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Optometry in Manchester: the "Tech" years

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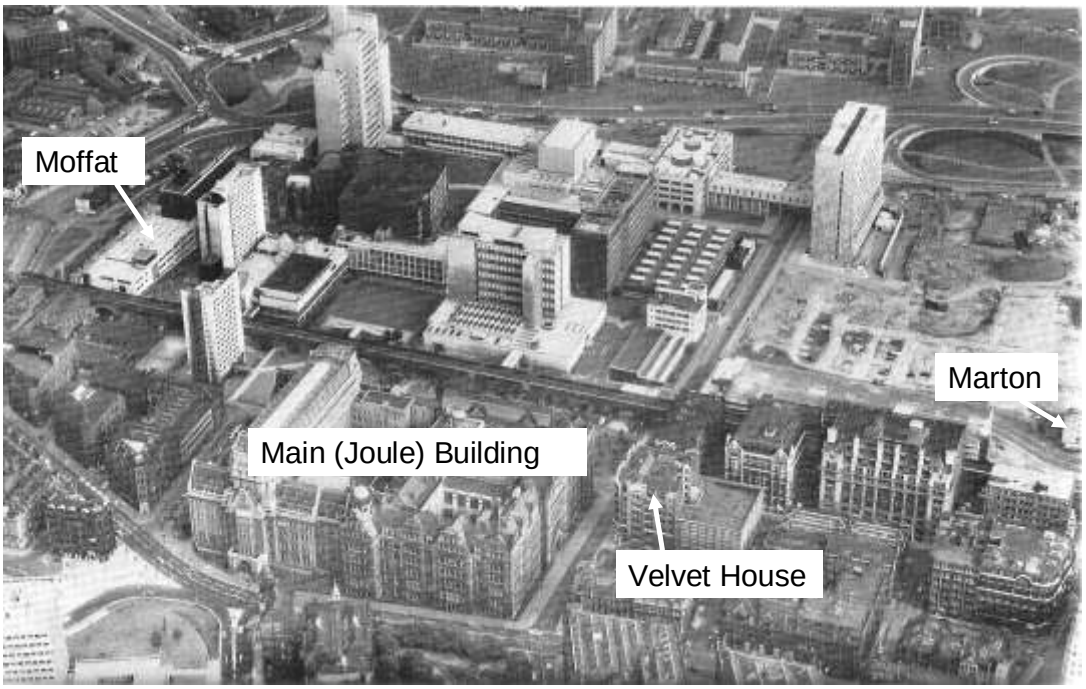
The author would welcome further memories of Optometry at Tech/UMIST prior to 2004 from ex-students and others who shared in the development of the department. Please send them to neil.charman at manchester.ac.uk

Those taking the course have never been great in numbers, for it has not been the policy to cultivate the multitude. …What of the future? One has quiet confidence that progress will continue. No big drums will be beaten, but the heritage of our forbears and the great tradition of the Victoria University of Manchester will be maintained. (Marton, 1966)

The Department is reasonably well equipped with all essentials: but over-equipment and fastidious equipage have never been encouraged, mainly on the grounds that if a student cannot do good work without such luxuries he will not do it with them (Anon, 1961 – probably Harry Marton)

It has been said that in Optics there is a "Manchester School". Such a statement is manifestly absurd, yet those who are and have been concerned with the course like to think that they have contributed to a tradition which, though emulated, envied, and occasionally calumniated, is found at its best in its native habitat. (Anon, 1961 – probably Harry Marton)



An aerial view from the north of UMIST in the late 1960s. showing the various successive homes of its Applied Optics/Optometry department

Preface

For nearly 100 years what is now known as Optometry has been taught in Manchester. From modest beginnings, the teaching department grew, sometimes erratically, just as its host institution underwent a variety of transformations from the Municipal College of Technology into a fully-fledged university, the University of Manchester Institute of Science and Technology (UMIST), and the various professional optical bodies gradually advanced and coalesced to form the College of Optometrists. While the early history as the Section of Applied Optics was under the aegis of the Physics Department, for the following nearly 40 years the department was independent within UMIST, first as the Department of Ophthalmic Optics, then as the Department of Optometry and Vision Sciences, and finally as the Department of Optometry and Neuroscience. This allowed teaching patterns and research activities to develop a unique flavour. Following the merger in 2004 of UMIST and the Victorian University of Manchester to form the new "University of Manchester" this independent existence has come to an end. The staff, students and courses are now part of the Life Sciences Faculty of the new institution. Undoubtedly exciting developments lie ahead but it seems a good time to take stock of the changes that occurred over the "Tech" years, and to salute the memories of the many individuals who contributed to what might be called the "Manchester tradition".

What follows is a personal attempt to set this history in perspective. As such, it is doubtless prone to a variety of errors and omissions. However, as will become evident, I have had the benefit of the memories of many ex-students and staff, as well as making use of the information contained in various relevant internal and external publications. I hope, then, that this modest offering is of interest to at least some readers and that it will, perhaps, remind them of younger, more carefree days within the department.

Background

In many ways, the development of academic Optometry in Manchester through the 20th century mirrors that in the United Kingdom as a whole. However factors which differentiate its progress from that in other optometric teaching centres are the developments in the teaching institution itself, with its progress from Municipal College of Technology at the beginning of the century to independent university status at its end, the particularly close links with the British Optical Association (BOA), and the vibrant and far-sighted individuals who catalysed the many pioneering Mancunian advances.

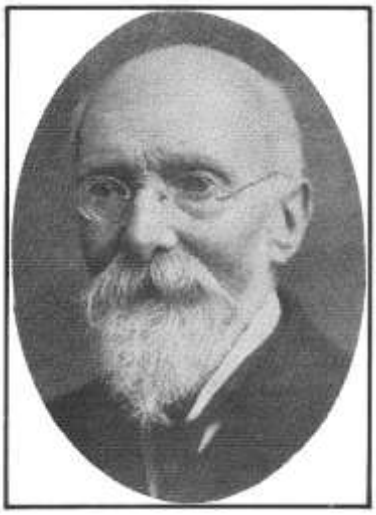
In the 19th and earlier centuries Manchester like other cities had, of course, numerous spectacle sellers. These were often also jewellers, druggists, watch-makers or photographers (it's interesting to note that, following its debut in 1891, in 1892 "*The Optician*" changed its name to *"The Optician and Photographic Trades Review*"). Manchester was also a centre for instrument manufacture, notably by John Benjamin Dancer (1812-1887) of 13 Cross Street, whose microscopes and other instruments had a national reputation. Spectacles were largely chosen on a trial and error basis, although manufacture had been controlled by the Spectacle Makers Company (SMC) since the 17th C. However, through the 19th C the development of systematic refractive techniques had been progressing steadily, particularly through the work of Donders, as described in his "*Anomalies of Accommodation and Refraction of the Eye"*, published in 1864. It is also appropriate to add that a Manchester optician, Abraham Franks, was respected by surgeons and doctors for his expertise: he lectured and published a text on the anatomy of the eye around 1850 and also a text on "The Use and Abuse of Spectacles" (Whetton, 1993). As a result of these and other developments, as the 19th century neared its end an increasing number of enthusiasts began to suggest that there was a need for a proper system of training and certification for those providing spectacles, and that this should include a knowledge not just of technical topics but also of more academic subjects such as optics, anatomy and ocular disease. This movement was at least in part fuelled by the continuing large numbers of dubious individuals who were still selling spectacles: in one town these included a hawker who had previously sold pots and kettles, a seaman-pensioner, an ex-pedlar of books and a man who sold spectacles at fourpence a pair. Another factor was a move by some members of the medical establishment to try to legally prevent opticians from using the terms "ophthalmic" or "oculist", as well as stopping them from using instruments like the ophthalmoscope (even in 1922 a letter to the BMJ fulminated "*The supply of spectacles by opticians is a scandal, and in many cases a swindle…").*

Two views of the Old Wellington Inn (still standing but relocated to Cathedral Square, Manchester), whose upper floors were used throughout the 19th C by a firm of instrument makers and opticians, hence the advertisement in the form of a large pair of spectacles. The second picture dates from 1866.

The obvious body to initiate some form of formal framework was the Spectacle Makers Company (SMC). However, in spite of making occasional encouraging noises, the Company proved to be resolutely supine when it came to action and, as a result, in 1895 a group met in London to found the British Optical Association (BOA) and devise a system of examinations, with three grades in ascending order of difficulty – Optic, Dioptric and Ophthalmometric, it being necessary to complete the lower grades before the final Ophthalmometric stage was reached. Significantly for Manchester, several of the members of the founding Committee had strong connections with the region, notably the Secretary, Robert Sutcliffe (assisted by his son John H Sutcliffe), natives of Rochdale, and Samuel Cowan Senior, who although originally an Ulsterman had several practices in the Northwest, including one in Old Market Place, Manchester. Robert Sutcliffe had, in fact, already held discussions in Manchester with Samuel Cowan and others in 1893 and 1894, to advertise his ideas and sound opinions before calling the London meeting at which the BOA was formally established. He had earlier studied privately under an ophthalmologist at Guy's Hospital in London and in Paris where he learnt the then relatively-novel art of retinoscopy. He was to go on to devise several instruments, such as optometers and keratometers. His son had studied as a medical student at Manchester Royal Eye Hospital and Owen's College, Manchester, as well as gaining optical experience with his father.

A Sutcliffe keratometer (part of the Department's collection of instruments although not, as is sometimes alleged, still in use for contact lens fitting)

The first BOA examinations were held in Liverpool in 1897 (many fascinating details of these examinations, and other aspects of the early history of the BOA will be found in Margaret Mitchell's "*History of the British Optical Association 1895-1978"*, published by the BOA in 1982. See also JH Sutcliffe, Ophthalmic Optician, 20 February 1965). It may be remarked that the new BOA Council had cautiously resolved that, among women, only wives and daughters of members could be eligible for examination (and that although they were allowed to be members of the BOA they were not eligible for any office or membership of the Council). The emergence of the stripling BOA stirred the SMC into action to introduce its own examinations in 1898. The two sets of examinations were to continue in parallel until well into the second half of the 20th C, allowing students to adopt a belt and braces approach, taking both sets of exams but only needing to pass in one to allow progress towards qualification (a further opportunity to spread one's bets was later to be introduced with the Scottish Association of Opticians' exams). Other relevant institutions conducting some form of examination included the Liverpool-based National Association of Opticians (NAO) and the Institute of Optical Science (IOSc), both of which later amalgamated with the BOA.



Robert Sutcliffe and Samuel Cowan Senior

The emergence of training institutions and the Manchester course, 1900-1939

Although the BOA's formulation of a syllabus and examination system provided a skeleton framework for education, it could not deliver any teaching, so that any candidates had to struggle to obtain the required knowledge, particularly of technical optics and physiology. Failure rates were high. In the Optics and Dioptric Grades candidates wrestled with questions involving such topics as transposition and spherical aberration, while in the Ophthalmometric Grade questions asking what the indications were for "incipient glaucoma" or how one might diagnose tobacco amblyopia were equally challenging. JH Sutcliffe was appointed official instructor by the BOA in 1899, and apparently conducted both private and correspondence classes (including instruction in the use of the ophthalmoscope) but this was hardly a solution to the problem. Other individuals did, however, also offer some instruction. Writing in the "*Optician*" in 1930, JS Wallbridge recalled

"*I had the great privilege of being a pupil of Lionel Laurance during 1989 and 1899 and many of his emphatic remarks remain vivid in my mind. He was practically the founder of the old Manchester and North of England Optical Society and he introduced it to most of his pupils towards the end of the course…..he marked some of my homework "idiotic" (but) he was a charming fellow and sowed many sound seeds in optics…. he implored us never to cease studying…"* (Lionel Laurance was an influential figure who continued to teach and produce textbooks for many years. His "*Visual Optics and Sight Testing*", written in conjunction with H Oscar Wood, went through at least four editions between 1916 and 1936. It was published by "The School of Optics Limited", 2 Guildford Place, London, although it is not clear whether the latter existed as an actual teaching institution).

According to Harry Marton (writing in the *Ophthalmic Optician* on 12 November, 1966), classes in Manchester were being conducted on one evening each week by a Mr Wilkins in

1904, to be followed by Leonard Lewis Liebermann, FSMC, FBOA, who is described as "a remarkable character" in the *Ophthalmic Optician* (Anon, 1961). Unfortunately nothing more is known of these gentlemen at the present time.

It was not until 1903 that an appeal was issued for funds to start classes in Optics at the Northampton Institute, Clerkenwell, a two-year full-time, and also a part-time, course in *Technical Optics* being underway in 1908. Other centres followed rather slowly but the need for better education was underlined by a legal decision in 1910, after a case (Markham v Thomas) in which a Manchester optician failed to diagnose keratoconus, that sight-testing opticians should have the duty of examining the eye for disease.

A formal course in Optics was eventually started at the Manchester Technical School, or School of Technology, under Professor Gee of the Applied Physics Department in 1913. The School had grown out of The Manchester Mechanic's Institution (founded 1824), which was dissolved in 1890. While the concordat of 1905 had resulted in the Technical School (funded by the City) providing the Faculty of Technology of the Victoria University of Manchester (which was independently funded), it still had a fascinating selection of day and evening non-degree courses of various durations, from millinery to colliery management, and from wig-making to Portuguese, many of these being conducted in the evenings and Saturdays (of nearly 6000 students in 1905, only 635 were attending day classes). Thus "*Applied Optics*" was only one of a huge portfolio of courses, all firmly rooted in self-improvement and practical applications. One feature of the concordat was that the School could award BSc and MSc(Tech) degrees but nothing higher: this was to affect later postgraduate developments in Optometry.

The Main (now Joule) Building Manchester School of Technology, shortly after its opening by the then Prime Minister, A.J.Balfour, on 15th October1902. The Sackville Street entrance is to the right

It is not clear just what the first Manchester course covered, nor whether it continued through the period of the First World War (1914-18). Presumably it was very much

Physics-based and concentrated on the optical theory and its applications, although part-time lecturers may well have offered some clinical material. Recruitment was doubtless helped by the BOA offering, in 1913, to their examination candidates an unlimited number of optical scholarships tenable at evening classes at any polytechnic or institute. This sounds generous, but the offer only covered evening class fees up to £1! It is interesting to note that the First World War saw the beginnings of today's healthy relationship between optometrists and the Manchester Royal Eye Hospital, opticians being employed there during the war to carry out refraction work, although this venture was later to die out.

In any case, following the interruptions of the wartime years, the management of the School decided in 1920 to introduce short courses for opticians, geared to the examinations of the BOA and including both "scientific" and "clinical" material. This resulted in the recruitment within the first week of the announcement of 46 students for the Dioptric grade and 10 for the Fellowship. Most of the students seem to have already been working in either spectacle manufacture or sales, or as opticians, during the day. The classes were held in the evenings. Among the lecturers for these first classes was W.B.Barker, who later was to play a central role in Manchester's optometric education system: he had been Deputy Superintendent of the Army Spectacle Depot for the North Western area during the years 1916-18. It appears that the sole role of the classes was preparation for the professional examinations: students did not gain any specific qualification from the College of Technology

Further Mancunian developments were to follow. In 1927 the then Head of the Physics Department, Dr L.S.Palmer, appealed for the active cooperation of local opticians in the development of Applied Optics classes and also for the presentation of apparatus for use by the students. The response, and the organizing ability of WB Barker, helped to promote the inauguration of a full-time, 2-year day course in 1928, although evening classes, which had developed into a 3-year training, continued. While full-time Physics staff delivered the optics teaching and were responsible for the overall management of the courses, most of the other lecturers were part-time, with W.B. Barker being generally responsible for the direction of the course. The first-year teaching was concentrated in the main College Building but there was now a distinct area devoted to Applied Optics/Ophthalmic Optics/Optometry on "N" floor in Velvet House, on the opposite side of Sackville Street: this was to remain Optometry's "home" until the late 1960s. The Physics and Chemistry lectures were given in a lecture room in the main building which was directly below the Department of Brewing (later to become Biochemistry). Apparently a College decree stated that alcoholic beverages brewed on the premises must not be consumed but drained away. Legend has it that the sound of the lamented "eau de vie" gurgling through the downspout from the floor above at the end of any optics lecture was always accompanied by hats off and a minute's silence from the Optics students. According to Marton (1965) the first day students included Joan Barnett, W G Beardsall, G Cripping, Rosa M Dalton, M Livesey, LC Smith, Winifred Thomas, RH Tomalin and PD Pattreiouex, so that by this stage at least a minority of women students was included.

It is interesting to note that in 1927 W.B.Barker had presented a paper at the BOA Congress on the possibility of university degrees in Applied Optics, a dream that was not to

be realized for another 40 years. During the pre-war years the Manchester course received considerable support from the BOA which, over a 5 year period starting in 1928, granted £200 a year to support the expenses of running the course. The "Applied Optics" course in this immediate pre-Second World War period was approved by the BOA Council for mechanical and technical training, clinical training and clinical experience. As a demonstration of this approval, the BOA awarded, in 1930, two scholarships of 40 guineas for the Manchester day course.

