

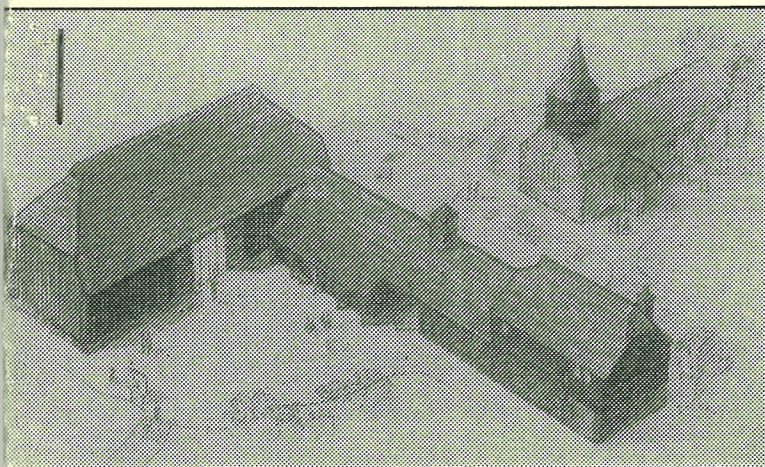
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STARTING WORK IN 1929

by George W C Taylor

Leaving school

My school was the West Ham Municipal Secondary School where, in July 1929, I was completing a five year course which led to the London Matriculation/General Schools examination. The importance of doing well in this was stressed both by teachers and parents as almost essential to meet requirements of employers who had a worthwhile "position" to offer a young man or woman of sixteen years. This was at a time when such jobs were not easy to find. Compulsory attendance at school ended at the age of fourteen, but scholarship pupils were accepted to stay for the further two years on agreement with the parents. This gave the scholar a maintenance allowance of £15.0s.0d per annum, generally translated to "5 shillings pocket money and 20 shillings for my mum" per month. Despite this agreement and allowance a few pupils left at fourteen where economic conditions of the family were such that this was regarded as essential. Thus one of my friends left to take a job as a billiard marker at a London club where he lived in and got tips and extras much in excess of a school allowance; this may have turned out to be a short sighted decision by his father - my parents thought so.

The school was mixed with both men and women teachers, somewhat exceptional in those days, and also had a flourishing sixth form. Since its creation in 1906 its emphasis on higher education, leading to Higher Schools examinations and university, was on teacher training and only pupils (and parents) who committed themselves to such a career could go on to the age of eighteen and get an increased maintenance allowance. I did not wish to make this commitment so I had to leave at sixteen. All jobs were hard to get, including for teachers, and I was told of other "bursars" who went on to graduate in science and were then unable to get replies to their applications for teaching posts, and "unable to live on wind and water" had to accept work in laboratories instead, making their peace with the council accordingly. One of the boys in my class who became a bursar eventually took, in succession, London University degrees in Chemistry, Physics and Mathematics to try to get a worthwhile teaching job in science as the market seemed to require.

So for most of us, we went out into the world at sixteen and the school did its very best for us. Firstly by excellent academic teaching and secondly by advance contacts with possible employers. Not all successful past students had been teachers and I recall a large portrait of one in academic dress captioned as

"the first woman in the legislature of Saskatchewan". All the important occasions of the school were in the hall which was overlooked by a sculptured bust of Socrates, which should endow us all with wisdom. On one memorable morning we came in to find Socrates with a mortar board on its head and the caretaker had not got a ladder long enough to remove it. The headpiece belonged to Mr. Nathaniel ("Natty") Wyer, Geography Master, so bald that he always did a quick change act trilby hat to mortar board on arrival; he was hopping mad! It demonstrated the wisdom and resource of at least one pupil of the school. These qualities could be helpful in prospective jobs offered to leavers by the Weights and Measures Department of the Council; and after selection by the Principal six of us had our names on the list. However one name was Harold Wood (no, not the place!) and he offered to find out more about the job through his father, a reporter for the "Stratford Express". The report was that it involved a long period of slogging it in the office. Harold opted out and I think all the rest of us did likewise.

Before the end of the last term selected leavers were interviewed by a representative of the Headmasters Employment Committee who came to the school to record job potential. I was selected for a further interview at the offices of the Committee at Montague House,

opposite Downing Street in Whitehall, when I explained my leanings towards active scientific pursuits in preference to a sedentary desk job. All this was before the exam results were known which were due to be announced at the last day of term. The last day was a special occasion when it was the tradition for the afternoon to be devoted to a concert in the hall, attended by all the school. One regular item was a rendering of "Jerusalem" by the falsetto soprano Miss Jeremy, the tall and thin Latin mistress. Although she was well liked the boys of Upper 5b decided that we did not want to hear it again to blemish our happy school days - most of us were leaving. So we left the building and found ourselves an empty classroom in the Junior School with a look out posted. He soon spotted the approach of Dr. Burness, the Principal, who had discovered the UVb had only girls on parade. We fell out of the cupboards when Dr. B. came in. For a fleeting second we think we saw a faint smile before being sternly summoned to a classroom off the main hall and given 500 lines to do. At least we had escaped the concert and only the non-leavers bothered to write out their lines. We were all invited back into the hall to hear the exam results. I was to hear that I had passed matriculation and general schools in all subjects taken, with distinctions in maths and geography, so I was now equipped to find a job.

