage, which dragged it, could be hooked. After a short time these showed irregular stretch, and one side of the hopper, which rode on the edge of the sheets, overtook the other. The hopper jammed half way down the table and bang went one of the sheets. A slight stretch on an 80 ft. chain did not matter, on a 200 foot chain it made all the difference. Every chain had to be taken off and replaced so that the chains on each side of a table were of equal length for the same number of links.

Travelling down the table the dope hopper would suddenly begin to jerk and jump like a steeple chaser, and it was then found that the main shaft, which worked the chains, was too thin, and severe tortional strain got set up in it. It had to be replaced by a thicker shaft.

At last we began to coat emulsion on our film, and then we found that the heat from which formed on the chilling system, when we cooled the rooms down for emulsion coating, melted as soon as they room was warmed up for emulsion drying and splashed all over the tables. The whole of the chilling system had, therefore, to be guttered and screened in with muslin so as to protect the tables from splashes.

The result of all these delays was that we did not get into production until weeks after the date originally planned for.
It must have been a trying time for all concerned, but for me it was an invaluable experience.

It was, I think, towards the end of July that I finally started for England.

Mr. Eastman must already by then have been a man of some importance for the office had some difficulty in securing a berth for me, and the clerk in charge of the matter went with me to Mr. Eastman and reported. Mr. Eastman at once took up the 'phone and in a few minutes the matter was settled, and my passage by the "Alaska" booked.

My stay in Rochester had not only been a busy and interesting one, but also a very pleasant one. I met with much kindness everywhere. The atmosphere of American hustle was bracing yet, sometimes, I felt that our friends across the big pond were a little too inclined to live only for work instead of working to live. That was 40 years ago, much may have changed since then. Again where we ever here were perhaps too much inclined to make things so that they should last the American seemed too much inclined to make them just good enough to serve their purpose, and expected them only to last just long enough. It seemed to me as if the colonising days were still showing their influence on the American character. Just these traits of ingenuity in devising makeshifts which would serve their purpose and could, at leisure, be replaced by something more permanent, were then essential. Those days and circumstances had created a more flexible and adaptable mind.

It was interesting too that though the American's sense of nationality was strongly developed and his confidence in himself and his ability often led him to "spread the eagle" when putting chatting with you, yet time and again Tom, Dick and Harry would tell you that his Father or Grandfather had migrated from the old country and he would tell you this with an evident feeling of pride.

De Lancey and I saw much of each other as we were living in the same boarding house. He was a hard worker, very boyish and full of fun and we got on well together.

On several Sundays Mr. Eastman invited us to his house
and there I was able to observe his touching devotion to his Mother. She was a sweet, dainty, grey-haired little lady. The Germans have a rather beautiful expression denoting devoted love "auf Händen tragen" and he "trug sie auf Händen".

Mr. Eastman treated us young chaps with the greatest kindness and made us very much at home. No doubt he was, in his quiet way, sizing us up.

I always remember a little incident which happened one Sunday afternoon. When De Lancey and I arrived at the house we found that Mr. Eastman and some friends were doing some shooting with a miniature rifle in the basement. We went down. Mr. Eastman had put a visiting card on edge and the idea was to split the card with the small bullet. When my turn came no one had succeeded - even Mr. Eastman had not. More by good luck than by good management I hit the edge of the card. Mr. Eastman took the rifle and with his next shot split the card. He then quietly put the rifle away. He had shown that he was not going to be beaten and that was that. It was at his house that I first saw and heard an Edison gramophone, probably one of the first models with cylinder records and ear tubes.

The day I left Rochester, I had the shock of my life. At about six in the morning I suddenly woke up with a start. There were my notes which I had brought away from the Works in a parcel! I dressed hurriedly and went down into the entrance hall and asked the porter whether a parcel had been found. "Oh yes" he said, he had had one containing some notes handed him by the bar tender. The boys had been saying goodbye to me the evening before in the bar, and I had foolishly left my notes there. You can imagine my relief.
That evening I left at about midnight and arrived early next morning at Albany, before Albany was well awake. Two hours later, after a casual look round, I joined the steamer which took me down the Hudson, a most interesting trip.

We arrived at New York somewhere about 9 o'clock in the evening. The next day, being the only one I had in New York before leaving, I devoted to seeing what I could of the town, and of Central Park. It was a roaring hot day, 90°F in the shade. In the middle of the day I returned to the hotel as I wanted to change the spool I had in my No. 2 Kodak. As there was no darkroom, I pulled down the blinds and got under the bed-clothes and changed my film. By the time I had finished I was nearly dead with heat and suffocation. What a blessing daylight changing spools are.

Half way across the "big pond" I realised that I was running short of funds and would have barely enough to get me home after I had paid the usual tips. What broke me was that I found on arrival at Liverpool that I had to pay some pier dues for my luggage. Instead, therefore, of going to any hotel for a meal, I had to kick my heels for two or three hours wandering about Liverpool before my train left. I got a cheap meal in a second rate eating house. When I arrived at home in Hampstead my Mother had to pay the cab fare. I had cut things pretty fine.

After reporting myself to Mr. Walker, I began work at the Kodak Factory. To my surprise I found that Mr. Wellington, an old friend, was Manager there. He, fortunately, had a good deal of experience in emulsion making, and was able to give me a lot of help and advice. My inexperience was a great temptation to him to devote more time than he could well afford to do on the technical
side than on the managerial side and this was, I am afraid, the main reason why he was eventually (late in 1892 or early in 1893) requested to resign.

It must have been some time in August 1891 that I first started working at Harrow. The first thing to do was to get the emulsion mixing room into working order.