One important feature of the development of academic Optometry in Manchester was the early emergence of research activity. During the 1930s, the Head of the Physics Department, Dr Harry Lowery, who had succeeded Professor Palmer in 1928, was a regular contributor to the BOA's *British Journal of Physiological Optics* on topics of direct interest to optometrists, such as dynamic retinoscopy. Dr Lowery became closely connected to the BOA, serving on its Education and other committees, acting as an examiner, and eventually becoming an Honorary Fellow of the Association. He too felt passionate about advancing standards in optometry and it is interesting to read the following summary of his remarks on the education of opticians, made at the 3rd BOA International Congress in Oxford in 1935:

Opticians called themselves a profession as distinct from a craft. That implied a certain preliminary standard of education on the part of the student. In the BOA this was recognized by demanding matriculation or its equivalent. As an examiner for the BOA diploma he felt that they must aim at achieving a University degree standard in examinations. They had not yet quite reached that stage. He was afraid that opticians would not get far in academic circles with workshop practice or routine sight-testing. A thorough grounding was required in physics and mathematics to which, in his opinion, insufficient attention was paid, and a tremendous amount of study on the physiological side. Elocution might also be considered a necessary part of the optician's training. They should endeavour to bring out personality and that could only be achieved by a thorough training in an educational institution. ..A good Student Union was of inestimable value in giving students an opportunity of developing themselves and leading others.

Some *of the delegates at the 3rd BOA International Congress, Oxford, 1935*

It was due to the good offices of Dr Lowery that it became possible for suitable people with optometric backgrounds to be accepted to work for a research degree. The BOA was keen to promote the development of active optometric research and, in 1930, it awarded three Research Scholarships of 20 guineas each for three years to be tenable at Manchester. The first fruits of the latter awards were seen in 1933 when MSc(Tech) degrees were conferred on Kate Smith and Dorothy Barker, daughter of W.B.Barker.

Memories of the inter-war years

Some of the flavour of the part-time evening course in the inter-war years can be gained from the memories of the late Sam Howarth, recorded around 1980. Sam was working during the day in a wholesale optical workshop:

"In and around 1927, aged 19, I was admonished to mend my ways and take life seriously by Rosie Widdall, a lady worker in drilling lenses. She advised me to consider going to Manchester Municipal College of Technology to try to get a certificate to enable me to dispense glasses – perhaps even to give a sight test – it might be handy if at any time I wanted to use it. Subsequently in 1927 I entered the portals of the College of Technology to enroll as an evening class student in Optics. I thought that the entrance hall was very impressive, with its statues of the Greek Philosophers), *as I passed through, cap in hand*

(note – the statues disappeared at some later stage, probably because the life-size figures tended to be the target of a variety of student japes).

Evening classes involved two or three evenings a week. During the first few weeks we were introduced to Physics – we called it "Light" – when we were taught trigonometry, umbras, penumbras, the thin lens formula, image sizes, refractive indices and other topics by a Mr Adamson. He quickly filled the blackboard with figures and, if any student was looking a bit blank, would come round and finish his problem for him. We also had a certain amount of homework. Attendance at the course entailed working in the wholesale optical workshop during the day, a quick tidy up, and a dash for the train to get to "Tech" by 6.30 pm, to leave for home at 9 pm. There were about 25-30 males and one female (Miss Seltzer) in the class. The students came mainly from the environs of Manchester, some from as far away as Oldham and Rochdale(!).

From the main building we transferred to "N" floor, Velvet house, across the road (this one-time cotton warehouse, now divided into flats, was only leased by Tech in 1928, so that the Optics course was one of its first occupants). *The department comprised a main central area which could be divided up, by an ingenious movement of black curtains, into cubicles for sight testing, a corridor for retinoscopy (a separate source and plane or concave mirror were used), and another area for ophthalmoscopy or lectures. There was also a main room with laboratory benches equipped with sinks. This room was used for lectures and workshop practice, when we used the gas jets on the benches for soldering with our brass blowpipes. One or two other rooms were also used for lectures and other activities.*

The main sight-testing cubicles were fitted up for the direct method of sight-testing at 6m, when we used only the fogging method, the cross-cylinder technique being unknown. Students practiced the art of sight-testing on each other, when the curtains were not used: each pair formed up alongside similar pairs to fill the room. When the "examiner" wanted to ascertain the "blackest" line which the patient could see on the chart, this necessitated a 6m walk to point out the line! Dummy lenses were used.

In the early years after the formation of the department I believe that Mr Leberman was the senior part-time lecturer. During my student days, the senior part-time lecturer was William Boulton Barker, FBOA (Hons), who also had the practice of Rowley's in Victoria Street, Manchester. Other lecturers included P.A.Gavin, also from Rowley's, and Geoffrey McKellen from North Staffordshire, a very energetic character. There was also Frank Schofield, who worked in Oldham and now resides in Merseyside. Dr Parker of Bury taught diseases, continuously smoking cigars and talking of tobacco amblyopia. He passed round pictures from Haab's Atlas of Eye Diseases; the latter had, incidentally, been edited and translated by W.B.Barker (note: it was also serialized in the British Journal of Physiological Optics, published by the BOA). *Mr Cottam was the lecturer in workshop practice.*

The lectures in Visual Optics, Physiological Optics, Diseases and "Muscles" were largely given by speakers sitting down and reading quickly from textbooks. Woe betide the student

who paused through some temporary malfunction of pen or pencil – there would be gap in his knowledge. P.A.L.Gavin appeared to be a gentle gentleman, always helpful. On one occasion, however, he failed to get the rays of light that showed the reversal point in retinoscopy correct after three attempts on the blackboard, so went out for a smoke. The expert retinoscopist Geoff McKellen leapt into the breach and before we knew it – there – the correct alignment of rays on the blackboard!

The course was of 3 years duration, I believe and, after the first year, we were encouraged to buy our own retinoscopes and ophthalmoscopes: Thorington plane mirror 2/6 (12.5p) and May ophthalmoscope £2-10-0 (£2.50). Retinoscopy was conducted in the corridor formed by drawing the black curtains down the full length of the room. The light was from suspended shades arranged every few feet, each being cylindrical with a hole 1" in diameter on the side to act as the retinoscopy source. Dummy lenses were used with trial frames and, when neutralization was considered to be present, the patient was marched through gaps in the curtains to the 6 m reading of the Snellen chart. We were encouraged to make our own Snellen charts. I was annoyed since, although I had made a very good one, I only got 6 marks out of 10. This was because I had put on the letters of my neat and tidy chart serifs which over-ran the 5 minute angle of the Snellen letter format!

The lectures and optical activities were conducted during a heavy barrage of thumpings and hammerings, because the floor above "N" floor in Velvet House was tenanted by prospective plumbers.

As far as I was aware, there was also a small day class for ophthalmic students. The only two I knew were Dorothy Barker, W.B.Barker's daughter, and Miss Wallwork, Douglas Wallwork's daughter, from Salford".

Sam was later to become one of the Manchester's longest-serving part-time teachers. His particular interests were binocular vision and orthoptics, although he also taught Occupational Optics, where he could draw on his wide experience of the visual problems associated with the then-thriving industries of South Lancashire, in particular the cotton industry. Geoff McKellen (1903-1985) worked at that time in WB Barker's practice and later became one of the founding members and President of the British Contact Lens Society, with a particular expertise in scleral lenses.

(Left) Sam Howarth at the time of his retirement and (right) Geoff McKellen

Another view of the Applied Optics section and its staff in the 1930s, which confirms many of the details given by Sam, is given by Tommy Stokes:

It was July 1935 when our class took the BOA's examination at Velvet House. I had already been for an interview for a post in South London and had agreed to start as soon as possible. Jobs were difficult to find in those years of depression. W.B.Barker was our "Head" and he let me leave a few days before the end of term. He was a fine lecturer and kept us scribbling our notes, with occasional reminders about our diet – carrots for sight and fish for brains! Mr Cowan-Meadley was another enthusiastic tutor, giving a kind word and sound advice as we focused our microscopes or did dissection. Dr Lamb from the Medical Faculty could keep our attention for hours with his Physiology and Anatomy lectures. Mr G McKellen kept us struggling with the plane mirror retinoscope and trying to see fundus details with ophthalmoscopes. There were others too, all dedicated to their particular subject, and I feel that we were blessed, and always have been, with sound teachers throughout the years.

At Velvet House, the main lecture room was also a physics laboratory and an adjoining area was divided into cubicles for practical work. We made our own test charts. The redoubtable Mr R Sutcliffe, secretary of the BOA, was there on examination days, a white-haired sprightly old gentleman, whose eagle eye was sure to catch some shaking student, who would be expected to answer a question on some obscure topic! However, the years

passed quickly, with pleasant hours in the reading room (lovely soft leather arm chairs!); listening to Dr H Lowery playing the organ at lunchtime for the BBC; table tennis and watching the brothers Kwok playing remarkable shots; football, cricket and rugby games. We won the Christie shield in 1935, beating the Medicals by 3 points to nil; neither side could score a try. What a tussle! Occasionally the "Tech" 1st XV had Mr C.B.Holmes fleeting down the wing, but he had to be careful because he was training with the England squad as a sprinter (Bolton-born Cyril Holmes represented Britain as a sprinter at the 1936 Berlin Olympic Games, unfortunately getting injured, and was Empire record holder for the 220 yards for twenty years. He also played RU for England in 1947-48).

The job in South London was disappointing, so after a few months, a much better post came along in the Potteries. Within a couple off years, the signs were clear that war clouds were gathering and that volunteers were required for the armed forces. I joined a territorial Searchlight Battalion of the North Staffordshire Regiment, and in early September 1939 , had 12 hours notice to report to the Drill Hall by midnight……..

A newspaper cutting from Shrove Tuesday, 1935, showing Optics student selling pancakes on Rag Day. Tommy Stokes is the figure in the rugby shirt in the left foreground. The girls are identified as M Hood, P Wallwork and M Haslam.

It's an interesting comment on the times that, in his memoir "*A Life's Journey*" Tom Stokes describes how he initially signed up for a 5-year apprenticeship as an optician at 7/6 (38p) a week, although after qualification in 1935 his wages rose to £2 a week!

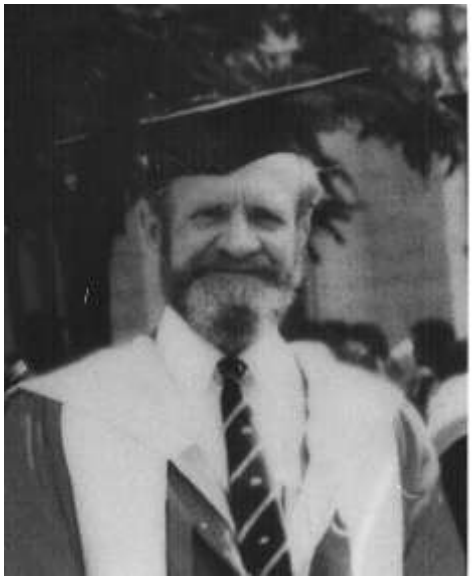
Slightly later memories of the 1930s come from the perspective of one of Manchester's day students, Jon Naylor who, around 1980, recalled his experiences, starting with the first steps in his academic career in Optometry as a hopeful 17 year-old (he was later to become the first UK optometrist to gain a PhD degree, being supervised in Manchester by Professor George Rochester FRS, and went on to be a Senior Lecturer in the Department in the 1970s):

"I suppose that the first time that I entered UMIST (then known as the Manchester Municipal College of Technology) was early in the summer vacation of 1936. The purpose of my visit was to sit for the Entrance Examination because, although I had sufficient School and Higher Certificate qualifications to gain exemption, it was on the basis of this examination that Scholarships were awarded: the one that interested me was, of course, was that endowed by the British Optical Association, to the value of £40 per annum – a considerable desideratum with College fees at £33 a session! At this time I was not unfamiliar with the Owens College as my sister was reading Botany there and I had paid several visits for examination purposes, but "Tech" was unfamiliar territory. Then, as now, the novice was faced with the choice of turning right or left on ascending the stairs from Sackville Street and with the same choice again, whichever flight of stairs he took, on reaching C floor. I cannot recall by what route I did arrive at C floor but I remember well traversing what seemed to be miles of polished parquet flooring in my search for the exam room on that floor. I remember, too, at one corner, encountering a young woman bent on the same quest: alas, it transpired that Optics was not her metier but that she wished to explore the mysteries of bread making and confectionery, a popular course at the Tech in those pre-war days. She was shortly to see a sample of the College wares in these comestibles since, as we entered the refectory on D floor in the luncheon break a bread roll, flung by some blithe spirit at a departing colleague, narrowly missed us. This bread throwing, I discovered, was not an unusual activity; frowned on, of course, by the refectory and academic staff alike, but frequently practised at the slightest provocation. After all, the ammunition was free, a large platter being set on each table and replenished as required: perhaps over-indulgence in this pastime was one of the reasons why the cost of a substantial meal shortly rose from 11d to 1/1d (4.4 to 5.5p) - waitress service, of course!

This refectory, together with the Students' Union rooms on C floor was important to the Optics students of those days as a forum with those of other disciplines, because the department, as now, was separated from the Main Building. It was based, in fact, across the road in Velvet House on what was then designated as "N" floor. Three laboratory-cum-lecture rooms, a large L-shaped area capable of being divided by curtains, and two minute offices constituted the accommodation. One of the offices bore the imprint "Staff Room" and, since there were no full-time staff, was variously occupied by such alumni as "Dave" Stewart (Anatomy), "Freddie" Lamb (Physiology), "Jack" Meadley, "Geoff" McKellen, and, of course, the incomparable W.B. ("Billy") Barker. None of my generation will have failed to notice the omission (till now!) of Winifred Thomas, neutralizer and transposer par excellence! Alas, she left us after a year or so to marry and transfer her talents to Bradford. In her wake came H.B. ("Harry") Marton, in recognition of whose work the Marton library and Building were later to be named.

I may be forgiven for observing that the other little room was of almost equal importance, for it housed a succession of research workers, many of whom held Research Scholarships awarded by the BOA. In those far-off days, Applied Optics was a 2-year full-time or 3-year part-time vocational course and, in order to be awarded the postgraduate degree of MSc(Tech), it was necessary to perform well in the College and BOA exams and to spend 3 years in full-time research. In retrospect, I have often wondered how those devoted characters stood the strain. No technical assistance, no full-time supervision, no apparatus unless self-constructed, and no funds might well deter less resolute spirits. It was slightly easier for scholarship holders, of course, because they received £20 per annum and the College required only 12 guineas fees, plus a guinea and a half for breakage deposit, Union fees, etc. Imagine having over £5 a year to spend on books, food and travel! Sic transit gloria mundi!

It appears that classes in optics were first started in Manchester by Professor Gee, in 1913. I imagine that, in those days, as in those that I recall, persons desirous of studying optics simply wrote to the Registrar signifying their wishes and, if suitably qualified, were admitted without let or hindrance. Not for them the intricacies of the UCCA form or the formal interview! Nor, indeed the awe-inspiring entrance requirements that appear essential today! The comparative ease of entry, however, did little to attract entries. In my first year (1936) there were 7 of us compared with 2 in the previous year, while entries in '37 and '38 were 4 and 3 respectively. The year of '37 was remarkable for the pulchritude of its 3 female members: the solitary male member, with whom I travelled more than a few miles over the years, will surely agree that he attracted more envy than admiration from his seniors! Be that as it may, present-day students may well be wondering how it was possible to include all the intricacies of an "optometric" syllabus into a 2-year course. The answer, of course, is that the session lasted 40 weeks and, as I recall, these were fully occupied. The years have, of course, brought changes but these, I think, have chiefly been in emphasis: the basic syllabus remains essentially unaltered. Photography, German and Zoology have made room for "options" perhaps! An inestimable benefit of small numbers was that it was possible to receive almost individual tuition and I hope, and believe, that we took full advantage of this. Against this was the appalling lack of patients, these being restricted to a number of elderly ladies and gentleman from the Oldham Blind School, who visited us once a week in the latter part of the final year: advanced retinitis pigmentosa, opaque corneae and even anophthalmos were readily available for study, but less dramatic conditions were conspicuous by their absence! In compensation (if that is the word!) patients were not available, either, for the relevant subject in the BOA examinations: indeed, viva voce examinations were held in two sections, with individual examiners for Internal and External Abnormal Ocular Conditions. It was possible, therefore, to be judged competent at External Conditions and incompetent at Internal Conditions. Possible? I can assure you that it happened on at least one occasion…."



Jon Naylor as a member of the Tech football team, ca 1938 (left front) and in later years, when a Senior Lecturer in the Ophthalmic Optics Department, ca 1978

Stanley Allen confirms (writing in 1997) that full-time student numbers were very low in this era:

*"In 1937 the age of admission was 16, and I was born in 1920, so was accepted after an entrance exam, which was mostly general knowledge. The late, well-loved William Boulton Barker was in day-to-day charge of the department, and we were on, I think, the fifth floor of Velvet House. Nearly all the lecturers were part-time, being in practice in Optics. They were Geoffrey McKellen, J Cowan-Meadley and Mrs Winifred Cuthill. Dr Taylor, of the Physics Department, was formally the Head of Department (*Dr Taylor was later to become Head of the Department of Physics at Cardiff University, and was an international expert in the physics of music and optical transforms: he gave a televised series of Royal Institution

Christmas lectures on "Sounds of Music"). *Dr Smare was the Physics lecturer* (Dr Smare was later to become Head of the Physics department at Bradford University). *Dr Stewart, from the Medical Department of the University, lectured to us once a week on Anatomy and Dr Lamb on Physiology.*

The late Harry Marton was a regular visitor to the East Lancs Optical Society but he did not lecture at Velvet House during my time (Harry Marton was, of course, in charge of the Department during the post-war period*). In my time it was only a two-year course with the Diploma FBOA (Fellowship of the British Optical Association) after it. I studied on my own whilst in practice and took the Honours Diploma. I was then newly married and pretty hard up, and I phoned J Cowan-Meadley, who lectured in Histology, to ask him what books I needed to study for the Hons. exam. He lived about 10 miles away and came to my home 2 or 3 times to revise with me, and would not accept a penny in fees – a kindness I shall always remember.*

Professor Jackson lectured to us in German. We all thought that it was a complete waste of time! We were told that many of the optical text books were written in German but, firstly, we believed that they were translated into English and, secondly, that two hours' German a week could not equip us for such technical books!