Finding a Job

As soon as school finished and exam results known I started to find a job. I went to see Mr. Tarr, Youth Employment Officer, with an office opposite Trinity Church (where I was christened), Canning Town. He was encouraging with various suggestions, but nothing definite to offer. I looked in the advertisement columns of the newspapers and journals. One wanted a trainee in the laboratory of an analytical chemist, mentioning a figure of £100 p.a. which seemed quite good to me until I realised that this was the premium required to be paid by the trainee! My father knew someone in a paint firm and was hoping to get me an interview with the chief chemist.

The weeks went by and nothing seemed to turn up. My three friends at school got themselves organised for jobs in their separate ways. John had set his sights on becoming an engineer artificer in the Royal Navy, one attraction being that stokers would wait upon him! He achieved his ambition, but sadly he was lost when his ship was sunk as part of a convoy to Russia in the War. Sam, who had always been a keen experimenter with wireless, got a job with Radio Instruments Limited of Purley Way, which involved travelling daily to and from Croydon, a journey made for some time by motorcycle via Blackwall Tunnel. He was a shy lad and had to

suffer appropriate comments by the girls, when he had to go through the coil winding shop to get to the toilet. Frank got taken on by the electrical firm Siemens at Woolwich, where he worked on automatic telephones. He became involved in the installation of automatic equipment and I remember the occasion when he showed us round the Whitehall new exchange and demonstrated the fault finding working of the routiner - somewhat to the anxiety of Sam and me as we wondered what important government lines were being interrupted for our benefit!

Then on the early morning post of 25th September 1929, I received a letter from the Headmasters' Employment Committee asking me to call at Woolwich Employment Exchange at 9.45 am for an interview regarding a vacancy in the Royal Arsenal Research Laboratory. It is only recently that I have appreciated how the extreme reliability of the post service was accepted as a matter of course; the letter was posted at Whitehall SW1 pm on 24th September and unless it had been received by about 8 am there would have been little chance of getting to the appointment on time. It was, and I got there in time for the interview with Miss Elkerton, the Youth Employment Officer, who satisfied herself regarding my credentials as "a fit person to become a civil servant" especially that I had a

matriculation certificate. She then gave me an introductory letter addressed to the Chief Superintendent, Research Department and gave directions how to get there which meant taking a tram to the Fourth Gate where I showed my letter to the police for further directions. I eventually arrived and was shown into a large well-carpeted room to be interviewed by Major Harvey who I thought must be the Chief Superintendent himself; he was the Assistant Administrative Officer who put me at ease and then told me that the job for which I was recommended i.e. laboratory assistant Gd 2 "junior" at 28s 11d per week, had already been filled, but that he could offer me a post as laboratory attendant at 15 shillings per week and industrial grade conditions of longer hours. This I declined and after he had again satisfied himself that I had passed the all important matriculation exam he said he would make enquiries to see if there was another laboratory assistant vacancy in the pipeline. After a short time he found that there was, and I could have an interview forthwith with Mr. Bryant of the Analytical Department. This was encouraging especially as Mr. Bryant received me very kindly in the laboratory and for the first time in the whole series of interviews starting speaking chemistry and asked several questions such as how I would estimate sulphate in a mixture. So I got the job and would await

instructions as to when to start. In the meantime I had to get vaccinated against smallpox which was compulsory for any employee at that time.

As often works out almost at the same time I had the offer of an interview with the chief chemist and his assistant in Pinchin Johnson's the paint firm in Silvertown. I had a cautious yet very friendly interview. I assume, because they were unsure of the pull that my father may have had with the management of the firm. In fact this must have been very little indeed, but they offered me a job as laboratory assistant at 15 shillings per week. I said I had been offered substantially more than this at Woolwich and they strongly recommended me to take the Woolwich post where I would have the advantages of much better laboratories and equipment than they could provide. So honour was saved all round. The Pinchin Johnson's chemists would have been rather disappointed with their assurances regarding equipment at Woolwich. It seems that a weekly wage of 15 to 20 shillings was the expectation for a boy of sixteen who had been five years at a secondary/grammar school with matriculation or general schools certificates. My job paid rather more but required accurate and reliable work and I was immediately started on explosives. Even if better qualified all jobs were still very difficult to get and

one of my older colleagues, when he applied for a laboratory assistant post in the department, was asked the usual question "have you got matriculation?" He answered "I have a university degree" which was followed by "Never mind that - have you got matriculation?"