Without first trying out the idea, Rochester had ordered a battery of large earthenware (glazed) jars for us with which it would be possible to make some 50 gallons of emulsion at a time. The I experienced no end of trouble in trying to prevent the taps leaking. This was a great nuisance in the case of the jars holding the silver solution. In addition, as every one of the emulsions was an ammonia-converted-silver emulsion, the volume of ammonia given off, when emulsification was carried out, was more than trying. The setting tray was immediately under the emulsification jar and this made it difficult to clean out these jars after the emulsions has been made, without contaminating the emulsions in the setting trays underneath.

I very soon came to the conclusion that this method of procedure was impracticable. The jars were not jacketed, so temperature control was difficult if not impossible. Besides, it was just as easy to mess up a 50 gallon batch, through an oversight, as a 10 gallon batch.

It did not take me long, therefore, to decide to replace the emulsification plant with 10 gallon jars and solution jugs, such as were being used at Rochester. I only retained the use of the setting trays. These were jacketed with cold water which, at a later date, was chilled in a tank in the emulsion room by means of cold brine pipes.
For breaking up the emulsions, Rochester had supplied us with a big iron sausage machine, probably one they had discarded from Rochester. It is surprising that this did not contaminate the emulsions, but the fact that the inside of the machine had got coated with a hard rust surface probably saved the situation.

The emulsion was washed in a battery of washing machines consisting each of four horsehair sieve-boxes mounted on a shaft which revolved and dipped each box in turn into flowing water in a semi-circular trough. The water which ran off flowed into a shallow cement-lined pond with a weir-trap at one end so as to trap all the fine emulsion sludge resulting from the friction of the emulsion granules against the horsehair sieve sides of the boxes.

This method of washing was wasteful and I eventually replaced the machines with a series of large sieves in boxes ranged into two long troughs over the pond. This method proved quite effective and the emulsion was not wasted to the same extent as when washing was carried out by the other method.

The finished emulsions were set in the trays and, when set, the slabs of emulsion was cut up into pieces with a carving knife and the slabs were then stored away in wooden box trays placed on rails and in tiers in an emulsion storing room leading out of the emulsion mixing room. This store room was chilled. You had to enter it by an air lock, but as the air in the emulsion room was sudden with moisture, it was not surprising that in time the walls of the storage room got damp and mouldy, for they were lined with wood and with charcoal packed behind it. The wood began to rot and this, naturally, began to lead to trouble. If the emulsion was not used up
pretty quickly spots on it began to rot and it liquified in pits. Soon after Mr. Senier took over the management of the Works this storage room was overhauled, lined with glazed bricks, and the emulsions were then stored away in covered jars placed on shelves.

Reverting for a moment to the pond in the emulsion washing room, Seymour nearly lost his life in it although it was not more than 18" deep. One day Carter, my foreman, and I went through from the emulsion room into the emulsion shredding or breaking up room. To do so we had to pass through the emulsion washing room. As we did so I noticed something white on the floor. I stooped down and found that Seymour had fainted, had fallen forward and was lying on the ground with his face in the water. We grabbed hold of him and dragged him to the passage. I was very thankful when on reaching the door to the passage he began to kick.

The emulsion department was where Mr. Durley's and Mr. Carter's offices now are and where the Statistical Department is.
and Mr. Bentley was, I think, in charge of the Stores. Mr. Hamilton
was with him later on: Bentley, in fact, may have been under
him.

The only departments in working order when I first got to
the Works were the D & P Department, which occupied the passage
where Mr. Bent's Office and Mr. Whatland's office now are, and the Enlarging
Department, where the offices on the N.E. side are now.

Mr. Taylor, son of Trail Taylor, was in charge of the
D & P Department and Mr. Neve in charge of the Enlarging Dept -
Murgard was the assistant of the latter.

The Bromide Coating and Bromide Pocking Departments were
being got ready on the floor above my office and emulsion department.
The Bromide Coating Room was where the Museum now is, and was only
60 feet long and held a three-track machine on which we could only
coat and dry 5000 feet of paper at a time. We could not coat
continuously so far as I can remember, but the intervals between
casting were not too long and once we got into operation, which must
have been about late September of 1891, we were able to turn out
quite decent quantities per week. Later on, when we began to coat
Sillo we used, at least during certain periods of the year, to have
to coat day and night.

The drying arrangements were distinctly primitive in this
casting room. Hot steam pipes ran along the floor under the festoons.
The air in the room was circulated across the festoons and was sucked
cut of the room by a big fan at the taking down end. No air was
forced into the room so that all the air that entered it came through
cracks in the panelling of walls and of the doors and protected open-
ings on the N.W. side. No wonder, since the developing and
enlarging was being carried out on the same floor, that at certain
times, when the wind was strong from the N.E. we used to be bothered
with insensitive spots on the tops and bottoms of the festoons.
However, in spite of all we were able to turn out quite good stuff.

No baryta coated papers were being coated at that time,
only rough and smooth single and double weight "Steinbach" papers -
Permanent (slow and contrasty) and Extra Rapid.
When I first came to the Factory much time was spent in redesigning some of the rooms by ripping out and re-arranging partitions.

The carpenters’ shed was a small wooden building which stood where the main entrance drive is now just about opposite the South entrance to the Hall. Mr. Hiscock was head carpenter, a very sound craftsman who hated make shifts. Time and again if I wanted an experimental job knocked together he would deliver a really sound article far too good for the purpose. Ward was a lad working with him.

The combustible store was where Mr. Preston’s office is now and the furnace for burning our bromide and film waste was roughly where our show window is now.

Our gardener or handy man was old Hunt, a dear old chap. He planted the ivy which used to grow on the N.E. side of the bromide building and offices, but has now been replaced by Virginia creeper. One of his stock phrases was “Shall I put ’em in the furnace” spoken in broad Somerset accent. It was his duty to burn film and bromide waste in the furnace.