To my surprise, in my year there were only four of us: three girls and myself. You can imagine the ragging that I got from the second year! (see memories of Jon Naylor, above*). It was lucky for me, because the girls didn't take the course too seriously, and I often had private tuition, being the only one at some lectures. The girls had wealthy parents and mine had to sacrifice to send me to Manchester, so I was anxious to qualify as soon as possible. I completed my second year in June 1939 and started work the day after war was declared, September 4th 1939.*

I suppose that from today's viewpoint standards were low, but at least we did have good tuition on the practical side of optics, because of the part-time Ophthalmic Optician lecturers."

A further pre-war memory comes from Noel Evans, who was himself later to serve the department for many years as a part-time lecturer in Visual Optics and an instructor in the clinics. It relates to W.B.Barker, head of the department during the war-time years (albeit part-time), and twice President of the BOA. He was finally to retire in 1948. Noel writes:

William Boulton Barker, or "Billy" Barker as we, his students, knew him, was a large man. His somewhat intimidating appearance was enhanced by his formal dress, a winged collar and gold-rimmed spectacles whose powerful convex lenses conferred an almost judicial quality on his pronouncements. Often there would be some dry wit but only rarely was it accompanied by a smile and our notes on the diseases of the eye were dictated with great solemnity. He was well-versed in pathology, having spent some years as a medical student, but I thought that he could well have been a High Court judge. A miscreant would have trembled before him, such was his presence. To a 19-year-old he looked every inch a man of authority. Like the leader of that time, Winston Churchill, he had a characteristic foible,

smoking not cigars but Royalty cigarettes. These were king-sized before the term became current, but where he obtained these incredible luxuries no one seemed to know.

Although he is well remembered for his prominence in the activities of the profession, and particularly the BOA, he was also attracted towards vision research. The problems of binocular vision were fashionable at that time and an eikonometer was manufactured to his design. He also thought that the relative sizes of the cerebral hemispheres had significance and used a hatter's conformometer to make this measurement. This was a device like a bowler hat without the crown, which recorded the shape of the skull in the region of the hat-band by means of a series of radially-located rods which could be pushed inwards to contact the head (this device remains in the department, an object of awe and mystification!). *On the basis of a chart, so produced, prisms could be prescribed, base-in before one eye and base-out before the other, but of equal degrees. This is an example of his original thinking which comes to mind, but there must be many others.*

My most memorable recollection of WBB was when I sat down before him in the summer of 1940 for my BOA Finals. We were on N floor of Velvet House which accommodated the Optics Department in those days. My immediately preceding examination had been in subjective refraction and I had employed the crossed-cylinder technique which, at that time, was quite new-fangled. Much to my amazement the examiner was ignorant of the method and I found myself acting as demonstrator. My resulting euphoria from this encounter was rapidly dispelled, however, by the inscrutable and soul-penetrating gaze of the great WBB. I was given some profound question concerning the visual system on which to dilate. After I had produced a totally inadequate response, my examiner proceeded to devote the remainder of the interview to a prolonged and erudite exposition of the topic, delving into the comparative anatomy of other vertebrates and related matters. I crawled away. He had, of course, given me a pass. Behind those austere features was a man of gentle and charitable disposition who is remembered with affection.

The young W.B.Barker

Another student of this era, Arthur Tennant who started at "Tech" in 1940, adds support to Noel Evans' description in a letter of 1991:

"*Indeed, he was just as you describe him: the extremely dignified Churchillian appearance; the thick, convex lenses; his chain-smoking of Royalty cigarettes; his deliberate slow dictation at lectures; and the formal attire which was then the only correct wear for any respectable professional. However, I must say that he never seemed intimidating to us. In spite of his severe appearance we never thought of him as anything but kindness itself and respected his wide knowledge of many subjects and disciplines. On the other hand, none of my fellow students would ever have thought of him, never mind refer to him among our fellows, as anything but Mr Barker. Never, never, "Billy". Nor for that matter did we think of H B Marton as anything but Mr Marton. The first time I heard the latter referred to as "Harry" I was not immediately aware of who they meant and then was as shocked as if Zeus himself was called by his first name – assuming, of course, that Zeus had a first name. All in all he was a first-class teacher, a kind and great personality: I am certain that my fellow students at the time thought of him with great affection.*

WB Barker (1883-1950) was, in fact, a major figure in the development of British and Mancunian Optometry, occupying a central position in professional and educational affairs for more than 30 years. It was he who was responsible for organizing Manchester's modern, expanded course in 1927 and, as the Principal Visiting Lecturer in the Applied Optics Section, he oversaw its further development. One of his many political contributions was in the preparation of a Bill to register opticians, which in 1927 led to the Optical Practitioners (Registration) Bill and he was later to become the first Chairman of the Association of Optical Practitioners (AOP). As Noel remarks, he also had a real interest in research, publishing the first paper on the treatment of version heterophoria in 1926. He was an early exponent of the use of the slit lamp and designed an ophthalmoscope. Following his contacts with The Dartmouth Eye Institute in the USA, he developed an interest in aniseikonia and designed his own eikonometer. He was also one of the first to fit contact lenses. In the spare time left by his various other duties he acted as Editor of the *British Journal of Physiological Optics* between 1925 and 1949. As mentioned earlier, the pages of the BJPO included his own translation from the German of Haab's *Atlas of Ophthalmoscopy* with reproductions of its colour plates, a resource of immense value in improving UK optometrist's knowledge of ocular pathology. After a lifetime of service to Optometry at Manchester and on the broader national and international stage Billy Barker was to die in harness at the age of 67, in 1950.

As a gloss on Noel's memories of WBB, which originally appeared in the Newsletter of the UMIST Association (Optometry) group, it's of interest to quote the following letter:

"I was surprised and delighted to read the recollections of Noel Evans about WB Barker. I was a student from 1930-35 (two years Optics BOA and three years for MSc(Tech)). Also I am WBB's daughter.

I am now nearly 80, so some recollections are a bit hazy! However, I think that the organ player was Dr H Lowery, Head of the Physics Department and a devotee of Bach. He

played the UMIST organ on the BBC Overseas programme and he also played the organ at my wedding in 1935. He did a lot of research to make an organ using photoelectric cells. (It's interesting to note that Dr Lowery gave a recital to the delegates on the College organ when the BOA held its 3rd International Meeting at Lady Margaret Hall, Oxford in 1935, with Mr C Brownlie on violin)

I do not know from which tobacconist WBB bought his Royalty cigarettes but I still have some Royalty tins in which I keep buttons etc.

The hatter's conformateur was part of my research and thesis on the shape of the human head and its effect, if any, on human sight. I have no copy of my thesis, as all copies were lost in the blitz on Manchester.

My father lost everything during the war. His business premises, with all patient records and instruments, were lost. However, he restarted and built up a good practice, which he carried on until his death at the age of 68.

I am glad that my father is remembered so kindly and with affection.

Yours sincerely

Dorothy Smith (nee Barker)

PS We were a small group of day students in Velvet House (nine I think). In the whole of the College (UMIST) there were never more than 16 women day students during my time there"

The hatter's conformateur used by Dorothy Barker. The shape of the circumference of the head is transferred at reduced scale to the ellipse of paper. Modelled by Hilary Marsh, Chief Technician in the Moffat Building, 2009

A further interesting comment on WBB and his interest in aniseikonia comes in a 1980 letter from Jon Naylor

"….WBBs spectacles as I knew them were deliberately designed to incorporate nearly all of the classical remedies for the alleviation of his considerable aniseikonia – the lenses had different base curves, different thicknesses, and were held at different distances from his corneae. Royalty cigarettes were much larger than king size and were made by Ringers of Bristol."

Another echo from the pre-war world and its female research students comes from this 1992 letter to UMIST's Continuing Education officer:

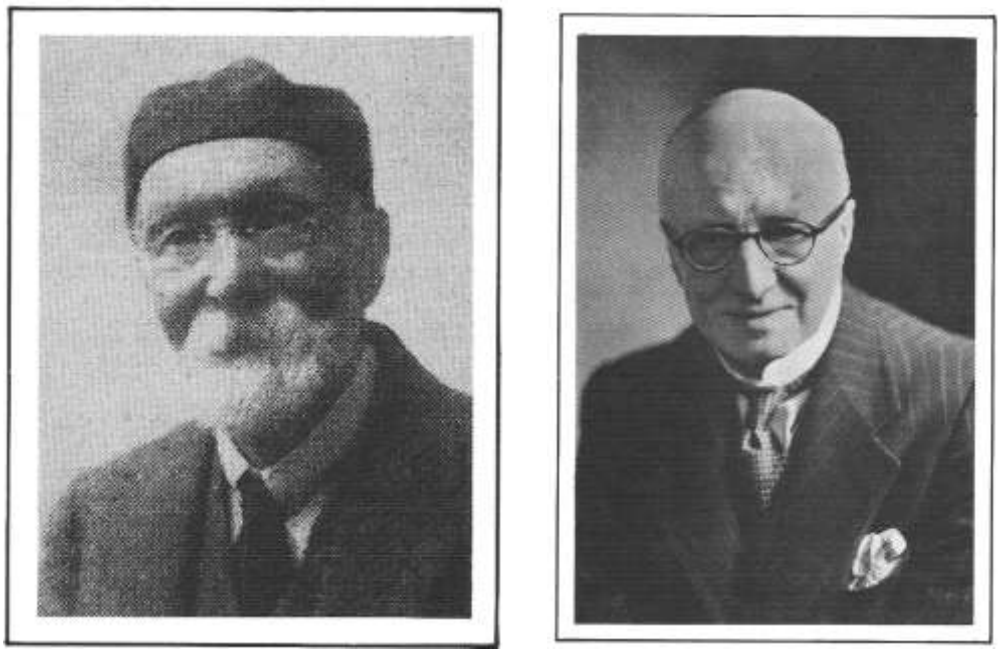
"Thank you for your notice about the Optometry Refresher Course. I write to say that at eighty-three years of age I do not contemplate returning to practice. I retired on marriage – one was expected to in those days – in 1935, but I have always retained an interest in vision science.

Yours sincerely, Kate Beanland (formerly Kate Smith MSc(Tech), 1933)"

As has already been mentioned, the role of the course at Manchester (and presumably others elsewhere) was to prepare students for the BOA's examinations. Sam Howarth remembered that, when he was completing the Manchester course in around 1930, students who passed the department's final examination were exempt from the BOA written examination. His memories continued…

"The BOA practical examination was held at the "Tech". The Main Hall on "C" floor would be completely filled with examinations of sight-testing, mainly 6 m length, with one or two tables set aside for frame manipulation. I think that there was one examiner for each examinee and a bell would ring for the start and immediate completion of each sight-test. Indirect fan charts were the bane of my life, for in the stress of examinations I could not quickly ascertain the correct angle for any astigmatism that was present. This let me down a few times until I brought my own chart and marked it up accordingly.

Mrs Sutcliffe, the wife of J.H., would stand on the platform in the Hall, giving out charts, trial cases etc and, on one of my appearances, whilst waiting for apparatus, Mr Robert Sutcliffe, JH's father and the BOA's founder, was brought in through the swing doors, being carried on a Sedan chair by two porters. He was at least 90 years old and was complete with a beard and a pill-box smoking hat. I remarked to a fellow examinee "What chance have we got? Here's a chap being carried in, still trying for his diploma!" I was overheard by Mrs Sutcliffe and from then on was a marked man! (Mrs Margaret Sutcliffe was, in fact, effectively unpaid assistant director of the BOA examinations and is cautiously described by Margaret Mitchell in her "*History of the BOA*" as being a woman "*of strong personality*"!)



Robert Sutcliffe (1837-1932) aged 94 and his son John Hamer Sutcliffe, Secretary to the BOA for 45 years, 1896-1940

Robert Sutcliffe took me for frame manipulation, at which I was adept since I did it regularly during my work in manufacturing optics. We had to manipulate oval-eyed nickel-plated frames and, when testing the result of my manipulation, he nearly failed me until I pointed out that he had a rule under the paper on which the manipulated frame rested. Thus Manchester Ophthalmic Optics Department was visited by Robert, JH and Mrs Sutcliffe and later by Jack Hayes and George Giles.

I was fortunate to obtain all my BOA subjects except subjective sight-testing. I therefore attended the Honours course – my only possible source for obtaining sight-testing experience. There were only 4 students in that year: Miss Sargeant, Mr Giles (I don't think that it was George, he didn't last the course), Bob Sutcliffe and myself, Howarth. (Bob Sutcliffe, unrelated to Robert and JH Sutcliffe, later developed a strong interest in visual field testing, contributing to the design of the widely used Fincham-Sutcliffe multiple-stimulus static perimeter, introduced around 1960. He was for many years a part-time lecturer in the department during the 1960s and 70s).

Dr Walker of Chorley had by then taken over from Dr Parker. The former was a very quiet-spoken man who displayed numerous slides of the eyes of day-old chicks which we had to study through microscopes. One incident in my memory occurred when Dr Walker delivered a lecture using a high-power microscope with the room in total darkness. There was only a narrow beam of light from the microscope and, as Dr Walker was so quietly-spoken, the only person who could get near enough to hear was Bob Sutcliffe. The final-year students were also with us and, as we could neither see nor hear, we got restless. We had just finished dissection, and the bucket of formalin, eyes, tissue and orbital fat had been left in the room. This resulted in the students creeping around the laboratory benches,

slinging fatty tissue around, causing a series of sharp slaps and exclamations when formalin-soaked tissue stung someone's flesh or a sharp ping when a lampshade was struck. Fletcher, with striped pants and a winged collar, debonair manager of a well-known Manchester Optician's, was heard to remark "It's like being in "B" trenches!"

Dr Lowery was Head of the Physics Department and a great friend of Optics and WB Barker. He often visited the department and used to play the organ fluently in the Main Building. He did research on the fluency of reading, speed and eye movements and two of his students, Roland Hall and Flynn worked on dynamic retinoscopy, effectively under his guidance. WB Barker lectured throughout the country and was President of the BOA twice and closely associated with the founding of the AOP. He continued to be senior part-time lecturer throughout the war years and beyond, also working on numerous committees in London. Barker had a theory of medial line alignment of the visual axes. In certain grief cases of extra-ocular muscles, the medial line was not truly central. We had to measure the ductions of each eye separately with Risley prisms, then add up the result to find the mean: this would lead to prescribing base-out prisms in one eye while its fellow eye had base-in."

The post-war years until the threshold of Optometry degrees

While much of the teaching at Tech must have been disrupted during the wartime years, the evening classes in Optometry continued. Noel Evans writes:

"In the years 1939-41 (before he was called up*) I was attending the evening classes on N floor of Velvet House together with about 10 or 12 other aspirants to the BOA membership. Four of us were traveling by train on two days a week from the Fylde coast – Blackpool and Lytham St Annes – Herbert Jolly, Edward Moulding, Stanley Howarth and I, and working during the day for a local optician, carrying out such tasks as edging lenses etc. We usually played bridge on the table between the seats. During those years I recall the fascination of dissecting a bull's eye to discover that the retina and choroid were only attached at the ora serrata and the optic disc, being held in position by the intraocular pressure. It was also my first experience of interference phenomena and Newton's rings. An amusing occasion was when Billy Barker was conducting the practicals, where we had to report on the ocular condition of several old people. One student appeared to be stumped when using his ophthalmoscope on the left eye of a patient. Barker went over to him and asked if he could help. Given a plea of "yes" he lifted the lids apart and said "Have you tried tapping it?", took out his pen and gave the eye a hefty whack. – it was artificial of course!"*

Manchester itself was to suffer from substantial bombing and, as mentioned earlier, WB Barker's practice was one of the premises destroyed. UMIST was also hit by a bomb during the 1940 blitz. It struck the southeast corner of the building, passing through a chemistry lab to explode in the Senior Common Room.

The Manchester blitz, 1940

It was not until the war was over and a flood of demobbed servicemen returned, eager to resume normal life, that Tech's courses really got under way again. As ex-servicemen, the students were not always ready to accept the same patterns of teaching as their pre-war counterparts. An anonymous student of that period recalls (on the College of Optometrists' website) the era of 1945-48:

"The course was for two years full-time and all the participants were keen on the subject. They had to be, as most had already sacrificed much of their youth having spent 3 or 4 years fighting in the Second World War. During my naval service as Seaman then Officer I kept up my studies of German and French. The Applied Optics course had German in the first year (astonishing today!). The only reason, I found, was that much optical research was in German publications (I assume that they were thinking of Carl Zeiss etc). Questionable! Lectures were always well attended except that there was a revolt by 18 of the 20 students about having to take German. Dr Lipson (who had become head of the Physics Department in 1945) *agreed to exempt anyone from German but they would not qualify for any certificate on completing the course. The others didn't worry about that. Like the two of us who took German, they were only interested in getting the FBOA or FSMC by external examination. College certificates were to us irrelevant.*

.....the Manchester course (again surprisingly) had Mathematics in its first year also, along with Physics and some Zoology…. What use was being taught the numerous legs of the crayfish? My School Certificate was acceptable for entry (war-time evacuation had prevented this student from taking his Higher School Certificate but this was waived due to his Navy service). *Twenty students were admitted to the course… most were RAF or Army officers. I was the only Naval Officer. …There was one female as I remember.*

Studies – no problem. I found them quite easy with one exception. Dr Lipson (later Professor) worked all his optical formulae in focal lengths and distances so that there were masses of reciprocals. One or two of us tried to get him to use vergences or powers, thus eliminating most reciprocals but I think that method was quite foreign to him. He and Dr Smare (who later went on to become Professor of Physics at the University of Bradford and to be responsible for overall direction of the Ophthalmic Optics course there) were excellent lecturers. The main thing that I recollect was the great difference between the

College full-time staff and the visiting people who came from their practices to teach refraction, physiological optics etc….I was very disappointed in the standard of their lectures contrasted with the brilliance of Dr Patterson (Anatomy) whose colour diagrams on the board were beautiful and his lectures equally professional.