Starting work - the day

I received a letter requesting me to report at the Research Department at 9 am on Monday 7th October 1929. So I set off in good time, wearing my best suit and a little trilby hat (everyone wore a hat in those days), took the tram to Custom House Station and train to North Woolwich where I walked through the foot tunnel to South Woolwich, took an L.C.C. tram to Plumstead and in the Royal Arsenal Fourth Gate walking about 600 yards to the R.D. messengers' office. I was taken to the main office where a clerk looked after my initiation ceremonies. I had been vaccinated by Dr. Kennedy, my father's ex-Army doctor and produced the certificate. It was the custom to wear a red ribbon on a recently inoculated arm to avoid it being hurt by an accidental knock. Then the clerk gave me a large board upon which had been posted the Official Secrets Act in such small type it must have been all of it. To protect greasy hands it was covered by a layer of yellow varnish which did not improve visibility. I

settled down in my chair to read it as instructed but after about two minutes the clerk said in a continuous phrase "Read it? - then sign this paper". So I signed and further signatures had to follow for the receipt of the copies of the Workmens Compensation Act 1925 and the Rules and Regulations of the Ordnance Factories Eighth Edition 1928. This gave detailed regulations about where and when smoking was permitted, which did not worry me because by the age of sixteen I have given it up for good. Rule 13 said that complaints or representation must be made in a proper and respectful manner. Rule 43 was of interest because it promised pay at half day rate for sickness due to vaccination for a period not exceeding eight weeks. I had the general impression that it was not so long ago - say the 4th edition - when transportation for life would have been in the rules as the penalty for the crimes of smoking in the wrong place, loitering and time wasting, stealing and gambling etc. etc.

With the formalities completed the clerk took me to the laboratory where I had had my interview and I was introduced to the chemist in charge of the section, Mr. E.T. Saunderson, and the senior laboratory assistant, Mr. A.J. Howard (Joe) who was responsible for showing me around and detailing my work. I was expected to join the tea club at a cost of one and a

half pence per week for which tea in a glass beaker was brought round to me morning and afternoons and included Saturday mornings - there was no break for tea, it was drunk at the bench. At one o'clock I clocked off for lunch and was taken to the canteen close by where I was introduced to Mr. Walker, an even more senior laboratory assistant who had a spare seat at his table. There was a menu with choice of dishes and waitress service, the three course meal costing one shilling. After lunch I watched the table tennis and clocked on again at 2 o'clock for more instructions such as the location of the explosive magazine and the solvents store and the keys thereof and of course, the lavatories referred to always as H25 the number on the door.

It soon came to 5 o'clock when I could clock off and go home. By that time I was feeling tired and Joe explained that this was the usual reaction for people standing all day in a laboratory after being used to sitting at a desk at school. However I was elated by being at work at least and looked forward to drawing my first week's pay. When I reached home, my mother was anxious to know how I had fared, especially what sort of people I was now mixing with. I said there was a Mr. Howard - was he a young chap like me? No, certainly not, he is quite old, he told me his age he was twenty

seven!

The importance of status

I think the most striking characteristic was the rigid class structure which was to be expected from its service connections and upper administration but also reflected the general pattern in other work places and all social life at the time. There was the officer group, professionally qualified who had the shortest working hours from 9.30 am to 5 pm, intermediately were the technically qualified, such as laboratory assistants and also the clerical grades with a day from 8.30 am to 5 pm. Industrials worked from 8 am to 5.40 pm. Curiously the status level was reversed on Saturday morning when the industrials clocked off at 11.40 am, the intermediates at 12 midday and the officers left between 12 and 1 pm. However for holidays, the officers had six weeks (increased to 8 weeks after 10 years), the intermediates 2 weeks (exceptionally to 3 weeks) and the industrials one week. There were three different sets of toilets which were rigidly observed and I recall one of my officer colleagues, rather short of stature, being ejected in error by my tempestuous boss, who had not met him before! The official head of the Research Department was the Chief Superintendent supported by three assistants, one from each of the army, navy and air

force services, who generally stepped up in turn for the top job. Because of their status these four officers had a toilet in a separate building with its own key. Unfortunately they sometimes kept the key in their pocket and this caused problems until a flat key ring was devised and made about six inches across with spiky edges, like a shiny aluminium star, which defied concealment and forgetfulness, and so we all could see where they were going - a lesser evil! The Chief Superintendent was also cleared a space in the "dead store" to park his car, a Hispano-Suiza, all other cars and motorcycles were not allowed close to any building because of fire regulations. This reminds me that the Department had its own volunteer fire brigade who turned out for practice at intervals. For this service each volunteer was awarded a retainer of one shilling per year. There was a story that on one occasion they attached both ends of the hose to the mains and turned them on simultaneously with a grand burst to follow! All alarms of fire in the Royal Arsenal were followed by a full district call, so there was little chance of the local brigade being without support for long although it would be headlines in the "Star-News and Standard" evening papers.