It must have been in the autumn of 1891 that the film tables were at last ready for use. They were located on the first and second floors of part of the building where we now label our packets. On the ground floor, on the S.W. side of this building was the dope-mixing room. On the same floor was the film slitting and packing room.

The Power House covered part of the space where Mr. Cross’ Forwarding Department now is. All power was transmitted to the two buildings by wire cable belts on flanged pulleys.
By the way, I forgot to say that all prints in the D & P Department were made on albumen paper in 1891. The printing gallery was part of Mr. Manlove's Testing Department in now.

We were still in the transition stage between transparent film and stripping film negative work and negatives were still being made occasionally on the latter and had to be dealt with.

Mr. Wellington was not satisfied with the quality of the Extra Rapid emulsion which was a mixture of Permanent emulsion and Special emulsion. It naturally lacked modelling and he considered it quite unsuited for the requirements of the British market. He set to, therefore, and worked out what I afterwards called the "W" emulsion. This was excellent and I used it as long as I was in charge of the manufacture only making modifications to simplify the manufacture. The Permanent emulsion formula I used was the Rochester formula.

For film I used Peerless emulsion at first and later on Stuber emulsion. The Peerless emulsion was rather contrasty and not too fast, but the negatives were suitable for albumen paper prints.

All during the winter of 1891 we coated film so as to build up stock for the spring. Mr. Wellington too at this time, or soon after, began to experiment in the preparation of a gelatino chloride P.O.P. and during the summer of 1892 we put this paper on to the market. I used Mr. Wellington's formula all the time I was at the Works, with slight modifications which changes in gelatine from time to time made necessary.

The origin of the name Solio is a curious one. Mr. Eastman, I was told, had a large number of names submitted to him, and amongst these was the word "Soho". Mr. Eastman misread it for "Solio"—probably it was not particularly written—and "Solio" was the name chosen.

The summer of 1892 was a busy one both in the manufacture of film and bromide and Solio papers. We used to have runs of Solio and then of bromide papers.

At this time, Mr. Wellington, Mr. Haas, our engineer, and I were trying to get over the joint trouble in our film by coating dope on hardened-gelatino-coated paper carried over a small track and also by
papering one of the tables with this paper and then coating the dope on it. When dry the film could be stripped off this gelatine surface. The method did not, however, prove a practicable one and more money was spent in these experiments than the Company could at that time afford. The result was that we were given instructions that no experimenting was to be done in England. Experimenting was only to be carried out in Rochester.

That summer Mr. Wellington got married and I married in the autumn and came down to live at Hilton Villas near the Wealdstone Station. Wealdstone was then a village with fields all round it and with just a few houses between it and Harrow. It consisted of practically half a dozen streets. The factory had fields all round it with just a few houses near it.

Early in 1893 Mr. Wellington left the Company. Mr. Dickman had for some time been general Manager, and he asked me whether I was prepared to take on the management of the Works. I had no assistant and felt that my duty to the Company was to stick to and concentrate on the technical side of the work. He therefore placed Mr. Bailey Smith, head clerk in the office, in charge of the business routine for the time being and I was made solely responsible for the technical work.

During that summer Solio went ahead well and the film and bromide business also went ahead. The work was not easy at times. I was still very inexperienced in manufacturing and had to keep my nose to the grindstone. Many a time I have gone home at night feeling almost physically sick with disappointment. Somehow, however, we managed to worry through our troubles and the business grew.

A word about Mr. Dickman. He was, I think, the finest character I have ever met. Once you got into contact with him, it did not take you long to realise that you were dealing with one of nature’s gentlemen. His wife too was a charming and intelligent woman, a worthy helpmate to such a man. Though I was in comparatively little contact with him, I felt a great admiration and affection for him. He was self-controlled, he was just, he was thorough. When he first came down to the factory in order to gain an insight into the work there
he would perhaps ask you to explain some technical point. If he felt
that he had not quite grasped your meaning you had to go over it
repeatedly in answer to his questions until he felt certain that he
thoroughly understood what you were trying to explain to him. He
possessed the saving grace of humour. His word was his bond. You
could feel absolute confidence and trust and loyalty towards him.

Before he joined the Kodak Company Mr. Dickman had, I
believe, been Manager of Mabey Todd’s London branch.

He must have come to us early in 1893. After leaving us
Mr. Wellington first of all joined Elliotts of Barnet, and later in
the year, or the year after, started his own factory with his cousin
Ward’s help at Elstree.

During 1893 Bailey Smith and I ran the Works to the best
of our ability. Sollie began to do well and bromide and film work kept
us busy.

Towards the end of 1891 we had been advised by Rochester
to introduce ammonium nitrite into our dope as a “spark doctor” and
during that winter and the following spring I put it into our dope.
About April or May of 1892 complaints began to come in about desensitised
film and we had a pretty worrying time. It was then that Reichenbach’s
words came into my mind “If ever you get into trouble when you have made
improvements go back to where you started from.”

I studied my film coating records very carefully and came
to the conclusion that the commencement of the trouble coincided with
the time when the spark doctor was first introduced. I therefore cut
it out at once and instead, in order to overcome the risk of
“statics”, I used to blow steam into the coating rooms, so as to damp the
air, about half an hour before we started to strip the film. This got
us over the “statics” trouble over here.

Just at that time Colonel Griffin’s son, the friend who
had brought me into contact with Kodak, was going to Italy for a holi-
day, so I made him my “Versuchskaninchen” (experimental rabbit) as
the Germans say; perhaps it was not quite fair of me to do so. Anyhow,
I gave him two spools, one in which the dope contained spark doctor, the
other one a spool in which the spark doctor had been omitted from the dope. When he got back the films were developed and the first showed insensitive spots; the second was all right. After that the spark doctor was definitely taboo. I even cut out all suspected scrap from my dope. I was a little surprised to find when I went over to Rochester in the winter 1893 to 1894 with Mr. Dickman that they were still working off spark doctor scrap film dope into their good dope from which the "doctor" had been omitted.