For refraction we were in an old annex over the road from the Main Building (i.e. Velvet House). *Equipment in, say, the Physics laboratories was excellent but, as I remember, not good in the subject of eye examination. The course, like most of the others in traditional colleges, was very much optics-based, rarely patient-centred. Indeed admission to the hospitals in that era just before the National Health Service was actually barred to ophthalmic opticians, such was the opposition of the medical profession.*

There was no student life at this time so soon after the war. The only social activities were those arranged by the students themselves out of hours. Wednesday afternoons were free. I carried golf clubs on buses and was stared at by everyone.

Getting a job on graduation in 1948 was easy. There was a great demand due to the NHS. To become a "qualified optician" required the completion of just one year's supervision before taking up membership of the BOA. For various reasons, the Manchester course (like that at Birmingham) was always more closely associated with the BOA than the other competing professional bodies that existed at that time…"

A view from the south of "Tech" in 1942, probably taken from Jackson's Mill. Velvet House and the Main Building can be seen in the background. Factories, workshops and the odd house occupy the current landscaped area between Granby Row and the railway viaduct and, in the foreground, the sites of the Renold and associated buildings. These earlier buildings were all demolished around 1960, when "modern UMIST" began to emerge.

Tom Stokes, who we have heard discussing pre-war Manchester, tells us of exciting innovations in Manchester's teaching…..

"There was no more Optometry for me until February 1946 when, after demobilization, I was notified about an updating course, including contact lens practice, at Manchester. Back to old haunts – Velvet House was just the same – it was really fine to listen to some of our old lecturers and struggle with moulding techniques and trial haptic shells. The British Contact Lens Association had been formed, and at the end of the three week course we could take their examinations. The day came and quite a number of elderly students gathered together. One younger man was Mr Norman Bier with an eye patch – he had damaged the cornea slightly while practising with a lens. Various patients were sitting in a separate room. Mr Frank Dickinson read out the name of a lady from Northern Ireland to come forward to carry out a mould on an eye but she answered "No, no, I don't like touching anyone's eye". So Mr Dickinson asked for a volunteer and I said I would try. Besides the practice on the course, my wife had been a wonderful patient for me several times. The lady patient was very cooperative and we produced a nice mould and cast. Several people came round to see it, including George Giles, then Secretary of the BOA, and I'm sure that it gave confidence to the other students. You will all know Hall and Dickinson's book on contact lenses and Norman Bier's more comprehensive work. I fitted my first pair of haptic (or scleral) lenses in November 1947 to a motor mechanic! I prayed that he could keep them free of oil!"

Noel Evans, too, remembers the postwar years:

"After 5 years in the RAF I tried to get a grant to enter university but, because I already had an optical qualification, my application was turned down, so I did a Refresher Course at London Refraction Hospital and then did the BOA Hons Diploma, attending evening lectures at Manchester "Tech". 1948 saw the fight for professional recognition at the advent of the NHS (and our 15/- fee). I still kept up attendance at Velvet House N floor – lectures by Frank Dickinson on contact lenses and a series on Orthoptics, the latter being enhanced by Roger Warwick MDChB, BSc from the Medical School, whose interest was Anatomy. There were only about 8 of us on the Orthoptics course and I found myself in the lift to N floor with him. He had a cardboard box under one arm. After a brief introduction we were asked to gather round a table. He put on rubber gloves, opened the box and lifted out a baby's head which had been sectioned horizontally in the supra-orbital region (I think that one of the women had to sit down). I realised that we were privileged to have the subsequent dissection of the orbital cavity – the different structures being lifted in forceps and named (this in 1948), just for a handful of opticians. No doubt you now buy a CD. The only other colleague that I remember who might have recollections of that event is Dennis Wallwork in Salford. Roger Warwick later told us at one of his lectures to The Optical Society "The bony skull is not to provide protection of the brain – it is mainly a rigid structure to permit movement by the neck muscles". He must have made his mark in Anatomy.

(Among other achievements, Roger Warwick discovered the location of the 3rd nerve nucleus (Nucleus of Perlia) in the elephant's brain. Later he became Professor of Anatomy

at Guy's Hospital, London and, together with Peter L Williams, held the prestigious position of co-editor of both the 35th and 36th editions of *Gray's Anatomy*. He was also an ardent motor enthusiast and proud owner of a Railton Special, which even in the 1950s was capable of accelerating from 0-60 mph in 10 seconds)

W.B.Barker's 27 year term of service as Senior Part-time Lecturer in Applied Optics came to an end in 1947, some 3 years before his death. Another well-established Part-time Lecturer to leave in the same year was Geoff McKellen (1929-1947). Their "retirement" was marked by a Complimentary Dinner and Reunion of Applied Optics Student in the Refectory of the College of Technology, held on 6th January 1948 and chaired by the Vice-Principal of the College, D.Cardwell. The menu (in an era of continuing food rationing) was composed with slightly heavy-handed optometric humour:

Crème d'Aqueous Plasmoid
Or
Consomme Sod.Bicarb.

Young Hering with Helmholtz Sauce
Or
Sixmths Whiting Toricfused
Or
Aitchqueue Plaice Brookstreet
Or
Head Jake from Silsophaxis

Or Obliquely Superior Roast Muscle Striped
Or
Pigeon Casserole or Cantonnet
Or
Wing of Maddox in lieu of Chicken
Or
Section Elastic Fibro Cartilage, Stained H.E.B.

Une Pomme de Terre Astigmatique/2
Carottes pour l'Adaptation Sombre
Sprouts per Themthatlikesem

Coloboma of Apple Pie, typical or atypical
Or
Upper Lid Roll with F.B.Jammed
Or
Blind Spotted Dick with Mariotte Sauce
Coffee d'Argyrol

The toast to Mr Barker was proposed by J Cowan-Meadley and that to Mr McKellen by Harry Marton, while Jon Naylor toasted "Absent friends". In the spirit of the occasion, the

programme ended with the note *"After the toasts we shall all retire to the Senior Common Room for a talk with old friends about old times….."*

WBBs retirement led to significant changes in the leadership of the Applied Optics section. His place as Senior Lecturer and director of the course at Manchester was initially taken by John Cowan-Meadley, BSc, FBOA (Hons), a grandson of Samuel Cowan (one of the BOA's founding group). Sadly, after a little more than a year Cowan-Meadley was to collapse and die while teaching in Velvet House, to be replaced as Senior Visiting Lecturer by Henry Brooks Marton, MSc (Tech), FBOA (Hons), DOrth, DCLP, President of the BOA 1949-51. Harry Marton was to be associated with the Department as a student and lecturer for nearly 50 years (see Storey, 1981). Although he officially retired at around 1970 he continued to show a close interest in the course until his death in 1978. Harry had first been appointed as a part-time lecturer in 1939 and, in 1957, was finally appointed as the first full-time clinical Senior Lecturer in the department. Although assisted by the part-time clinical staff, for many years Harry had to be prepared to teach almost any of the clinical subjects, and did so with aplomb. He had a marvellous breadth of mind, with a particular interest in philosophy, and was a prolific contributor to the BJPO. A reporter of events at the 1966 Northern Optical Congress comments (Ophthalmic Optician, 5 March 1966, p249) on Harry's role as Lecture Secretary " *Mr H B Marton is something of an optical personality. It is just possible that some readers of this article may have heard of him already: he is, of course, famous for his enormous repertoire of funny stories – and his effective style of telling them. We have never been sure whether it is the former or the latter which has made his help as Lecture Secretary so invaluable….*"

A nice example of Harry's style and loyalty to his city is recorded by a colleague as occurring at a meeting of the Joint Advisory Board around 1970. At that time it was the custom for the Professional Qualifying Examinations (PQEs) to be conducted yearly in London and also on alternate years in Manchester and Glasgow. The representative of the Birmingham College of Technology (later Aston University) was Geoffrey (later Professor) Ball, while Harry represented Manchester. Geoff Ball was understandably concerned that the PQEs were never held in Birmingham, thereby placing his students at a possible psychological disadvantage. However, he somewhat foolhardily made the point "*that after all, Birmingham is the second city*". This immediately raised Harry's hackles a and inspired him to tartly respond "*Really, Mr Chairman, Mr Ball surprises me in claiming that Birmingham is the second city as we in Manchester normally accord that privilege to London*"!

As we shall see, it was Harry Marton who took WBBs dream of an Optometry degree course and turned it into a reality.

Harry Marton at the Northern Optical Congress 1956

Returning to the 1940s and 50s, the material of the course does not appear to have changed to any great extent from that in pre-war years, although in 1949 the day course had extended to three years full-time. The 1952 Prospectus, for example, gives details of the 3-year full-time course in "*Applied Optics*"- a first year devoted to basic science (Maths, Physics, Optics, Chemistry- a whole afternoon was spent in the Chemistry laboratory-, General Anatomy and Physiology, Ophthalmic Lenses and Frames), a second year concerned with the theories of physical, physiological and mechanical optics (Prescription work, Ophthalmic Instruments, Visual Optics, Optics , Anatomy and Physiology of the Visual Apparatus, Clinical Methods, Abnormal Ocular Conditions) and a final year largely concerned with practical work and some further lectures(AOC, Clinical Practice, Law, Occupational Optics, Illumination). Entry demanded passes at Ordinary level in English, Mathematics and Physics, with preference being given to those who also had a pass in Chemistry (no mention of Biology!). Fees were £35 per session. The qualification awarded after 3 years of successful study was the *Associateship of the College in Applied Optics*. The evening classes were preparation for the BOA Honours, DOrth and DCLP exams and comprised Advanced Applied Optics, Workshop Practice, Orthoptics and Contact lenses. The Senior Part-time Lecturer in Applied Optics was, of course Harry Marton, and he was assisted by R Holmes and R Warwick(Anatomy & Physiology), FW Ardern (Ophthalmic Lenses and Fames, Prescription work), EL Patterson (Anatomy), F Fowweather (Physics), AR Thompson (Chemistry), HS Lipson, Arnold Hargreaves IG Edmunds(Optics & Illumination), HE Hogg (Maths), DGT Ashley (Biology) AK Martin, CP Latham & J

Parker (Clinical Methods, Ophthalmic Instrumentation, Abnormal Ocular Conditions), CS Golden, S Howarth, AV Smith, J Hayward (Clinical Methods & Practice).

In order to qualify, from 1949 students following the three-year course had to take professional written and practical examinations in three parts, one at the end of each student year, to be followed by a year of supervised practice, the exact nature of the exams varying with the particular examining body (British Optical Association, Spectacle Makers Company, Scottish Association of Opticians). However, from 1966 this system was replaced by a two-tier structure, with the BOA and SMC agreeing to hold joint Part I examinations, an arrangement that was later (1971) extended to include the SAO, although each organization continued to run its own Part II examinations and to issue its own Fellowships, so that candidates could still optimize their chances of qualification by taking all three Part II exams. The Part I was, in fact divided into three parts, A,B,C. Students studying for a degree in were exempt from Part IA, which consisted of written papers. Part IB consisted of practical and oral examinations and Part IC comprised written papers to be taken by those who were not successful in obtaining a degree. Since they also had to take university examinations, students were therefore heavily loaded (over-loaded?) with assessments of their abilities. It was, then, reasonable that, in the late 1970s, the examining bodies should eventually agree to exempt students who were successful in their degree courses from all Part I exams, which were then effectively made the responsibility of the teaching institutions, although the professional Part II (PQE) remained as a formidable obstacle for the faint-hearted. One of the BOA Council, Ken Harwood, played a valuable role at Manchester during this transition period, by acting as an External Examiner to ensure that clinical standards were properly maintained.

(Left) The view from "Q" floor, Velvet House, ca 1959. This was just before UMIST expanded. The Renold Building, Student Union etc have yet to be built and cars cover the areas that are now landscaped (Right) The Sackville Street railway arch

As the immediate post-war years passed, recruitment to Optometry courses dwindled across the country, following the uncertainties of whether opticians should be included in the

arrangements for the National Health Service. There was continuing opposition by the medical establishment to optometrists having any role in primary eye care: doctors were not allowed to teach or examine optometrists. By 1954 the course at West Ham and Belfast Colleges of Technology had closed for lack of students and a meeting was held in Manchester between representative of the BOA and the College to see what could be done to improve recruitment and keep the course going. Fortunately it was decided to press on and, with the decision to integrate optometrists into the NHS, numbers of students gradually increased. Even though student numbers were small, many were to go on to great things in Optical politics. The class of 1950-3, in particular, included David Sheard, who became President of the BOA, Mike Hargreaves, who was later Chairman of the AOP, and Peter Smith who was for many years Secretary and Director of Examinations of the BOA and was to be awarded and OBE for service to Optometry. It's interesting to note that prior to the Supplementary Ophthalmic Services Act at the inception of the National Health Service in 1948, when "free" eye care and spectacles became available, there were still itinerant opticians who canvassed on doorsteps for trade in spectacles – a practice known as "on the knocker".

A significant development occurred with the passing of the Opticians Act in 1958. While previously standards of training and examinations had been set by a rather loose, informal collaboration between the teaching institutions and examining bodies, now the General Optical Council was instructed *"to approve training institutions and qualifications for the purpose of regulation and …… to keep themselves informed of the nature of instruction in approved institutions and of the examinations for approved qualifications*". The immediate result of this was the establishment of a regular quinquennial series of inspections of the teaching departments by a team of five GOC "Visitors", usually consisting of an ophthalmic optician, a dispensing optician, an ophthalmologist, an educationalist and a secretary. Their role was to report to the GOC on whether the course offered by any training institution should be improved. In cases of doubt, further visits or other action might be called for. Thus a GOC Visit became, and continues to be, an important event for any training institution.

A student,"Medlock", of this era recalls some aspects of student life at the time:

"In the years around 1960 when I was a student at UMIST, the "Optics" course was still in control of the Physics department and relied heavily on part-time lecturers for its teaching. Looking back, I realize that all their lecturing was good, even from beginners like Jimmy Newnes of Ardern and Company, whose first trip into academe was with us, in 1958, when he shared his experience as a spectacle maker with us. A pleasant man of great patience, he supplemented Bill Ardern's lectures, leaving the latter to concentrate on lenses. Bill was tough on us, but appreciated any student's interest in the subject, allowing several of us to visit his factory for practical experience on Wednesday afternoons. This was invaluable. He also lent several people money after they had qualified, to help them establish their own practices.

Sammy Howarth appeared to us as a fierce old chap, whose patience was limited but whose endurance was not: he was a character with a sensible practical approach, however, who taught us a lot.

Harry Marton is so well documented that there is little left to say, save that his grandfather-like demeanor was appreciated as much as his enormous contribution to Optometry. It has to be admitted, however, that his lecturing was somewhat soporific, particularly on Friday afternoons after a hard week.

The last notable was Alan Tyldesley. A gentleman in every respect but such a keen Rugby player in his youth that, amongst ordinary breakages, like limbs and clavicles, he had broken his back twice and his neck merely once! It was curious to imagine such a mild-mannered, shy person being aggressive enough to smash his body about, the results of which were noticeable. Wisdom may have come thereafter…He lectured on refraction in a wise way, and so emphatically peaceful were his remarks such as "You must always ask – is that better or worse?" that you'd declare that you were listening to benedictions from a favourite Sunday School teacher or Rabbi. Perhaps, too, he was a man for all seasons, in that he didn't smoke but loved the smell of burning tobacco – fortunately for the many students who smoked throughout all lectures in those distant days.

It is interesting to note that by the time that we graduated, our class of 18 had been whittled down to 9, a somewhat smaller figure than today's classes!"

One important novel feature that developed around 1960 was the opportunity for third-year students to gain clinical experience at the Manchester Royal Eye hospital. The scheme owed its inception to Mr J Stephen Dawson, who was Senior Ophthalmic Optician at the hospital and continued under his successor, Mr Jimmy Fraser. Politically this innovation was of great importance, since it marked a new level of acceptance of the role of opticians in relation to primary eye care. As was remarked at the time "*During the period in which he attends the hospital the student probably sees more pathological cases than many an experienced optician encounters in a lifetime"* (Anon, 1961). The system was to grow to include not only work at MREH during the academic sessions but also during the vacation, a system of "Vacation Grants" offering living support to those students in attendance.

Some of the staff and other changes in this post-war period were described by Sam Howarth, writing in 1980:

"During the war WB Barker had spent many weary hours traveling to London on optico-educational and political matters, and he probably neglected his practice and wore himself out. About 1950 Uncle Billy collapsed and died whilst waiting for a bus in Piccadilly. The Senior Lectureship (Part-Time) had already been taken over by Jack Cowan-Meadley who was associated with Cowan's Opticians, Victoria Street, Manchester. Cowan-Meadley also proved to be a very hard worker for the optico-educational and political matters and was closely associated with the formation of the National Health Service bodies in the Manchester District. Sadly, in about 1949 Cowan-Meadley also collapsed and died on N Floor, Velvet House. Then began a new era led by HB Marton, who gathered around him a

team including Ardern, Peter Latham, Vic Smith and Howarth, with Turner workshop and part-time magician and King, general porter. Ardern was responsible for Visual Optics and Special Lenses, Peter Latham (who worked for Rowleys and lived in Mansfield) for Diseases, Vic Smith (St Peter's Square, Manchester) for Subjective Testing, Sam Howarth for Industrial Optics and Subjective Testing, Dr Roger Warwick for Anatomy, Barry Cox for Drugs and Mr Little for Illumination.