See Note 9.

My son was born in November 1893 on my birthday and wedding day. A month after Mr. Dickman took me over with him to Rochester for a short stay there of about a fortnight.

Some time before that Prestwich had brought out a matte surfaced bromide paper. I puzzled over this and one Sunday, when I was spending the afternoon at my parents' house, I went into the kitchen, melted some gelatine, put some cornflour into it, and coated a piece of glass with it. When dry the surface was encouraging, so I began to make experiments with matte bromide coatings and was able to get ready some specimen prints which I took over to Rochester with me, and which Mr. Dickman showed to Mr. Eastman. Mr. Eastman was interested and Mr. Glazer, his right hand technical man at that time, carried out further trials on the same lines whilst I was over there. It was immediately on, or soon after, my return to Harrow that we put "Platino" papers on the market. (Incidentally, on his return, Mr. Dickman gave me my first rise from £200 to £350 p.a.) After a time I replaced the cornflour with rice starch as the latter was finer grained. Some time after that, when we had introduced Platino Bromide papers on to the German market, a chap called, I think, Jahr tried to stop us on the score that he held a patent for the incorporation of a gelatine emulsified emulsion with starch paste. We proved that some years before, a Spaniard had published a similar process and, further, we contended that whereas the boiling of the starch was our an essential factor in Jahr's emulsion, as the starch paste was the vehicle, the gelatine in his case being only sufficient to enable the silver bromide to be
to be obtained in emulsion form; in our case the gelatine was the vehicle and the boiling up and bursting of the starch grain was detrimental for the purpose we had in view. Juhn carried his point, however, in the German Courts so we had to get round his patent if we wanted to retain our "Platino" bromide trade in Germany. There was nothing else to do but to substitute Barium Sulphate ("Baryta") for the starch. We therefore prepared our own BaS04 and made our "Platino" for Germany with this. I never liked this matte bromide. It was not, to my mind, so rich in the shadows, as was the case when starch was used for producing the matte surface. The surface too was more liable to show abrasion or stress marks on account of the BaS04 being less resilient than the starch.

The trip with Mr. & Mrs. Dickman to the States was an interesting one to me for I got to know Mr. Dickman better as a man instead of as my boss. He was the son of a sea captain. As a young man he had gone over to Japan (where he got into business) in a naval ship which the American Government had sold to the Japanese Government. One of his experiences he told me of was interesting. As he had not much to do on board he got friendly with the chief engineer and got to know a good deal about the engines, and was able to make himself useful in the engine room; anyhow, I imagine so, for when they ran into a typhoon and things began to look serious, in fact very serious, he was put down into the engine room and they were battened down. He told me that for a moment he was in a blue funk, but then began to reason with himself and realised that to funk would not help matters. All of a sudden he felt better and after that he could have whistled a tune for all he cared.

It was in Japan that Mr. Dickman laid the foundation of the trouble which, ultimately, led to his death, namely, intestinal ulceration. It was his stay in Japan which gave us the name of Niko for our glossy bromide paper, which we started coating either in 1893 or in 1894. Niko is the Japanese for "bright", "beautiful". When I was in Rochester, Mr. Glaser gave me a set of Solio prints from negatives taken at the Chicago Exhibition held during the summer of 1893. These were all toned with the combined toning and fixing
bath which was much more favoured in the States than over here. I have still got them, but they are all more or less badly faded. Here we were never happy about the combined toning and fixing bath and were always looking for a sounder toning bath, and I think began to use the Sulphocyanide bath regularly before they did in the States. Anyhow, we were using it regularly as our standard bath in 1894 or 1895 for I have got prints toned with this bath which were made about that time. They have not faded in spite of the fact that they have been treated pretty roughly all these years. Who first put us on to the Sulphocyanide bath I do not know now. Perhaps it was Rochester after all. I spent a good deal of time testing the bath out and standardising it for our paper.

Whilst I was over in Rochester I left the work in charge of Mr. Charles Wellington, the brother of Mr. J.B.B. Wellington. He had been kept on after his brother left. He was my emulsion Chemist and was always known as "Jos". He was not a brilliant fellow, but solid, reliable and a gentleman so that I felt certain that as long as he was with us his mouth would be kept shut about any matters I might tell him in confidence.

Mr. Dickman was sporting enough to keep him on and I am sure his confidence was never abused by "Jos".

I had left as full written instructions with him as I could and he carried them out faithfully and to the best of his ability during my absence.

1899 was a bad year for us as far as film was concerned. The desensitising trouble with our film necessitated the recutting of thousands upon thousands of spools and although we at the Works knew nothing of what our business heads were going through still we could sense that they were having a bad time, but all honour to them they kept a stiff lip. To me their behaviour has always been an ideal to strive for. Never once did they panic. They knew we were having our worries; they knew we were doing all we could however imperfectly to set matters right at our end, and never once, as far as I can recollect, were we blamed for what had happened, a thing which my
experience in after life has taught me weaker men than they, men less sure of themselves, would have done. Can you wonder that we trusted them absolutely when they showed such faith in us. All honour to them.

Soio pulled us through that year I believe, from what I have heard, and for that reason it has been allowed to live to an honoured old age.

Men who must have been with us already at that time were Mr. Wells, who came to me as my testing boy. He did all the film testing for me and the testing of emulsions. The bromide testing was done in Mr. Nave's bromide enlarging and contact printing department. Soio was tested in Mr. Taylor's department. Then there was Mr. Lee who must have come to me in 1885 (perhaps a little later) in the emulsion making department. Seymour must have been with me already in 1891 or 1892. Mr. Macam was our chief engineer and was also in charge of the dope mixing and film coating. He was an Irishman with an Irishman's ready wit and ready tongue. George Wooster ("Calipers" as he was known on account of his bony legs) was foreman of the film making department, under Mr. Macam. "Mr." Wooster was in the same department. Dolly Wooster & Miss Deacon were in Mr. Taylor's department. Mr. Gardiner was in charge of the film-spooling. Pearcey & Crook were in the bromide parking department. I cannot now remember who was in charge of the bromide coating. I believe it was a chap called Webb. If our staff was not what I may call a brilliant one still it was a staff which could always be trusted to do its job conscientiously and that, I think, is always more than half the battle.

About the middle of 1894 Mr. Senior came to us as Works Manager. Somehow he and I never hit it off quite perfectly. How much was my fault, how much his I hardly know. Soon after he came to the Works an incident occurred in which he, quite unnecessarily, made himself a little cheap to his foreman, at least to some of them amongst whom was myself, and we could not, I imagine, help showing what we thought. This incident may have put a little grit into the bearings.
Mr. Senior was never otherwise than absolutely friendly towards me and yet there was never the wholehearted, intimate cooperation between us there ought to have been. Mr. Senior was “hail fellow, well met” with everybody and was a little inclined to bring his factory friendships outside the Works into the Works. This did not always make things quite easy for me for on one or two occasions I found he had given instructions about the manufactures for which I was responsible without first consulting me. Perhaps I was too touchy, at times, about my status.

Mr. Senior, in many ways, possessed the foundations of a good manager. He was able to encourage people, he chose to encourage, to work for him wholeheartedly. I have too to admit that he was capable of very considerable self restraint for I know that on one or two occasions when I spoke to him rather too hotly about points on which he and I differed he did not lose his temper.

Mr. Senior was capable too of rapid and clear decisions, for which trait I had to admire him. Let me give an instance.

Some time in 1894, it must have been towards the end of the year, we began to try to coat film 4/1000" thick for the cinematograph industry which was just then beginning to be a commercial proposition.

To manufacture this film, under the conditions under which we were working, was not an easy matter. I shall revert to these difficulties later. Late in 1894 or early in 1895 Mr. Senior had to go over to Rochester. By that time I had got over the worst of the difficulties and then suddenly, after his departure, I began to find that my film base on the tables was being tampered with. I would go round to the Works late in the evening and examine the film base which had been coated on the tables some hours before. Everything would be in good order, and yet next morning when I examined the tables again, and before coating the film on them with emulsion, I would find that the film on a number of the tables had had something splashed on to them in places right down the centre of these tables. These splashes had to be marked out and the waste was consequently heavy. The trouble did not occur regularly. There would be periods
of trouble and periods of rest.

There was a back staircase from which the coating rooms could be entered. I therefore procured a key to the door of this and then after calling at the Works late at night, examining the tables, showing myself to the two watchmen and bidding them goodnight, I would return and going round by the outskirts of the factory grounds let myself into the back passage and staircase of the film buildings and watch the rooms, through small holes I had drilled in the panels of the doors, for some hours. It was winter time and very cold, and it was, therefore, not much fun to sit watching in the dark. I could see the watchmen and the man I suspected come into the rooms, but I never caught them tampering with the tables, yet on a number of occasions the film had been damaged when I came to examine it next morning. I could reproduce the defect by splashing wood spirits on to the film.

The thing began to get on my nerves. A week or two before Mr. Senier was expected home again I had had a rest from the trouble, and then for two or three nights, some ten days or a week before he got back the trouble began again. I again tried to catch the delinquent, but was not successful.

As soon as Mr. Senier got back I reported to him what had happened, and also told him who it was I suspected. After he had heard me out Mr. Senier said "Mr. Krohn, I think you are wrong in your suspicion, but one thing is clear the watchmen are failing in their duty. He fired both of them and the trouble was a thing of the past. It was evident that one or both of them had been at it.

I had to admire this clear and logical decision of Mr. Senier.

Up to the time we started to make cine film (4/1000" thick) we had only been making film 3½-1000" thick. The extra 1½/1000" introduced a number of complications under the conditions under which we were, at that time, obliged to work. I found that the dope formula which was suitable for the thinner film, was quite unsuitable for the thicker film. The extra coating thickness had the effect of delaying the evaporation of the solvents in the coated dope layer to such
an extent that before the precipitants could set the dope coating a thin skin would form on the surface of the film layer. In adjusting itself to the contracting layer of dope underneath, this surface skin wrinkled and pitted. It became evident that the dope formula had to be modified, and I was a good deal bothered as to the direction in which the modification ought to be made for it took me a little time to realise the above explanation of the phenomenon. One morning at about 4 a.m. I suddenly woke up with Reichenbach's words in my mind "The dope must form a skin and not a varnish".

I at once reduced the amyl acetate in the formula and increased the fusel oil in it and began to get useful cine films. One defect I was never able to overcome satisfactorily, but that was due to the fact that having to coat on the tables both with dope and with emulsion the film did not get seasoned enough and used in time to shrink at the cut edges and, if kept too long before being used, a curve would set up so that the film would not lie flat.

Even our 2½/1000° film used to pucker, if the negatives made on it were kept in envelopes for a long time on account of this lack of seasoning of the back of the film which had been next to the glass.

We tried a number of experiments with a view to preparing a thin non-curving film by first coating gelatine on the table, then dope and then emulsion, but soon found that this was not a practical proposition. To strip the film and coat it with gelatine on one side and with emulsion on the other was also not a practical idea at the time for the film was too thin and unseasoned to be coated satisfactorily on our hang-up machine. Besides, we had all our work cut out to coat all the bromide and Solio paper required, since we had only one machine at our disposal.