Evening classes had finished and students comprised National Service-aged youths trying to catch up with civilian life, together with younger teenagers fresh from school. The number in the class was about 20 and the black curtains were still being used to create cubicles in Velvet House. The blackboards were high and fixed to the wall and, if I found it necessary to fill the board with Industrial Illumination Tables, I used to leap onto the top of the laboratory bench to reach the limits of the board. By 1952 the number of students had dwindled to about 6. Patients from outside sources were being brought in. HB Marton instituted one or two crash courses in the evenings, when Howarth lectured on Orthoptics. Black curtains were finally abolished and replaced by about a dozen fixed rigid-walled cubicles using the 3 m working distance indirect method. Vic Smith and Howarth advised on colour décor for cubicle walls – dove grey upper wall with dado battleship grey. In the 1960s Barry Cox took on a young lady assistant – Janet Vale, who is still with us. Dr Roger Warwick left and Dr Jon Naylor arrived. Jeannette Strang lectured on Ocular Diseases.

Although the Turville Infinity Balance Technique was in existence in 1935-36, it was not introduced into Tech until about 1956 when Jack Heywood had it fixed in every cubicle – a septum on every mirror. Jack was a likely chap who seemed made for teaching, when tragedy struck – he had a coronary which rendered him an invalid and he never completely recovered. Stephen Dawson arrived, having become the Senior Ophthalmic Optician at the Manchester Royal Eye Hospital, and lectured at the Tech. More importantly, third-year students were allowed to attend the Hospital for instruction. When Stephen Dawson left the hospital, taking all the ophthalmic optician staff with him, Harry Marton organized a team (including Aaron, Howarth, Combridge, Tyldesley) to man the Hospital's sight-testing section until permanent staff could be found. James Fraser was to lead the new staff."

A 3rd-year student group from 1959-60 (L to R) Back: Les Houghton, Gerry Leeson, Vic Heap, Clive Wellings (Middle) Reg Fielden (Front) Neil Murgatroyd, Mike Stoker, Harry Marton, Heather Smith, Jim King (technician)

The social aspects of Tech were, of course, always of importance to students. Rag Day and its procession through the streets of Manchester, with the opportunity to dress up, throw a little flour and otherwise raise academic standards were always enjoyed. Not all events were successful, however. "Medlock" remembers:

"In 1960, in an up-market attempt to popularise it, the annual departmental Christmas Party was restyled the "Optics Soiree", with a live band. Mike Barradell acted as M.C. in his cream-coloured jacket. The evening was not a success. The Chairman and Secretary of the Optics Society slowly and sadly collected a handful of tickets at the door throughout the first half. Things never livened up at all, although Mike worked very hard exhorting these penny numbers to dance, when they were more inclined to lounge about as though they were expecting a cabaret! The only "Cabaret" was during the interval when Jim King was given his retirement present. He was a short, beatific soul with a beaming face, a delightful soft Irish brogue and he'd been a very helpful lab steward, rewarded by countless cigarettes over the years. We had, then, passed the hat round and purchased a handsome Ronson table–lighter. Sadly, in his reply to the presentation, he announced that he'd given up smoking: this did nothing to lighten the atmosphere and neither did anything else.

The Chairman and Secretary (who saw nothing of the whole evening) collected the crockery etc onto a trolley, on of whose wheels was faulty. As the lifts were staggered, transport from J floor of the Main Building to the kitchens had to be in two stages, with a race along H floor corridor in between., There the faulty wheel jammed and a pile of plates began to shear. Happily a sharp yell of warning and swift action mercifully prevented any accident. The personnel got the giggles at this point but were sharply admonished on their eventual return, for the Treasurer had given up and gone home and

the band was demanding payment. I forget their name, but it was something like the Colin Dews Quartet, who had assured us on booking that all their gigs had been successful, and who were now in a paddy because all their efforts, plus those of the MC (who was also in a paddy) had fizzled out in the flattest of shambles. John Storey happened to have the 8 gns in his wallet and the Quartet was paid after all, but they stumped off with very bad grace. There must be another side to this but we didn't see it at the time….."

Optometry students at Rag Day, ca 1960 – who had died is uncertain

From Associateship to Degree

As noted earlier, up to the early 1960s, those students who successfully completed the vocational course in Applied Optics were awarded a College Diploma: the Associateship of the Manchester College of Technology (AMCT) and, later, the Associateship of the Manchester College of Science and Technology (AMCST). Although these qualifications were arguably of degree standard, they were never recognized as such.

As the 1960s began, a number of new factors conspired to radically change optometric training at Manchester. The first of these was the Labour government's decision to upgrade many of the institutions housing Optometry departments, including Manchester, to Colleges of Advanced Technology. Thus, rather than being supported by the City Council, "Tech" funding would come from the University Grants Committee. The second, recommended by the BOA, and agreed by the Ministry of Education, was to demand, from 1963, as entry qualifications at least two A level passes, one in Physics, and the other in Mathematics, Chemistry, Biology or Zoology. In fact, as a result of a recommendation in the Robbins' Report the government reached a further decision to introduce technological universities. As a result, Manchester Tech moved on immediately to become a full university institution (UMIST) rather than a CAT, with, in principle, degree-awarding powers.

These changes raised crucial questions for the Applied Optics (Optometry) course. The University Grants Committee would not support non-university activities, so that many of Tech's old areas, like Applied Optics, Printing and Photography, and Baking and Confectionery which did not offer degrees would have to be dropped by the new university, together with almost all the evening classes. Many of these courses ended up in the Polytechnic but Professor Lipson, who was then Head of Physics and nominally in charge of the Applied Optics Section, made the bold suggestion that Optics should become a degree-awarding department. As Lipson later related (Lipson, 1989), this was considered outrageous by many people within the university, because no other institution gave degrees in this subject. There was much opposition, particularly from the Medical Faculty (since UMIST acted as the Faculty of Technology of the Victoria University, all course proposals had to be put before its Senate). "*What is Optometry? It is only the handling of test charts!*" was their cry (irritatingly still being parroted by some ignorant medics some forty years later, during the merger discussions that led to the new combined University of Manchester). Lipson tartly replied that if we could have dentistry we could also have optics, since the eye is much more complicated than the tooth. Fortunately a committee set up to consider the proposal, which included the Principal, Lord Bowden, in its ranks, agreed with Lipson, and the new UMIST decided not only to retain Applied Optics (rebadged as the *Department of Ophthalmic Optics*) but also to invest additional money in new staff and accommodation.

The Optometry Department owes a deep debt of gratitude to Henry Lipson and many of his colleagues in the Physics Department, including David Smare, CharlesTaylor, Arnold Hargreaves, Graham Walker, Gordon Whiterod, Mike Lumb, Clive Saunders and others who not only taught Optometry students but who enthusiastically encouraged the aspirations of the young department. Mike Lumb, in particular, was to continue for many years as an examiner for the College of Optometrists. Lipson joined Tech in 1945 becoming Head of the Physics Department a little later. He transformed it from a purely teaching department into one with a fine reputation for its research and for the quality of its graduates, particularly for their practical applied skills. Lipson himself was made a Fellow of the Royal Society in 1957 for his work in X-ray crystallography (he claimed that he was the first fellow to have been proposed and seconded by two women!). Lord Bowden, too, gave the fledgling Department every support.

The change of status of the Tech was, of course, accompanied by a substantial injection of funds for a number of new buildings. The site of these (currently termed the "North Campus" by the "new" University of Manchester) was best described as unpromising. The *Architect's Journal* of January 9th 1958 described the area to be redeveloped south of the railway viaduct thus:

"The site has one or two new buildings, but is by and large a romantic industrial slum which must be awful to live in - fortunately there are few families left. The River Medlock winds its way through the cliffs of buildings of the Nut and Bolt Works, under the viaduct and back again in a great loop under Sackville Street. Sad to say, this is described by some as an open sewer, and all agree that it must be culverted and not exploited as a feature of

the site. The college are most disappointed about this as they realise its possibilities, but they say the smell is often unbearable".

Fortunately, in spite of this problem, UMIST's architects managed to produce a compact but attractive and unified campus from this unpromising landscape, unlike the Victoria University whose own architectural efforts at this time were all too pedestrian. (Clare Hartwell in *Pevsner Architectural Guide to Manchester* rather tartly remarks ..”*the postwar (UMIST) buildings have a sense of purpose lacking in most of their contemporaries at the university*”).

Henry Lipson FRS (1910-1991), Professor of Physics, and Lord Bowden, Principal of UMIST

The first fruit of the enhanced support given to the new Department of Ophthalmic Optics was the provision of a “new” building at the corner of Charles and Princess Streets (later to be known as the Marton Building). This was in fact an old building which had originally contained a row of shops on the ground floor and other concerns in the rest of the building (interestingly, earlier buildings on the site had included, around 1849, “Carpenters Hall”- what was this?). Initially only the upper three floors were available for Optics, and there was still a café and an engineering workshop on the ground and basement floors. This remained the state of affairs when the building was opened by the Chairman of the General Optical Council, George Rougier, in 1964 (Flick, 1964), with WBBs wife, daughter and son-in-law in attendance. However visitors were impressed by the new premises, particularly the 12 state-of-the art refraction cubicles (no refractor heads) and the sign in the entrance area which said “*To the Memory of William Boulton Barker, OBE. His dreams are here*”. UMIST's support at this time also produced two important new staff members, Jon Naylor, who came from MREH, and John Storey, who had recently completed a PhD under the direction of Professor Phillips in the Victoria University's Ophthalmology Department.

Consulting room and Keratometer

The Contact Lens Laboratory

From the 1969-70 Course Prospectus – two of the Marton Building's "well-equipped" laboratories

As eventually completed, what was to become the Marton Building had a Dark Room, Dispensing laboratory, a Physiological Optics Laboratory and several small rooms and offices on its third floor. The second floor had a large lecture theatre, the Head of Department's office, a staff room and other offices. The cubicles took up most of the first floor. Initially the ground floor had a further large lecture room, offices and laboratories but, with the arrival of the Open Clinic (see below), more and more of this space was converted for use as cubicles and related activities. Finally in the basement there was a workshop for lens and frame making, a mechanical workshop for constructing research equipment, a student room and a variety of store rooms which, as the years went by were gradually taken over for research work. The original design, based on sketches by Jon Naylor, envisaged an entry of about 24 undergraduates in each year.

(Lft) The Opening: John Cronly-Dillon, Harry Marton, Lord Bowden, George Rougier (Right) The Marton Building, ca 1985

Sam Howarth had slightly rueful personal memories of the opening of the new building

"At the time of the opening of the new optical building, when George Rougier and members of the GOC were being shown round the department, the party came across a synoptophore – a new model. HB said "Mr Howarth knows all about them". I had not seen this new model before and could not find the switch or the attachments – humiliation! I think that Harold, the laboratory attendant, darted in to show the location of the switch for the instrument's illumination, relieving my embarrassment!"

Admiring the Ophthalmic Optics building's new name at the naming ceremony for the Marton Building

The new Ophthalmic Optics building was to be formally named the Marton building in about 1970, following Harry Marton's retirement. He was to be further honoured, on February 10th, 1982 by the opening in the Marton Building of the Marton Library by his son (the library is still located within the Optometry area of the university). Largely supported by donations from the profession, and managed by a charitable trust, this continued for more than 30 years under the enthusiastic supervision of Richard Abadi to provide a resource of journals, theses, books and audio-visual materials for consultation by students, local practitioners and other interested persons. Richard also secured an interesting collection of historic books and instrumentation, including such exotica as one of the few Ruka Variators still extant and skeins of Hőlmgren wools: these items are curently in store within the university.

The new BSc (Opthalmic Optics) degree accepted its initial first-year entry in 1964. It was the first Optometry undergraduate degree course in the United Kingdom (although others were to produce earlier "graduates" by rebadging those completing already-existing Diploma courses). It seems fair to describe the degree's content as being qualitatively similar to its non-degree predecessor. Standards were, however, higher. It interesting to

note that the first and second years included "Foreign Language or History of Science", so that some students were still wrestling with German! Further there was no specific mention of either a course or an examination in Ocular Disease (although the subject was taught by Janette Strang) – perhaps this reflected continuing hostility of the Medical faculty to optometrists being involved in this area (??). However, in their third year, according to the prospectus *"Students will attend the Manchester Royal Eye Hospital each morning on a rota arranged by the Hospital. Those not so engaged are required to undertake a research project on a topic of their own choice for a period of three hours per week".* Much of the time in the Eye Hospital was, in fact, devoted to "taking visions" for the morning's clinic patients, this being followed by time spent with consultants or the hospital optometrists in the clinics and consulting rooms.

The new graduates, 1968. John Storey is on the left, Harry Marton in the centre and Jon Naylor towards the right. Note the modest numbers. Anton Whiteley (Behind Jon Naylor's right shoulder) and Carol Sinclair (to left of Harry Marton) were subsequently to instruct in the Department's first and second year Refraction classes for more than 30 years. Jill Tucker, on Anton's right went on to obtain a PhD and was a lecturer in the department for more than a decade.

Gordon Heron (later to become a Professor and Head of the Department of Vision Sciences at Glasgow Caledonian University) remembers the pioneering days of that first degree course…..

"Joining the ophthalmic optics course at UMIST in autumn 1964 as a late applicant I enquired at the registry office, to be told it was a brand new degree course and I should see

the HoD in the new building on Charles Street. Hence a few days before the new term I was shown into Harry Marton's HoD office by the doorman Stan Malone.

I had what could be an interview where I was awarded a late applicant place and told to register the following week. Looking round the office I was surprised to see so many tomes about the eye in the bookcase and couldn't imagine there was so much to know about such a small part of the body.

Harry Marton outlined what a fulfilling and rewarding career in optics could provide, enough "to run a Jag" at any rate. Only later did I learn that he was highly regarded both by his peers at UMIST and the profession beyond and later the building was to be named the Marton Building in his honour.

There were twelve of us on the first year class and the course was indeed a brand new one leading to a degree in ophthalmic optics, the first of its kind in the UK. Second and Third year students thought us somewhat unworthy as they considered we were following a course similar to the diploma they were studying. The difference was the first year had to follow a university requirement that its degree undergrads were well schooled in first year science subjects followed by all undergraduates at UMIST. Hence lecturers from those departments taught us maths, physics, biochemistry and "ophthalmic optics" twice weekly given by Harry Marton to give us some basic material to whet our appetite in the subject area.

Harry Marton was probably the only full time member of staff at that time. We did meet John Storey, a research student, keen to show us slit lamps and tonometers, and most excitingly on one occasion a fitting set of corneal contact lenses: so modern and up-to-date. There were a couple of technicians, Harold and George (a regular attendee at Maine Road we discovered), and a senior technician, Ron, and doorman, Stan Malone, who kept his finger on the pulse of the buildings' activities and always knew who was in or out and where they could be found.

The building, recently acquired by UMIST, stood on the very edge of the "campus" its ground floor still occupied by various commercial tenants, including a café; a popular venue between lectures. Numerous empty warehouses on Charles Street, between the Marton Building and the rest of the campus. provided suitable locations for parties; and one of them was still active as a shoddy depot. This venture was quite easy to see from the upper floors of the Marton Building and the to-ings and fro-ings of the carts laden with shoddy proved an irresistible distraction. One lecturer (Sam Howarth) on a balmy autumn afternoon, noticing my attention diverted by the activities at the depot, observed "Yes it is a nice afternoon for gathering blackberries, but here we were stuck inside." During my time there the warehouses were demolished, including the shoddy depot, and car parks created. (For those unfamiliar with textiles, "shoddy" here refers to shredded scraps of cloth or material made from such scraps).

In clinics located on the second floor we learnt the basics and used volunteer patients. One special cubicle was equipped to follow Turville's refraction routine, using his test and

infinity balance charts. We were shown this cutting edge stuff and how it all worked by Harry Marton who had a great deal of respect for the teachings of Turville. Both Turville and GH Giles died in my first year.

At the start of second year Jon Naylor, PhD, joined the staff. Always referred to as Doctor Naylor, Harold was heard to comment to George, that Jon was a "real scientist". He certainly expanded the course into matters relating to vision, lecturing on "Physiological Optics' amongst other things, and was in charge of project work, itself an innovation befitting degree undergraduate study.

We heard that this new degree course had run into much opposition from the medical faculty at "Owens College" (the name UMIST gave to the other university in Manchester). The medical profession was reluctant to accept that "ophthalmic optics" could be a graduate profession. No ophthalmologist could be found to teach abnormal ocular conditions and the subject could not be examined as a final year subject for the degree. This unsatisfactory state of affairs did not continue, but for my final year, an ophthalmic optician taught the subject and there was no examination (no complaints from us!).

There was no teaching clinic and all clinical work with real patients was carried out at the Manchester Eye Hospital. We attended by rota and this continued through the holidays. We took Visions for half the morning and did refractions in the "opticians section" for the other half. We were helped by other ophthalmic opticians working there, overseen by the senior optician, James Fraser. In retrospect it was an unsatisfactory way to teach undergraduate ophthalmic opticians as there was no supervision (the other staff present were not obliged to help, and would only do so if "there was time" which there frequently wasn't). Furthermore, the patients were ophthalmology cases, often with poor vision and various levels of visual malady: difficult for inexperienced undergraduates. There was no binocular kit at all, not even a Maddox Rod. However each cubicle had a Lindsay Accommodation Rule instead of a near point rule and remembered with affection. In many ways it was a cathartic introduction to clinical work: a "throw them in at the deep end" method!

Clinical teaching in other areas was sparse, with no orthoptics clinic and contact lens teaching done in a laboratory where we fitted each other.

In retrospect the move to degree level ophthalmic optics involved some sacrifice to balance the science needs of undergraduates and the medical opposition to ophthalmic optics students studying ocular disease at degree level. These difficulties were short lived and within two years the Honours course had been established with clinical teaching within the department.

Things were quite cosy and collegiate, a product of a small class size and few members of staff. On the day of the final examiners' meeting with the external examiner (Professor Smare from Bradford), Harry Marton observed impishly that my presence would be required at next month's degree ceremony. That evening I was taken out for a celebration

curry with Harry Marton and Jon Naylor, a fine way to finish off undergraduate studies at UMIST.

Anton Whiteley, who was member of the second group to enter the course, in 1965, adds his own recollections:

"Stan Malone was porter at the new building. However the Chemistry Laboratories were still held in Velvet House, and Dispensing in the Main (Joule) Building. Steve Cobb, who was a PhD research student working on colour vision, helped in the refraction classes on C floor of the new building as did Alan Tomlinson. Other lectures were given in the Renold Building. Part-timers Sam Howarth, Janette Strang, Noel Evans taught respectively Industrial Optics, Abnormal Ocular Conditions and Visual Optics. Teaching staff from elsewhere in the University included Peter Ashworth, Physics (Physical Optics), Janet Vale, Pharmacology (Drugs), Dr Rintoul, Medical School (Anatomy) and John Cronly-Dillon (Physiology). We lunched in the Refectory on D floor of the Main Building (the café in the Optics Building closed during my second year). The Old Garrett in Princess Street and the sandwich bar opposite were also popular eating/ drinking places.

Stan Malone was to remain an important figure in the Department for many years, his small porter's lodge providing a haven for many a student or member of staff to chat over life and its problems and rewards. He would obtain his lunch from a small café which stood on the other side of Princess Street, overlooking the Medlock. One of Stan's later jobs was to regularly exercise Professor Cronly-Dillon's setter dog – the latter much preferred to be with Stan rather than being locked in the Professor's office, where his only consolation was to chew the arms of the armchairs, which as a result developed a curious honeycomb structure over the years. Other important staff members were the storeman Ronnie Forsyth and Arthur and Harold, the two very gentlemanly lab technicians who, in any quiet moment, could always be found reflectively polishing the lenses of the trial lens sets. One member of staff recalls Arthur saying to him one morning in a melancholy tone of deep regret "*Doctor, you've not had your tea yet….*" Oh for a return to those more civilized days!

While most of the undergraduate students were concerned with qualifying as optometrists, during these post-war years Manchester was almost unique in having a modest but steady stream of individuals who, although qualified, wished to gain the MSc(Tech) degree. Several of these were later to play important roles as Heads of Optometry Departments elsewhere in the country or abroad. For example, Robert Fletcher (later Departmental Head at City) studied astigmatic accommodation, Frank Gillott (Head at Glasgow) explored aniseikonia and eikonometry, Graham Wilson (Head at Alabama School of Optometry) investigated the Pulfrich effect, and Tom Jenkins (Head at Bradford) measured ocular aberration. In the anonymous article in the 1961 Ophthalmic Optician (probably penned by Harry Marton) is the comment "*Mr TCA Jenkins FBOA, who holds both the College and the BOA prize awards, is pursuing the problems of ocular aberrations, and should this work correspond with the amount of departmental floor space which it takes up it should be phenomenal….*" (It's fair to say that, more than 50 years later, this work is still widely quoted by aficionados of ocular aberration). After gaining an MSc(Tech) in 1965 John

Storey went on to be awarded his PhD in 1968: he worked on the then-new technique of ultrasonography under the direction of Professor Calbert Phillips of the Department of Ophthalmology and his was one of the earliest post-war PhDs to be awarded to a UK optometrist.

Graduation Day, 1965. Harry Marton with three MSc(Tech) graduates: Graham Wilson, John Storey and Suman Patel, later to become head of the School of Optometry, Alabama, Principal Optometrist at MREH and Senior Lecturer at Bradford respectively.

The Honours Course in the 1970s and 80s

Having launched the Ordinary course and reached the age of retirement (actually he was 67), Harry Marton retired in 1969. The event was marked by a dinner at the Midland Hotel, where the toast to "Mr HB Marton" was proposed by UMIST's Principal, Lord Bowden and student Sam Silver presented a gift, two candelabra on a silver tray, on behalf of the Ophthalmic Optics Committee (Anon, 1969). As noted earlier, Harry's great contributions to the development of the Department were to be given recognition in 1969 by UMIST deciding to name the new departmental home in Charles Street the "Marton Building"

Harry Marton and John Cronly-Dillon, ca 1969

UMIST had decided that the Ordinary course in the new, independent department should upgraded to Honours and that the postgraduate and research activities of the department should be further encouraged by the engagement o additional staff. The obvious question that arose was "Who will succeed Harry Marton to lead this enterprise?" In contrast to the traditional situation, where the Applied Optics Section had always been headed by an optometrist, the university decided to appoint John Cronly-Dillon, from the Department of Physiology at the Victoria University. He was, in fact, no stranger to optometry, having been teaching Physiology to its students for some years. John's appointment, and the encouragement that he received from the Principal, Lord Bowden, gave him the opportunity to shape a new, independent direction for the fledgling department, an opportunity which he seized with relish. Recognising that, if optometry was to develop and flourish, it had to bring in ideas from disciplines outside the field, over the next few years he both strengthened the permanent optometric staff – with Don Loran, Jill Tucker, Adrian Jennings, Ivan Wood and Richard Abadi – and brought in staff from outside optometry – Janus Kulikowski from a multidisplinary background in Engineering and Physiology, Chris French from Psychology, Ewen King-Smith and Neil Charman from Physics. It has to be admitted that there were cries of outrage from some quarters of the optometric community, both at the appointment of a non-optometrist as Head of Department and at his policies. However, with hindsight it is possible to see that his changes set a pattern which has since been followed by all UK Optometry departments, to the undoubted benefit of UK optometry as a whole.

The first Ophthalmic Optics Honours degree course started in the 1969-70 session, and was initially a simple extension of the old Ordinary course. However, this course was rapidly superseded, in 1970, by one which differed much more radically from its predecessors. In the new Honours degree Cronly-Dillon's policy was twofold. First to make optometry

students reach the same standards as those from other disciplines where subject areas overlapped. Thus students studied Mathematics in the same class as the physicists, Physiology with the physiologists, Biochemistry with the biochemists and so on. Secondly, the idea of second and third year "options" was introduced, with the intention that at least a minority of student might follow alternative vision-related careers rather than practising as optometrists. Hence by choosing an appropriate set of options a student might, for example, become more expert in optical areas, experimental psychology or clinical matters, and follow a related career path. Although these ideas were inevitably modified with experience, they did serve to give students a wider and less optometrically parochial educational experience. It is interesting to note that, among other innovations that John introduced, was the department's first computer, a PDP-12 with reel-to-reel tape and a punched tape output, standing as large as a substantial wardrobe and having all the computing power of one of today's small, hand-held calculators. Undergraduate students all had to follow a computing course under the direction of Chris French: unlike today, programs and data had to entered on punched cards into a mainframe computer.

From the 1972/3 Departmental prospectus: Eileen Biddle, Jane Barker, Helen Dupe and Mo O'Neill advertise the delights of the UMIST Honours course

Students had to take two Option courses at second-year level and three at third. The titles give an indication of the ambitions of the scheme: second year – Mathematics, Electromagnetism and Modern Physics, Visual Perception and Psychology, Psychophysics; third year – Experimental Psychology and Perceptual Development, Visual Physiology, Physical Optics, Photophysics and Photochemistry, Advanced Optical Instruments, Psychophysics and Perceptual Performance, Advanced Contact Lenses, Ophthalmic Measurement. While some students groaned at these choices, some embraced them with enthusiasm.

It must not be thought that these changes sidelined the optometric content of the course or the contributions of existing full and part-time staff. Jon Naylor and Alan Tomlinson continued to be towers of strength, as also were the many part-timers who then lectured or demonstrated – Noel Evans on Visual Optics, Janette Strang on Ocular Disease, John Storey on glaucoma, Jim Reynolds on spectacle frames, Bernard Shields on Contact lenses, "Smithie" on lens making and many more. It's striking that, in the early years of the course, Abnormal Ocular Conditions appear on the timetable for the first time but are still not formally examined. Sam Howarth continued to teach in the refraction clinics: Glyn Walsh, an undergraduate in the 70s, still remembers one of his optometric teaching aphorisms *""If the nits have to jump, you're too far away" (for direct ophthalmoscopy).*

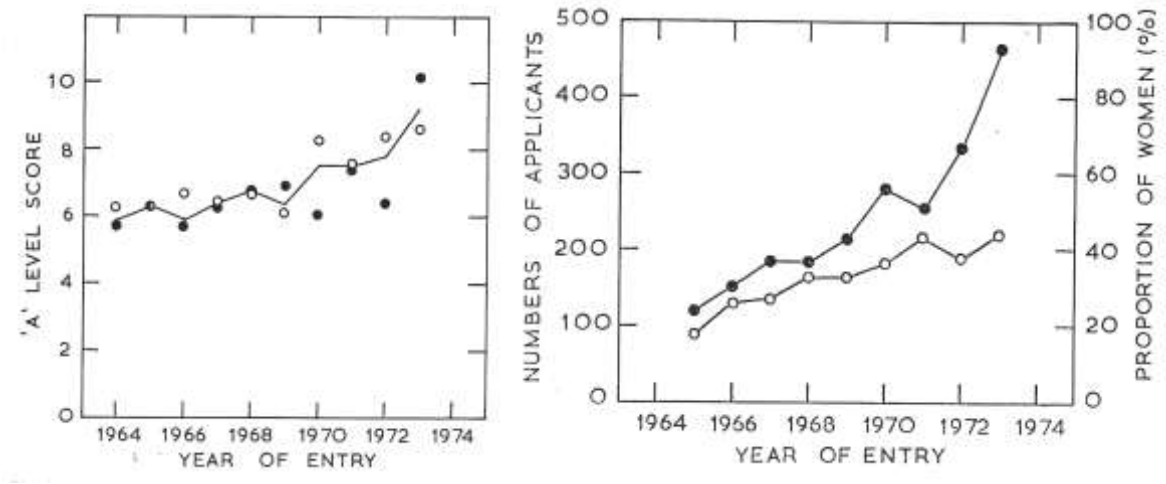
The optical workshop in the Marton basement, ca 1971. At this time all students had to make their own lenses and frame (Left) Graham Ridgwell, "Smithie" and Robert Fearon discuss the finer points of lens making (Right) Jane Stephenson and Rashid Munshi edge their lenses.

Perhaps, though, the biggest and most important optometric innovation was the establishment, after the arrival of Don Loran from Scrivens in 1971, of an "Open Clinic" in which real patients from the ranks of the general public could come to the department to be examined and have their prescriptions dispensed by the third-year students, under appropriate qualified supervision. This was the first such venture in any UK optometric undergraduate teaching institution. A new set of consulting rooms was constructed on the ground floor of the Marton Building for this purpose. The clinic was administered by Sylvia Hargreaves, a pivotal figure who combined the roles of receptionist, organizer of the student rotas and general support mechanism for the enterprise. Although the student clinic was discontinued during the vacations, arrangements were made for a member of staff to provide continuity of care during these periods. The clinic, although initially relatively small in scale, was to grow steadily in scale and scope over later years.

Chris French, Don Loran and John Storey take tea, ca 1985

From the point of view of the early 21st century it's interesting to look back on the entry standards for these 1970s students. For several years the standard conditional offer for acceptance was three "D" grades in science subjects. All applicants were interviewed and shown round the department, so that "E" grades were often accepted from those who appeared to have potential but had, at some stage, encountered personal difficulties. The plot below gives the average A level scores (A-5 points; B - 4; C- 3; D - 2; E-1) during the earlier years of the degree course: through much of the period the scores are equivalent to round three "D" grades, rising towards three "C"s. To modern eyes these standards may appear surprisingly low, but it must be remembered, first, that those taking A levels in that era were much fewer in number and had already been highly screened and that the grades, rather than each representing some notional absolute pass standard, were fixed on a percentage basis with e.g. only around 5% getting an A grade, 15% a "B" and so on.

Certainly, degree performance does not appear to have changed markedly over the years, even though nominally A level scores at entry have improved markedly.



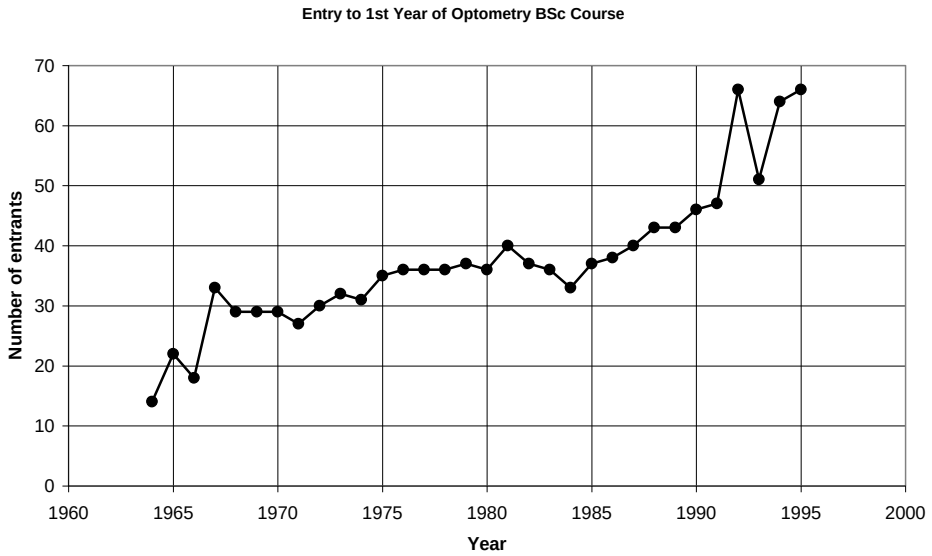
(left) Average "A" level points scores of entrants to the UMIST course. Filled symbols are males, open symbols females. The line is the average for all entrants (Right) Numbers of applicants for UMIST Optometry places and the proportion of women applicants. From Charman and Naylor (1974, 1975)

Some 1984 entrants revisit the department, ca 1990: Anne Gaffney, Shahid Parvez, Chris Violaris, ?

The other striking feature of this period was the fairly rapid increase in numbers of applicants to the undergraduate course. Although it must be remembered that students could apply to up to 5 universities, so that not all UMIST applicants really wanted to go there, it was clear that not only were the academic qualifications of applicants improving but also that the years of famine, when it had been doubtful that the course could continue,

were over. The same was true of the days of male dominance – now the proportion of women applicants was rising towards 50%.

Optometry, rather than being the preserve of the few and having a high proportion of students with relatives in the profession, was suddenly popular. Unlike the fifties, the problem was keeping applicants out, rather than enticing them in. However a decision was made to keep numbers at around 36-40 (38 graduated in 1990), since careful calculations suggested that, in conjunction with the output of other teaching departments, a total of about 250 graduates a year was adequate to satisfy the country's optometric man/womanpower needs (French and Loran, 1983). As will be discussed later, these calculations were to prove to be somewhat parsimonious. Of course, about 10% of the students were from overseas in this era, with Hong Kong, Singapore, Europe and the West Indies being included in the recruiting grounds.



Entry to the first year of the Optometry BSc course. The Marton Building was opened in 1964, the Moffat in 1990.

Student life and the Optics Society continued to flourish during this period. The Christmas Social gradually became more ambitious, developing gradually from a modest event in the Marton Building's ground floor lecture room (marked in one year by a lady student streaking through the corridor to win a bet) into the Eye Ball. One feature that flourished for several years was what might (very loosely) be termed a cabaret interval, composed largely of skits by those students with thespian ambitions. The entertainment was usually dominated by impersonations of staff and others from the department performing improbable, and occasionally mildly indecent, versions of their departmental activities. The idea was the brainchild of John Nixon, a mature student whose son Chris had previously completed the course, and who was determined to get the maximum pleasure from his student days! Further regular events included staff-student football and cricket matches the main mover, here, both literally and metaphorically, being Richard Abadi. Fortunately the students were usually indulgent to the infirmities of the staff and bones were rarely broken. Another annual event for the whole of UMIST was the Saturday night Bogle Stroll,

originally from Lancaster to Manchester but then following a circular route from Manchester to Chorley and back (more recently it took a figure of eight form). Starting in the evening and continuing through the night (and well beyond for many!) this 55 mile trek was a formidable challenge. A large departmental group entered in 1980. One male participant remembers

"This was a leap year and the date of the Stroll happened to be February 29th, so that the pre-midnight hours as we walked out of Manchester were enlivened by numerous proposals of marriage from late-night female revelers on Manchester's streets. Thereafter things became more serious and a steady stream of individuals dropped, footsore and exhausted, to take the buses which were strategically stationed around the route.....The real Optometry action man in that era, as both undergraduate and postgraduate, was Glyn Walsh (later to be a Senior Lecturer at Glasgow Caledonian University) – *for many years he would run round the course and then go back again to encourage others to finish……"*

Scenes from Optometry life (left) Neil Charman and Richard Abadi congratulate each other on how they almost scored in a Staff/Student football match, ca 1972 (Centre) Don Loran shows that he has an eye for a pretty face at the Eyeball, ca 1980 (Right) Jim the technician in expansive mood, ca 1981

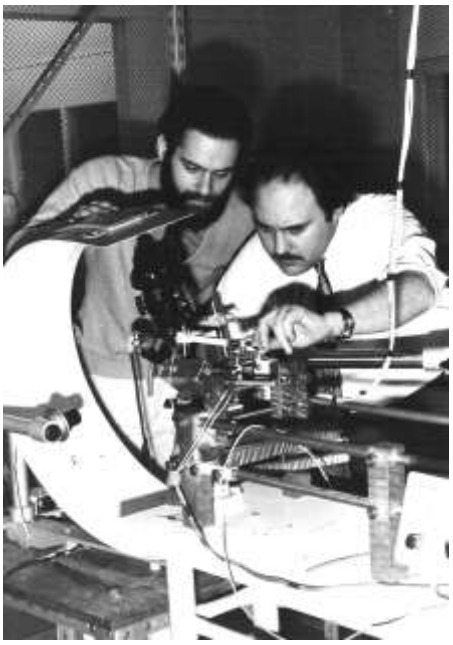
A group of 1990 graduates. The front row includes Ian Creek, Robert Amey? & Bhargav Dave

Harvey Bussin and Chris Ramsdale (respectively undergraduate and postgraduate students, followed by periods as part-time teachers) open the bottles at a Degree Day reception in the Marton Building. These popular events usually followed the ceremony itself, so that alcoholic over-indulgence on the part of some of the more euphoric graduates was rarely a problem. Disaster ensued one year when the reception preceded the award ceremony in the Whitworth Hall and one student failed to make it across the stage…..