It was in 1894, I think, that I first came across Hürter & Driffield's classical paper and first became interested in H & D work. Their paper struck me at once as fundamental and we got hold of a rather primitive H & D outfit supplied us by Marions. My first attempts showed that the inertia was not a fixed point for varying gammas. It was only natural that I at first
thought this was due to inexperience on my part in the working of the method, and it took me quite a long time before I felt certain that my observation was a fact and not an accident.

By studying sections of developed film under the microscope I finally arrived at the correct explanation of this phenomenon and many years after I discussed it in a paper I read at the R.F.S.

I became convinced in time that as a practical speed indication for ordinary camera use the H & D figures were not much more useful than the other speed indication methods then in vogue. Later, Leonard Robins' work with me enabled us to arrive at pretty constant speed values for a given film using a method of plotting which we worked out by which $\frac{1}{2}$ for $\gamma = 1$ could be correctly determined. I also became more and more convinced that the chief use of H & D work was to give the emulsion maker information about the characteristics of his emulsion and was only secondarily of use as a speed marking method. I felt too that the lighting and development conditions would have to be very fully studied and rigidly specified before we could begin to mark our materials with H & D numbers.

I did not publish any of this work during my stay with the Company for Mr. Walker had impressed on me that the Company did not favour any publication of work or of investigation results for fear that we might give away useful information. The reason was that I never, during my association with the Company, published anything on our work, and this fear, if one may call it so, of writing papers was, in my case, largely accentuated by my ingrained distaste of writing on a subject until I feel very sure that I have got at the fundamentals and am not likely to make too big a fool of myself when I state my conclusions. It is a weakness of mine, but there it is.

I must mention one man with whom I had a good deal to do from somewhere about 1892 on. This was Mr. John Jeffreys, one of the finest gentlemen I have met. Mr. Dickman introduced him into the factory. He was placed in charge of the bromide coating and was one of the most conscientious men I have known. He was very ingenious in devising little gadgets for simplifying work and also in thinking out
more ambitious devices with the same object in view.

One device he and I worked out together was an automatic signalling device which warned the coater when the stick rack was getting low. The top stick was made a dummy with a rope and weight attached to it. As the sticks got used up the weight descended and finally rested on an electric contact. This set a bell ringing when only half a dozen sticks were left in the rack. The rack would then be filled up again and the same process was repeated.

At the take down end one man used to lift the sticks down slowly while two others wound the paper true on a hobbled drum from which later, when the drum was full, the paper was rewound true on to a spool. Jeffreys designed an automatic arrangement by which the sticks were lowered steadily down an incline, the sticks being every time controlled by a counterbalanced cradle which slid on the inclined rails. At the bottom the stick was dropped and the cradle slid up again to take control of the next stick.

Mr. Cheffings came to us in 1896 and worked with Mr. Wells and then with Mr. Jeffreys. Mr. Desfrain also joined us about this time.

During 1895 and 1896 there were no startling changes. The sale of our products went on increasing steadily but, naturally, these wanted constant supervision. However, on the whole we were lucky and either discovered the causes of our troubles or ran out of them without quite knowing why. This, it is true, was a less satisfactory way of getting rid of one’s troubles but, of course, I did not grumble when that happened.

At that time we had no facilities for making our own climate in our coating rooms. July and August used to be my bugbears. It was not an unusual experience then for me to have six weeks or so on end when I practically lived and slept at the Works so as to be handy if anything went wrong at night with the coatings. The film coatings were the worst trouble. We had at these times to reverse the order of coating, i.e. we coated the dope before lunch and then at about 11 o’clock at night all the windows were opened and we trusted to the cool night air to bring down the temperature in the rooms to a sufficiently low point for us to be able to coat emulsion on the film with some hope
of it not taking too long to set.

A year or two after Mr. Senier became Manager we had the first refrigerating plant installed, and the film coating rooms could then be cooled down with some success.

About this time too the old iron smoke stack of the boiler house was replaced with a brick one. Mr. P. Williams was, at that time, helping me with such chemical and testing work as we could do, but the laboratory was of a very primitive nature, in fact, could hardly be called a laboratory.

Later on, when Robins joined us some time in 1897 he took on the laboratory work and Williams became Secretary to Mr. Senier. Sternes and Breckebury's brother also joined us about that time. Sternes was placed in charge of the emulsion making.

Some time in 1897 an extension was made of the old Office & Bromide building towards the road (Headstone Drive) and my office was transferred to this building on the ground floor next to Mr. Senier's new office, i.e. where Byrne's office now is. A decent laboratory was given me adjoining my office (where Bateman now works) and Robins worked there for me at routine chemical work - his brother "Carlos" helping me with H & D work.

Byrne was then a lad and was in the office, together with Hamilton Junr., under Mr. "Tuffy" Roberts.

Hamilton's father and Mr. Bentley (now a "publican and sinner"), both good fellows, were in charge of the stores on the same floor.

It must have been one day late in 1896 that I was walking up to the factory with Mr. Senier when he asked me whether I had heard that photographs had been taken of the bones in a hand by Professor Röntgen.

In 1896 or 1897 we set up a primitive X-ray set in the new laboratory and carried out some of our first experiments in this line. I was able to fix the source of the X-rays as being at the metal reflector in the bulb.
It was about this time too that the first extension was made of the old film building and six tables were transferred to this room (ground floor only). The old film coating room from which these tables were taken was converted into a Solio coating room and our old bromide coating room was reserved for bromide paper coating only. Breckenbury's brother was put in charge of the Solio coating room.