Research in the 70s and 80s

With the arrival of a much larger number of permanent staff the volume of research and the numbers of research students within the department rose rapidly. Initially all this activity was confined to the Marton building. For example, the Professor's newts (which would occasionally escape and stroll down the corridor) and fish, which were used in studies of memory and neural development, were located in the basement, a study on visual effects of cosmic rays was in progress on the ground floor and King-Smith and the PDP-12 computer were on the top floor. Recognising that the Marton Building was too small to accommodate all this and much other activity, Professor Cronly-Dillon managed to obtain an area on "G" floor of UMIST's oldest building, Jackson's Mill, for departmental use and this remained in the department's hands for some 20 years, together with an animal house on "H" floor of the same building. Here were the kingdoms of Professor Cronly-Dillon and the then Drs Kulikowski and King-Smith, later to be joined by Ian Murray. The move was timely, since animal work remained controversial and, when UMIST held an Open Day, animal rights protesters burst into the Marton building, determined to liberate its animals. Thwarted by the latter's absence, they had to content themselves by hanging a banner from the roof. Some research did, of course, continue in the Marton Building either in the clinical areas or in odd rooms around the building.

A feature of the 1980s was the appearance of the first desk-top computers in the basement, presided over by Chris French. For those engaged in numerical work this was a boon, since, for example, Alan Tomlinson had previously relied on electro-mechanical calculating machines when analyzing his research data. Chris French and Ivan Wood were to go on to pioneer the introduction of computers in Optometry, Chris's "*UMIST Eye System*" being one of the first programs designed to present standard optometric tests on display screens, as a more flexible alternative to conventional chart and other clinical tests. There was also a PET computer, with a laughably minute memory, which Derek Pellow, a Visiting Lecturer, used to develop a rudimentary computer-based patient record system. (The same PET machine also gave many of the staff and postgraduates hours of pleasure with its early table tennis video game!)



Research activities on the top floor of the Marton Building, ca 1971 (Left) Chris French talks to the PDP12 computer (Right) Bob Levene (a refugee from the USA) and John Cronly-Dillon studying the mapping of the nerve fibre connections in the newt eye

PhD student Glyn Walsh in the Marton basement ca 1985

The Marton Building served the Department well during these years, although with rising student numbers it was necessary to make maximal use of the available space: for example, the Dispensing lab to double up as a lecture room for some Option subjects. One idiosyncrasy of the building was its flat roof, which like all such roofs had a tendency to leak in periods of heavy rain. An inhabitant of a top-floor office remembers, around 1986:

"The roof had a substantial parapet about 50 cm high around its perimeter. It was reached by an extension of the main flight of stairs which served the rest of the building, access to the roof being gained via a pair of emergency doors with a substantial cill. After years of complaints about leaks, UMIST finally brought in contractors to put new asphalt on the roof. This appeared to work for a while but, during the summer vacation, water again started to seep through the ceiling on the top floor. I went upstairs to see why this was occurring, since recent weather had, in fact been relatively dry. Opening the doors to the roof, the nature of the problem was immediately evident. The whole roof was covered by about 4 inches of water. The contractors had, in their Anglo-Saxon enthusiasm to do a thorough job, not only covered the roof with asphalt but also the openings to the roof's two rainwater drains, which were thoroughly blocked: these, unusually, led to internal pipes running down through the eastern corners of the building to the sewers below the basement. The roof's parapet had stopped the blocked water from flowing over the edges of the roof, thus creating the roof-top pool. The obvious step was to unblock one of the drains which, after some struggle, I successfully achieved so that the water started to drain down the pipe with a satisfyingly vigorous gurgle. Problem solved! Alas! A few minutes later Glyn Walsh came rushing up the stairs to say that the water had, indeed descended into the basement sewer but the latter's capacity was inadequate and the water was backing up to flow out of all the sinks and toilet bowls in the basement and thence into the surrounding rooms. It was here that I lost my presence of mind…instead of again blocking the offending drain I decided to unblock the other drain, reasoning erroneously that if the water flowed through two drains this might improve the situation. In retrospect it is not surprising that this did not prove to be the case - the flooding situation (together with the anguished cries of the inhabitants of the basement) merely got worse. In spite of subsequent efforts to re-block the drains much of the 4 inches of water from the roof was effectively transferred to the basement floor, so that the rest of the afternoon was spent by research staff and students in a mammoth mopping up operation. But at least the roof drains remained unblocked for the future…….."

Ian Davies, Richard Abadi and Eve Pascal search for inspiration in the Marton lecture room, ca 1987

The Moffat Building

As the 80s advanced and both undergraduate and postgraduate numbers increased, it became obvious that more space was need if the department was to reach its full potential. Although various hopeful schemes were produced for additions to the Marton building these never reached fruition due to cost or other problems. However, as a result of policy changes in the provision of estate services at UMIST, in particular the decision to gradually release most plumbing, painting and central workshop staff and rely on contractors, the Estate Building on the east side of the campus was slowly being vacated and Estates suggested that this might provide a new home for Optometry (see Cronly-Dillon and Loran, 1990). The building had been acquired by UMIST from a confectionery wholesaler and toffee maker – Moffats. A member of the company, John Marks wrote in 1991:

"A.T.Moffat was a small confectionery wholesaler who also did a little manufacturing of sweets. It was bought with Trebor's help in 1946 or 1947 when Mr Moffat was still alive. It was Trebor's first move into the field of wholesaling. What they really wanted was Moffat's sugar allocation (sweets were rationed until 1953). But my father saw the advantage of controlling wholesalers because you could push more of your own sweets through them Trebor did not directly own its wholesale companies until the 1960s.

Moffat's original warehouse was a rickety building in Mawsom Street which was demolished when "UMIST's" Moffat Building was put up. As I recollect it, it was on a slope so that it was two storeys on the high side and three on the low side. It was designed to be able to have at least one floor added – we always built for expansion!

Later, though I'm not sure whether it was a compulsory purchase or not, UMIST acquired the building and we built a large new warehouse buy closing some streets in a derelict area near Piccadilly Station.

Moffat's became the second largest wholesaler of sweets and tobacco in the country and when Trebor was sold to Cadbury Schweppes towards the end of 1989, Moffat's was sold to Palmer and Harvey, the largest wholesaler.

(left) The Moffat Building just before its taker-over by UMIST in 1963 with the loading bays still in evidence. This part of the building became the reception area for the Open Clinic (right) the process of conversion for Optometry commences, ca 1988

The plan to move to this old Estates Building was approved and conversion began. For Estates use, UMIST had retained a loading bay at the front of building and most of the interior was relatively open plan, apart from the regularly spaced supporting columns. Removal of the former involved some slightly peculiar inconsistencies in the floor levels in the reconstructed building while the latter caused some problems when it came to sub-dividing the building for Optometry use. When UMIST took over the building in the early 1960s Lord Bowden had decided that it should be painted white, to better integrate with UMIST's newer buildings: however the new architects responsible for the optometry conversion decided to return the building to its original red brick. By 1988 about half the building was ready for occupation by the department. The residue (the B floor, London Road side of the building and the lower A floor) was still occupied by Estates staff. The building was formally opened by the President of the Royal Society, Lord Porter of Luddenham, on 11th September, 1990, an Open Day being held to mark the occasion. Professor Cronly-Dillon had very properly taken the view that a department with a high reputation should have a prominent figure to perform the ceremony. At this stage the aim was to cater for 48 students per year, with twelve bays for teaching basic refraction and a similar number of cubicles for third-year clinics and other purposes. By the time of the move the Department had lost the name "*Ophthalmic Optics*" to become "*Optometry and Vision Sciences*". As the years passed, the Estates Department gradually vacated the rest of the building, so that by 1997 the whole building was under Optometry control, including A floor. This in turn allowed the research side of the department to be re-united in a single building, with its G floor area in Jacksons Mill being given up, although animal house facilities were still retained. Professors Cronly-Dillon, Kulikowski and Itzhaki shared the new A floor facilities.

(Left) The entrance (right) Field of dreams? The 90 seat lecture theatre in the Moffat Building with its projection booth

Sadly, one of the side effects of the Department's move to the Moffat was that it enabled UMIST to sell the then-empty Marton Building. This stood looking increasingly forlorn for many years to eventually be demolished in 1999 and replaced by the (French!) Ibis Hotel which now stands on the site. Likewise, at much the same time (1990), the Department's first real home, Velvet House, was sold by UMIST for conversion into apartments. *Sic transit gloria mundi….*

The demolition of the Marton Building

A student, Christian Dutton, from this period recalls:

"I joined UMIST in September 1995. It was interesting to meet like-minded students from a variety of different cultures and backgrounds. We had a high number of taught hours each week - some of my friends on other courses were required to do only 1/3 of our taught hours.

Thankfully the A/V equipment in the departmental lecture hall seemed very reliable. When we had lectures in other departments there were often problems with their equipment and I noticed for many years after leaving UMIST that speakers at other venues often had similar problems.

I became good friends with Michael Shepherd although his strong Northern Irish accent required some conversations to be written down for interpretation! Mike was an RGP wearer with high cyls which presented a sizeable challenge during refraction clinics; I still have a subtle aversion to RGP's to this day.

During the second year contact lens clinics I was partnered with my good friend Avtar

Nandra. We spent approximately six weeks fitting a gentleman with a pair of soft contact lenses; he was a very patient and understanding subject and would cheerfully greet us each week with "hi guys". I remember Don Loran encouraging us to increase the brightness of the slit-lamp during contact lens practicals; even as observers we had after-images!

Rasmeet Chadha was a first class honours student and always seemed to reserve the necessary text books from the library before me. I quickly learned my lesson and invested approximately £1000 in text books. In 2007 we journeyed to Tibet together to provide voluntary optometric services and we remain friends to this day. Another student, Paul Day, quickly earned the nickname 'Question' as he would reliably ask a series of questions during each lecture.

Within my first few weeks on the course I noticed that Prof. Charman knew many of the students' names. I also recall his amazing ability to write hundreds of lines of complex geometrical optics equations from memory.

I was most perplexed by Prof. Kulikowski's lectures on Psychophysics and Visual Neurophysiology, despite receiving comprehensive handouts. I was told that several years before we joined the course some of the Professor's monkeys had escaped and ran around the campus; if true, this must have been an amusing sight for onlookers.

I found Prof. Cronly-Dillon's lectures on the Philosophy of Science to be interesting and thought-provoking. This was my first introduction to philosophy and it helped me to re-evaluate my views on the meaning of life and the nature of reality. I remember his Jensen Interceptor and the huge Wolfhound he would sometimes keep in his office.

I had my fair share of bad luck during practical examinations; in my second year I had to perform ophthalmoscopy on a paid patient through her pinhole pupils and in the final year exam my ret reflex seemed to shrink and grow before disappearing completely - I soon realised that my patient had fallen asleep! What I would have given for a Mimim of Tropicamide and a double Espresso!

I used to wonder how many unanswered questions there would be on Prof.Dickinson's MCQ's with negative marking.

I returned to UMIST in 1999 to take my PQE's. It was reassuring to be in familiar surroundings although my watch stopped, causing me to miss half of my case records examination. The examiners kindly allowed me to take the other half of the examination later that day; this met with the approval of the roving examiner who was also present. The following day Dr. Jennings confirmed I had been successful in passing my PQE's. Dr. Jennings had always been a patient teacher who was clear in his explanations and generous with his time.

I greatly enjoyed the Optometry course at UMIST and feel privileged to have been taught by so many eminent clinicians and academic staff. I believe the education I received at

UMIST was more comprehensive than that offered by many of the other universities and left me well prepared for my PQE´s and life as an Optometrist.

Developments in undergraduate Optometry teaching around the millenium

Although the undergraduate Honours course had undergone continuous change and refinement over the years, to reflect both changes within the field and in the interests of members of staff, the first major change for many years occurred in 1994/95, when UMIST decided to follow government recommendations and to change its course from what had been a 3-term structure, with examinations at the end of the year into two "semester" (actually of 15 weeks each) with examinations at the end of each semester. Further, the material was repackaged into "modules" to reflect the new format. Although fashionable at the time (but bitterly resisted by some UMIST departments!) the new scheme did give an opportunity to reflect on course content and their balance. Fortunately UMIST managed to largely avoid the intrinsic problems of modularisation – that students see each modular exam as a hurdle which must be jumped, and have only a weak appreciation of the way in which material from different modules integrates together – which are not unknown at some other teaching institutions.

A further significant development was the planning, in 1996, of a four-year Master of Optometry course, the first course to provide an alternative route to GOC registration, rather than the conventional one of University degree plus success in the professional qualifying examinations. The latter had served the profession well for many years but had always suffered from the weakness of wide variations in the pre-registration experience and the lack of opportunity to fully integrate university and pre-registration training. Driven by the enthusiasm and negotiating skills of Adrian Jennings, the MOptom concept involved high-standard students from the normal Honours course being selected at the end of their second-year. They would then undergo a semester of intensive clinical training before going out for two roughly 6-month periods of professional experience with selected supervisors, one in private practice, the other in a hospital eye department. During these periods university staff would collaborate with their immediate clinical supervisors to monitor their progress. Finally the course would be completed with a further semester at university with a strong emphasis on honing the clinical and other skills gained in practice. The first students started their clinical experience in the 1998-99 session and, in 2002, the MOptom was approved by the GOC as a registrable degree, it no longer being necessary for studentswho gained this qualification to take the College's Professional Qualifying Examinations.

The millennial graduates celebrate their success

Problems with university funding increased pressures on all UMIST departments, those on Optometry being even greater since the student calibre in terms of "A" levels was higher than many other departments. For this reason, with some misgivings over possible employment prospects, the decision was taken to increase the student intake, with the annual entry stabilizing at around 60 by 1997. Somewhat surprisingly the worries about pre-registration posts and employment turned out to be unfounded even though nationally annual numbers in training had increased to about 600 – more than double the typical figure for the previous decade. There is, however, little doubt that these increases have depressed salaries.

The outside world was, of course, changing, necessitating further thought on aspects of the course. For decades the basic system of the College's Professional Qualifying Examinations (PQEs)with multiple sections, each needing to be passed, had remained unchanged. One of the benefits of the UMIST course for students was that its third-year practical examinations closely followed this College structure: this resulted in ex-UMIST students consistently having high pass rates in their PQEs. However, during the 1990s the College of Optometrists became worried about their examinations for two reasons: first, there was criticism of the relatively high failure rate, since resits were in principle required even if only one of the dozen or sections was failed, and, second, it was felt that there would be difficulties in running examinations in this format with the larger numbers of candidates coming forward. After many years of debate and trials of possible examinations, the College finally put the revised format of station examinations, case records and simulations of clinical cases into operation in 2001, triggering corresponding changes in the UMIST clinical exams. Another important professional factor was the decision of the General Optical Council to take a much more interventionist role in optometric education.

In particular, a list of "core competencies" was produced, together with formal requirements for each student to have defined experience of specific clinical activities. This in turn made it expedient to ensure that each student kept a careful log book of their experience, with each activity being signed off by an appropriate member of staff. Fortunately, thanks to the foresight of its then Clinical Director, Adrian Jennings, UMIST was ahead of the game in this respect and the 4000 patients seen in the various clinics of the "Vision Centre" (no longer the Open Clinic) provided ample clinical material. Another GOC innovation was a growing insistence that students should pass all individual examinations with no "compensation" (balancing of bad marks in one subject by good marks in another) being allowed. Lastly a further 1999 GOC decision, to only allow those with first- or second-class Honours degrees to proceed to the per-Registration year and to require those with third-class Honours, Pass or Ordinary degrees to undertake further tuition and examinations, meant that weaker students had a higher hurdle to jump, particularly when it was found that those attempting the required additional College examinations (which effectively covered the entire three-year course) inevitably failed.

One reassuring feature of 1999 was that the department was awarded 23 out of a possible 24 points for its undergraduate teaching during a visit by inspectors from the government's Quality Assurance Agency. The taught Master's programme (see below) did even better with 24/24"! Although it was originally threatened that these QAA visits would follow a 5 year cycle, to be interleaved with those from the GOC Visitors, fortunately they were effectively discontinued as being too disruptive and expensive. This was, perhaps, just as well, since the recommendations of the two groups of inspectors from the QAA and GOC did not always coincide (and each was horrified when it was suggested that they should combine their visits!).

John Cronly-Dillon's role as Head of Department came to an end in 1993, after 24 years of service. He had overseen an infant degree course grow to some 50 students a year, with UMIST's students regularly achieving the highest national success rates in their professional examinations. Further, there had been massive increase in staff numbers and research activity. His imagination and foresight had created a multidisciplinary pattern of activity which had shaped not only the development of Manchester's Optometry but also those in all the other related UK teaching centres. His many contributions were recognized by the College of Optometrists who awarded him an Honorary Fellowship in 1994. He handed the reins to Nathan Efron, a contact lens specialist who fought gallantly against the handicap of being Australian. Nathan turned his attention to enhancing further the clinical activities of the department, while not neglecting to maintain standards elsewhere. His era saw the introduction of the taught "*Master of Science in Investigative Ophthalmology and Vision Sciences"* degree (see below) together with the undergraduate "*Master of Optometry"* programme. By this time UMIST was moving away from the pattern of Heads of Department serving for long consecutive periods of time, since it was recognized that the demands of administration, finance and other pressures had made the task much more wearing. A 3-year cycle for the Headship was thus established, with Neil Charman replacing Nathan in 1997, followed by David Foster in 2000 and Graham Barnes in 2003.

Further Courses

Although the undergraduate Optometry Honours course was flourishing, at the start of the nineties it was felt that further non-optometric courses using the academic resources of the department could be beneficial to students, the Department and the University. Early thoughts were possible BSc courses in *"Applied Optics and Information Technology"* and "*Applied Vision, Robotics and Artificial Intelligence*" (see Cronly-Dillon and Loran, 1990). These suggestions were still-born but other ideas were more successful. The first of these was a taught Master's course offering the possibility for qualified optometrists and others to enhance their skills at postgraduate level. Originally, in fact, two separate Master's courses "*Optometry and Vision Sciences*" and "*Vision and Brain Sciences*" were offered, the first modules being available in 1991-92. One important module which had to be taken by all students was Research Methods, which was intended to be a formal preparation for a compulsory research project. Although the two courses were quite successful, it was soon realised that it would be more cost-effective to combine them into a single programme and, in 1996-97, a new course "*Investigative Ophthalmology and Visual Science"* was launched. The aim here was twofold: first to build on the vision research and clinical skills of staff and second to deepen the collaboration with Manchester University's department of Ophthalmology and the staff of the Eye Hospital by sharing the course's teaching and administration between the two departments, probably the first time that this had been done anywhere in the world. The idea was to make the course suitable for either full-time study over a year or part-time study over a longer period, with students being able to take a series of modules as well as a research project. The need for such a course was established with the arrival of 12 full-time and 6 part-time students for its first year. Interestingly, while it had been thought that it would mainly attract optometrists, the course has also proved very popular with orthoptists and ophthalmologists and continues to flourish as a joint Medical/Life Science Faculty course within the new combined University of Manchester.

David McLeod, Professor of Ophthalmology and Nathan Efron, Professor of Optometry, ca 1995. Professor McLeod, who retired in 2006, was a great friend to Optometry and collaboration between the two departments became much more extensive during his Headship of the Victoria University's Department of Ophthalmology

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The last big innovation, coming in what turned out to be the last few years of the Department's independent life, was the introduction of a set of neuroscience-based, four-year undergraduate MSc courses – *"Neuroscience and Computing", Neuroscience and Artificial Intelligence and Neuroscience and Cell Biology*". To mark this, the departmental name was changed to "*Optometry and Neuroscience*" .Several factors had contributed to this development. The department had always had several staff members with interests in neuroscience. By 1999 these included, Professors Kulikowski and Cronly-Dillon, Drs Ken Grieve, Sam Nona, Mark Tyrer, and Niall McLaughlin. Further, it was felt that, while the department could benefit from improved income and staffing it was not possible to increase the Optometry intake due to the limited market for Optometry graduates. Lastly there were several UMIST departments with overlapping areas of interest who would be prepared to cooperate with the scheme, in particular allowing us to share modules from their own courses. To house the laboratories for this venture, a further 300 m^2 of laboratory space was acquired on C floor of the Main Building, adjacent to the Department's Dispensing and other labs. The first intake of students arrived in the 2000-2001 session. As events turned out, the long-term development of the courses was overtaken by the slightly unexpected decision of UMIST and the Victoria University to merge to form the new University of Manchester. The structure of the new combined University was such that our neuroscience students and courses were integrated with those already existing within the Faculty of Life Sciences.

Continuing Education

It would be shameful not to emphasise that, although the formal undergraduate and postgraduate courses provided the mainstay of the department's teaching efforts, a great deal of part-time teaching activity went on throughout the department's life, to provide up-to-date instruction to members of the profession who had long departed from university but still wished to hone their knowledge and skills. The post Second-World War course in Contact Lenses continued well into the 70s, and the pre-reg "refresher" course always attracted a good audience. Children's Refraction, Sports Vision, Ocular Therapeutics, Microprocessors and many others brought devoted audiences who cheerfully surrendered their days-off or evenings to attend. There was even a course "Optics and Refraction for Ophthalmologists" (knowing the history of medical antipathy to optometry, does one detect a tongue firmly in the cheek here?). For many years, too, the department was deeply involved in the organization and running of the Northern Optical Congress. Alas, such activity is currently deemed to be unfitting in a university that aspires to the description "world class", so that it has now largely ceased.

Research developments in the Moffat Building and elsewhere

A boost to the Department's research came with the arrival of antipodean Nathan Efron in 1990, as the first Bausch and Lomb Professor. He set up a strong Contact Lens Research and Consultancy unit both to carry out fundamental research relating to contact lenses and the anterior eye and to pursue commercial work for contact lens companies. The unit's title rapidly transformed itself into the more ambitious Eurolens Contact Lens Research Centre and soon attracted substantial numbers of research students and funding – indeed it

contributed financially towards the later stages of the conversion of the Moffat Building to provide its own laboratories. By 1998 the annual turnover of the Centre had already reached £200K. Later the Unit was headed by Phil Morgan, who proved adept at opening the purse strings of numerous companies to support a wide variety of contact lens/anterior eye research, particularly interesting being the use of thermal cameras and the confocal microscopes.

Some staff and postgraduate students in the Marton Library, Moffat Building, ca 2000

Another valuable addition to the staff was provided by the arrival in 1999 of Professor David Foster, formerly of Imperial College, Keele and Aston. He and his team of psychophysicists took up quarters on "B" floor of the Moffat Building, necessitating the movement of the Dispensing laboratory to more commodious quarters on "C" floor of the Main Building, the same space also housing the first-year Optics and Physiological Optics laboratories.

The last new Professor to join the Department was Graham Barnes, who arrived in 2001 from the Institute of Neurology, London, with several members of his team. His original research interests were primarily in eye movements but his work expanded to include wider studies of human movement systems.

Ian Murray, David Foster, John Cronly-Dillon and Janus Kulikowski on the steps to the Moffat Building, ca 2000. Note the independent viewpoints assumed by each staff member.

It would be tedious to list the varied and pioneering research carried out in the Department in its later years. Nevertheless it is appropriate to note that it was the only UK department to obtain top grades (5A) in the national 1992 Research Assessment Exercises, a slightly lower 4A in the 1996 exercise and a top 5* again in the 2001 extravaganza. Although the validity of the judgement criteria used in such exercises remains open to debate, the end results are important not only as an index of the esteem in which a department's research is held but also because the government research funding received depends on the results. It seems fair to say that, in the last years of UMIST's existence, the department's research was substantial in volume and had an international reputation. Many members of staff were invited to international conferences and other events round the world, while there was a regular flow of overseas visitors wanting to spend time in the laboratories.

Changing faces in the Staff Room

Advancing science in the tea room: Neil Charman and Phil Morgan come to grips with a problem, ca 1992

The long-term effectiveness of any department depends to a large measure on the quality and enthusiasm of its staff, both full and part-time, and UMIST Optometry has been fortunate in this respect throughout its life. With the passing years inevitably many of those who had made substantial contributions to the department's academic progress moved elsewhere, retired or died. It is not possible to do justice to all of these, but some demand mention. One such was John Storey, who was associated with the department for more than 30 years. Although John left UMIST in the early 1970s for the post of Principal Optometrist at the Eye Hospital, he continued to play an important role in the life of third-year undergraduate students, not only as a Visiting Lecturer but also in relation to the organization of their hospital experience at MREH. It was, then, with great sadness that the Department learned of his death in 1995, at the comparatively early age of 53. The Optometry Graduates' Newsletter noted:

"All those linked with the department over the last thirty years will have been saddened by John's early death last summer. Very much a Manchester man, he followed his father into optometry and became successively graduate, postgraduate and lecturer at UMIST before moving to Manchester Royal Eye Hospital as Principal Optometrist. Here he maintained his interest in teaching, giving guidance to UMIST undergraduates who were gaining hospital experience at MREH. Always willing to explain with patience the finer points of any aspect of optometry, John was at his most lyrical when discussing ultrasonography, the topic of his PhD work and an absorbing interest for him for the rest of his life. His use, with Ezra Rabie and Cindy Trouman, of ultrasound to follow the lenticular changes accompanying accommodation will long be of value to workers in the area. A scholar and a gentleman, he will be sorely missed".

Chris French was to take early retirement in 1995. Not only had he been responsible for courses in subjects related to Psychology but he had also launched the department into the computer age, first with the PDP-12 and then with an increasingly powerful series of desktops. His computer-based chart system was one of the earliest to be used in UK practices and, in conjunction with Ivan Wood and others, he explored the potential of many applications of computers to optometry. It is right, too, to remember Chris's parties, held in

his flat, which gave many students (and staff) some idea of what university life should really be about.

Following his retirement, Don Loran receives the UMIST medal, 2000

Another of the stalwarts of the department, Don Loran, finally retired in 2000. His influence on the development of the department's optometric work was immense. The April 2000 Optometry Graduate newsletter reported:

After some 28 years on the staff of the department, Don has finally decided to move a little further into his phased retirement and sever his last regular links with the department, although he will still continue to contribute to such things as continuing education courses.

Don was, of course, instrumental in setting up the UMIST Optometry Graduates Association, and his links with UMIST go back a long way. After training in the 1950s at what was then the Manchester College of Technology, Don obtained his Master's degree at Ohio State University before returning to hospital practice in the UK. During the 1960s he was a part-time lecturer in "Tech's" Applied Optics Section (then still part of the Physics Department) before moving south to Birmingham and private practice. His full-time links with what had by then become the new, independent Department of Ophthalmic Optics at UMIST started in 1972, first as Lecturer and then as Senior Lecturer and Clinic Director. Don rapidly rejuvenated the clinical teaching, particularly in contact lenses. His lasting achievement was the initiation of the "Open Clinic" in which members of the general public could have their eyes examined by third-year students working under the supervision of qualified staff. Graduates of that generation will recall how the first small-scale clinics, with Sylvia at the administrative helm, gradually mushroomed under his guiding hand to cover a range of specialities, including children's vision, binocular vision, low vision and contact lens work, while the initial trickle of patients swelled to the current figure of several thousand.

While busily engaged in his teaching, research and other activities at UMIST, Don also found time to represent UMIST on the wider national and international scene. He filled many offices in the old British Optical Association, including its Presidency, and served on the Council of its successor, the College of Optometrists. He was also a member of the

General Optical Council. On the international scene he has served on the committee of the International Society of Contact Lens Educators, as well as being instrumental in setting up the Sports Vision Association, as well as editing, with Caroline McEwen the book "Sports Vision".

Following his nominal retirement from the full-time academic staff, Don has continued to serve the department and UMIST in recent years by running our Continuing Education and Training courses. This year, however, he decided to sever this last formal link, although, as noted earlier, we hope that he will continue to participate occasionally in our CET programmes. Don's regular presence at UMIST will be sadly missed. Many graduates have cause to remember his kindness and helpfulness. Many of us, too, will recall him playing a magisterial role while refereeing at staff-student football matches, or crouched behind the stumps during the equally hard-fought cricket matches. It was fitting, then, that UMIST should award him the UMIST medal for his many contributions to the development of its life and work. Enjoy your retirement Don!"

Don's duties as Clinic Director were taken over by Adrian Jennings.

Some retirees, 2002. Back row: Ivan Wood, Neil Charman, Sam Nona. Front row: Janus Kulikowski, John Cronly Dillon

A substantial group of long-serving staff left the department around 2002. Ivan Wood, who had served the department for a quarter of a century left to take up the Position of Clinical

Director of the Optometry School of the University of Auckland. He had shaped the basic refractive skills of a generation of UMIST optometry students and had also been responsible for building up the Child Vision Clinic and for enhancing relations with several hospital eye departments in the area. Sam Nona also left for the antipodes and part-time teaching in the Optometry School of the University of Sydney. At UMIST, he had pioneered some remarkable new techniques to study optic nerve regeneration in goldfish, studies that may well prove relevant to the question of how to regenerate damaged nerves in humans. He also introduced many generations of undergraduates to the delights of anatomy, enlivening his lectures with dry wit. John Cronly-Dillon's enormous contributions have already been acknowledged. Those of Janus Kulikowski are, perhaps, less known to past undergraduates. He has had (and happily continues to have) a remarkable research career. Few have devoted their lives so completely to research. Janus always said that he could get much more work done at night, when few were around to disturb him. As a result he would work through the night, eventually sleeping on a camp bed in the lab. This was, of course, strictly against regulations, but even the UMIST Safety Officer eventually realised that she could not change his habits, so that Janus was left in peace to continue his own unusual diurnal cycle. From the department's point of view, the valuable result was a long series of internationally-acclaimed papers. Janus also did much to build up relations with the Baltic republics, attracting from there a series of students and collaborators to work with him. His nominal retirement (he continues – in 2009- to work as an Emeritus Professor- was marked by a 2-day scientific meeting, as also was that of Neil Charman (OPO, 2002).

Adrian Jennings and Chris French, ca 1990

Richard Abadi and research student Eve Pascal (later a Lecturer at Glasgow Caledonian University) ponder the action of their optokinetic apparatus, ca 1990

At least two other names of individuals who left the department around 2006 deserve mention: Adrian Jennings and Richard Abadi. Adrian had previously studied as an undergraduate at Cardiff and had gained an MSc at Aston from the highly-respected course run by Neville Drasdo at that time (sadly one of the few innovations not to be introduced by Manchester….). He arrived in the early 1970s as holder of the Barker Research Fellowship and was to remain for the rest of his career as successively Demonstrator, Lecturer, Senior Lecturer and Clinical Director. He unravelled the mysteries of refraction and binocular vision for generations of students, as well as ensuring that they had the practical skills for its assessment. He was largely responsible for launching and maintaining the MOptom programme as well as contributing to the department's life in many other ways. Many a group of student tutees will remember the Jennings' hospitality at their homes in High Lane and Chinley!

Trained at Aston, Richard arrived at much the same time as Adrian, starting a PhD with Janus Kulikowski. Again he made the transition from Demonstrator through the academic ranks, finally ending his connection with the university as a full professor. Apart from his research in eye movements (he was the founder of the British Oculo-motor Group) and his teaching in physiological optics, Richard was responsible for the Marton Library. Equally importantly, it was his enthusiasm and organising ability that kept the sporting skills of the department to a high standard. Whether it was the regular staff/student football or cricket matches (once even a hockey match!) or UMIST's 5-a-side football or Clayton Cricket Trophy competitions, Richard would always get a team organized. Galvanised by his enthusiasm and his own contributions, we even made it to the third round on some

occasions. Surprisingly the England scouts failed to take notice of all the talent on display but perhaps it was as well that we were not lured away from our academic careers.

Other lecturing staff who made important contributions over the years included Alan Tomlinson (later head of Vision Sciences at Glasgow Caledonian University), a contact lens specialist of international repute but, more importantly, the Geoffrey Boycott of the UMIST and departmental staff cricket teams - a batsman as durable as teak and as difficult to remove from the crease as the most proverbial leech. We should remember too, Sarah Alvarez and Jamie Kraft, who enriched the course with their North American insights into their teaching areas, together with Ken Grieve, and others who helped to give the course depth and coherence. It is also only right to acknowledge the contributions of academic staff from other UMIST departments, particularly Mathematics, Biochemistry and Physics, who over the years helped to lay broader foundations for the Optometry teaching: many of them became very real supporters of the department's aspirations, even although this involved sitting through long and tempestuous meetings of the Departmental Academic Board when more contentious issues were on the agenda.

Finally it is only proper to salute the ever-changing army of part-timers who served the Department throughout its life. They dominated the early years and, although their relative contributions to lecturing decreased as the 20th century progressed, they continued to share their invaluable experience of the real world of optometry in practical classes with students. The roll call is a long one – Sam Howarth, Denis Wallwork, Trevor Hopkins, Brian Hillman, Jimmy Reynolds, Anton Whiteley, Noel Evans, Carol Sinclair……and so many more, whose wise words and patient advice continue to shape the lives of so many ex-UMIST students. UMIST owes a great debt to them all (dare one say not least in the financial sense, since their pay was always meagre!).

Epilogue

As discussed earlier, Manchester's Optometry is now carried on as part of the wider activities of the Faculty of Life Sciences of the new, combined university. Initially, ex-undergraduate and postgraduate student Professor Chris Dickinson was in charge and now (2012) the mantle of course leadership has passed to Phil Morgan. Chris was largely responsible for the planning of the new location of Optometry's activities. The Moffat Building has now been vacated in favour of handsome new quarters in Dover Street, closer to the Medical School, other parts of the Faculty of Life Sciences, and Manchester Royal Eye Hospital. The Carys Bannister Building extends over 6 floors and is well equipped to deliver a high standard of instruction in all things optometric. It is to be hoped that this new environment will permit not only the maintenance of "the Manchester tradition" of Optometry but also its enhancement. Let us look forward to another century of progress!

The new home for Manchester Optometry, the Carys Bannister Building

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