It must have been about 1897 that Mr. Dickman died. In him we lost our ideal leader, a most lovable man, a "gentleman" in the fullest sense of the word. Mr. Eastman was indeed fortunate to secure this loyal and capable helpmate during those early and most difficult years. You could not help trying to give of your best under two such leaders.

During 1897 - 1898 and 1899 much of my time, outside the planning of our work, the general supervision of our manufactures and of dealing with complaints, was devoted to the study of the H & D method of emulsion testing. Leonard Robinson, as I have said, helped me a lot in this work. To have to measure 10 to 20 strips in a day was trying work and no joke.

The first exposure apparatus we had was obtained from Marion's. I rather think it was designed by Mr. Cowan, Marion's technical man who was one of the first to work the H & D system practically. This apparatus was a long plate slide in which several plates (3 or 4, I think) could be exposed simultaneously. The sheath was actuated by a couple of rubber bands and by removing a series of pegs, one after another, as you counted the necessary number of seconds for the exposures, the sheath flicked on one step at a time, and at the last moment you had to push it home with a bang. The densitometer was a copy of the H & D primitive type as originally designed by H & D, i.e. with a grease spot for comparing the two illuminations.

It is extraordinary how efficient this densitometer can be within its limits, but the work with it is very trying and tiring.

The source of illumination for the exposures was at first a standard candle. In the new laboratory I set up a 10 candle
standard pentone lamp and a sector exposure apparatus which was made for us by Monroe and a more elaborate and better finished densitometer of the H & D type fitted with a Schmidt and Hamhoch light balancing eye-piece.

I found that the lamps (paraffin lamps) had to be carefully trimmed and to have the flames correctly centred on to the two openings. Once this was done we began to get good and concordant readings.

The sector exposor had the sectors stationary and the film strips were held in a disk (holding 10 strips) which revolved behind the sectors.

We worked out a technique which enabled us to develop the strips very uniformly for \( \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 2, 3, 4, 6, 8, 12 \) minutes. We could then short-stop the development rapidly, and in time worked out a method by which the \( \gamma \) curve and corresponding inertia and fog curves could be plotted out and the inertia and \( \gamma \) for any time of development could be given. The \( \gamma \) curve could also be accurately plotted out and its inertia and the necessary time of development to reach it could be given.

With our Stuber emulsion \( \gamma \) was not constant for a wide range of developments, but was very nearly constant between \( \gamma \approx 0.8 \) and \( \gamma = 1.2 \) the most useful gammas.

It was only a few months before I left the company that I began to realize that the light quality of the pentone lamp was not suitable and that better practical H & D values might be obtained by burning say a given weight of magnesium ribbon under specified conditions as the source of light.

The study under the microscope of sections (water swollen) of variously exposed and developed films helped me to an explanation of why the \( \gamma \) value would be a variable one and not a constant one, and also explained the characteristics of the silver deposit in a developed plate when viewed from the front or the back and also these characteristics for an under, fully, and over-exposed and a reversed plate developed for varying lengths of time. I began, in fact,
beautiful plumpness.

In 1901 my contract with the Company was due for reconsideration. Then early in the year I received a suggestion from my father's firm that as the older partners were getting on in life I should join two cousins who were in the business and help them to carry on the family tradition. My children were growing up and although I had worked 10 years with the Company at the Kodak Works, my financial prospects with the Company at that time were not such that the prospects offered me by my father's firm could be lightly rejected, more especially as sentimental and family considerations appealed to me very strongly. I finally decided to accept and handed in my resignation to Mr. Senier. Conceit in myself was rather chastened for Mr. Senier seemed rather pleased than otherwise at my decision, and my resignation was accepted.

I at once took steps to ensure, as far as I possibly could, that all the experience I had gained should be put on record, so that as far as I could foresee there should be no break in the continuity of manufacture. E. Robbins and I spent many hours collecting and collating notes, I dictating and he taking down all notes, formulae and instructions. I could think of which might be of use to my successor. It must have been some time in June or July that I finally bade farewell.

At a farewell meeting which, so far as I can remember took place in the new carpenters' shop, I was presented with a beautiful Watson microscope, one of the most thoughtful presents I have ever received, and Mr. Senier spoke some very kind words. I could hardly reply and express my thanks, my heart was too full now that the moment of parting had come, and all the memories of the past 10 years came crowding on me.

I have since found out that it was held in the new bromide room which had just been built.
that what we call reversal is only strongly to suspect strongly delayed development owing to a partially protecting sheath of colloidal silver being produced on the haloid grains of the emulsion as the result of the long light action. A reversed plate could be fully developed to an opaque deposit if only the development was carried on long enough. L. Robins and I were, I think, also the first to observe what I called "fictitious" reversal which is liable to show in the shortest exposures if a film or plate is inclined to be foggy and when development is carried out pretty fully.

About 1899 a big corrugated iron carpenters' shop was built where the end of the bromide coating building now is.

A small water-softenening plant was also installed where Mr. Cross' Office now is.

About this time too a new bromide coating plant was installed in which the emulsion was applied to the paper by an adjustable roller which dipped into the emulsion. After travelling a few inches the back of the coated paper came into contact with a large chilling drum and, after that, travelled into the drying room through a slot in the wall of the coating room which later was kept cool.

The run from the trough to the chilling drum was too short so that the air in the paper was not driven out sufficiently before the back of the paper came into contact with the surface of the chilling drum on which much moisture condensed. The result was that much of the air in the paper was forced into the emulsion as minute bubbles, and we had a lot of trouble with the "Glistners" thus formed.

The drying room was the first in which we tried to dry the paper by means of hot filtered air blown into the room along a duct running under the festoons. Before that we had always dried our papers by means of steam pipes under the festoons.

Towards the end of 1899 we were in the thick of the South African war. Maitland joined up but returned invalided in 1901, just before I left. The voyage home had done him a lot of good and I well remember being struck by his beautiful plump appearance. Worry and hard work have given him little chance since then to recover that
One thing I have always been thankful for, and that is, that the Company and I parted good friends. Many years after, Mr. Eastman showed me what a sport he was for when, during the War, I asked him, during that very difficult and trying period, to help me with the supply of surfaced papers suitable for the Seltona paper I was then manufacturing, he gave instructions to the Works that I should be assisted in every possible way, and even beryte coated a lot of Rivers paper which I shipped to Jamestown.

It has been a fine experience to return to the old field of my labours and to see how the little child I had helped to nurse in its babyhood and had helped, however imperfectly, to guide during its boyhood, had grown into a strong and healthy man.

The good fellowship and helpful friendship which has been extended to me since my return has also been a very fine experience, for it is a sign of good management.

We are again going through a time which, to say the least, is not an easy one, but if we steadfastly cling to the Eastman spirit and the Dickman spirit of never admitting that you are beaten, of first and all the time thinking only of the service we can each of us render, then I feel sure, may absolutely confident that, as in the past so now, the good ship Kodak will weather the storm and again sail into calm waters and fair weather. Grit, faith and faithfulness move mountains, so let us all be of good cheer.
3 continued:-

These stress marks did not show up for some time, but cartridges which had been stored for some months would, on development, show the stress marks as insensitive scratches or patches.

Some mechanical spoolers had been sent over from Rochester, but our people did not seem able to work them efficiently. My impression was that they were still of rather an experimental nature, and had not been fully tried out, so I got one or two of them modified, and was able to get fairly good spooling results under good tension, but I left before I could be quite sure that this method of spooling had got over the stress mark trouble, and that the output could be speeded up to the rate of that of the hand spooling method.

4.

The paper we were at that time using was not satisfactory in other ways. After a time the films used to get fogged. I believe this was largely due to a gradual sensitising effect of the paper on the film, for after a month or two spooled film was undoubtedly faster than when it was first spooled up, but then got foggier in time and slower and more gateless, i.e. the speeded up particles gradually become fog particles and the residual sensitive particles were the slow ones and these were present in insufficient quantity to give an image of any useful opacity.

The material with which the paper was printed was also not right. Sometimes, the numbers would show up dark on the film, sometimes light. I could not help thinking at times that the material was somewhat radio-active leading finally to local reverse. All this, however, is so long ago that I do not like to make any assertions. I only record the facts as showing how we were at that time affected by troubles which have since then been successfully mastered.
5. Some time in 1897 or 1898 Mr. Senier started the "Kodak Recreation Society". Kodak were, I imagine, one of the first firms to realise that the encouragement of social activities among the employees could be a very useful help towards fostering esprit de corps in a factory, and thus indirectly fostering pride in the good name and quality of the work.

He also began to see to it that the vacant land immediately in front of the main entrance to the Works buildings was kept in condition, grass trimmed and flowers planted, so that a feeling of tidiness instead of slovenliness was borne in on our employees.

I know that when Waterlow’s factory was built and began to get into production, our girls looked upon themselves as a cut above their hands in respectability.

6. Mr. Davidson tried to start lectures for the employees of the company so that they could get to understand something about the products we were marketing.

7. Farewell Dinner: Before I left for Madeira I invited a number of my factory friends to a dinner at the "Roxborough Arms" and a photograph was taken in the grounds. Many, if not most in the group, are, I am glad to say, in the land of the living; others, and among them one of my best friends - Joseph Thatcher Clarke - have gone west. I often glance at this picture when I want to recall some very interesting, some very difficult but, taken as a whole, very happy years of my life.

8. Hiscock was our head carpenter at that time - an excellent carpenter who was very thorough in his work, too thorough sometimes if you wanted an experimental job just knocked
8 continued:

Ward was a lad in his shop then.

Hastak Park, Rochester, NY

Hamm Works

1991

Pond

Main office building

Main office building

Film lab

Film lab

Krohn, F.;
I do not quite remember when Macom left, probably some time in 1899. Young Nelson Scott became our engineer. He it was who helped me to my first experience of a motor car. He had bought a second hand car which he was forever tinkering at. One Sunday he arrived at my house in St. John’s Road, Harrow, and asked me whether I would like a ride. We drove four miles or so and what with one thing and another going wrong, it took us about 2 hours to cover the distance. Quite good going!!!

It was during these latter years that I had my first experience of coating collodion solutions. Wellington, at that time, was trying to introduce a stripping film. He coated S.W. paper with a shellac varnish I think, then on this a gelatine coating, and then an emulsion coating. After exposing, developing, fixing, washing and drying, the negatives, the gelatine-emulsion film negatives could be stripped off the support. I found that by coating baryta-surfaced paper with collodion and then with gelatine and emulsion I could prepare a stripping film of a similar kind, but the results were not encouraging enough to warrant my continuing with them. I also, as a matter of interest, tried my hand at coating a collodion emulsion on glossy paper, but as no very immediate purpose was going to be served, these experiments were soon dropped. I learned, however, that for collodion coatings the dipping method was hardly the best.

I spent a good deal of time, some months before I left, in trying to spool our cartridge films mechanically instead of by hand. The hand method of spooling was quite a rapid one, but suffered from the defect that in tightening the spools the film was liable to get badly stress marked.
of what was going on the Company had a right to expect me to divulge such matters as had come to my knowledge.

Years after I had to dismiss three men from my Daling Works under very similar circumstances. I tried to get some evidence, which I knew one of my lads could give me, out of him, but he steadfastly refused. Remembering my own experience and early attitude of mind, I felt sympathy for the boy, and did not press him further. We remained the best of friends.