The class distinctions were made manifest in various other ways. There were separate canteens for the

technical/clerical grades and the industrial grades and a lunch club which was allocated an upstairs part of another building for the officer/professional members of staff and visitors and which was managed by a separate committee. The general arrangements were that facilities and services were provided free and the employees paid for the cost of the food plus any extras such as alcoholic drink (in lunch club only). Another distinction was the telephone directory in which officers/professionals were given their titles and qualifications which were critically (and often erroneously) evaluated by subordinate staff. You tended to address superiors as "Sir" but this habit tended to be replaced by Mr. or Dr. or Captain as time wore on. The use of Christian names was not general and one expected to be called by one's surname in general instructions and conversation. The use of nicknames or Christian names was mainly confined to popular members of your own class thus Joe who preferred this to his proper name of Arthur. Industrial grades turned out on Friday mornings for the pay parade when they were given their pay packets against the previous week's clock card. Unskilled labourers had about 50 shillings per week increasing with higher gradings up to about 75 shillings which were exceptional. There was a small addition to workers exposed to T.N.T. or lead for which there was a

monthly parade by the doctor who examined eyes and teeth - my impression was that diseases would have to be in quite an advanced state to be thus detected; other grades such as laboratory assistants, could join but had no addition to their pay. Many of the industrials were ex-service men from the 1914 - 1918 war, some with small partial disablement pensions which could help to explain the low wages. Other grades were paid weekly in cash but later this was changed to monthly payment in cash with option even later for payment through a banking account - I went through this sequence.

Laboratory Assistants had the status of civil servants and I was promptly recruited by Joe Howard as an associate member of the Institution of Professional Civil Servants for which I paid 3d per week. Qualified chemists were full members with their own branch. All scientific and technical staff appeared to be temporary and were not entitled to establishment and pensions, although every employee had a pension bonus related to period of years service. It seemed that the official view was that the intrusion of science into the civil service was a temporary phase! Thus the only members of the staff who qualified as permanent or established were the clerks, who had somewhat superior conditions of service eg better sick leave. Perhaps it

was because of this that the two clerks working in our laboratory office seemed to be more often out sick than the rest of us. On one occasion both were out at the same time and a laboratory assistant (with matriculation!) had no difficulty in doing their work and some of his own as well! The academically qualified of the officer class were given superannuation terms through the Federated Universities Superannuation Scheme (FUSS) where the employer paid 10 per cent and the employee 5 per cent of his salary towards choice of range of benefits. This would enable an interchange between research and university establishments and I suspect meant that the Government could avoid giving permanent status to scientists at that time.

Then there was the speech test - industrials, army slang (cockney); laboratory assistants and technical, grammar school with a smattering of public schools; officers and professionals from grammar school to university and the services with an infusion of cultivated Oxford. An example of the latter was demonstrated one thick foggy night when a group of us was approaching the gate and my Oxford type was speaking in his usual loud voice to be greeted (unseen) by the policeman with "this way Sir". In general at the time there was an unwholesome respect for anyone

wearing smart clothes and with a "posh" accent who would be invariably addressed as "Sir" in the street or as a visitor. As an example of class distinction in the workplace my father told me, in his factory there were two toilets one being for the manager; on this occasion a workman in a hurry had to use the manager's toilet, the other being engaged. The manager found out and gave instructions for his toilet to be redecorated forthwith!

The Laboratory at work and arrangement for study

The main analytical laboratory was divided in the middle by glass panels to separate off the office of the head of the department and balance room. This meant that if there was anything interesting going on in the office, such as one's own boss getting a wiggling, you could find something to weigh and be entertained. Appropriately the head's name was Mr. Merriman, a tall thin type with an inverted pear-shaped head and inset piercing eyes which conveyed bouts of loud temper which put the fear of God into all his staff. I remember his exact words the very first time he spoke to me. I was treating a compound with liquid bromine in the fume cupboard and he said "Take your bloody head out of the fume cupboard!" And I never forgot it. His deputy was Mr. C.S. Bryant who had interviewed me for the job and I was able to see him at

work through the rows of reagent bottles at the top of the bench. He was determining the vapour pressure of nitroglycerine by passing gas through a sample in a large thermostatically controlled tank. Sometimes he was to be seen looking around asbestos panels etc., on his bench to find weighings that he had written down when his notebook was not to hand. His equipment depended upon a vacuum pump operated by mains water pressure and one morning we came in to find that the rubber connection had burst and the laboratory was flooded. During the course of this disaster the wild stream of water had washed off nearly all the labels from the reagent bottles and for weeks afterwards, we were trying to remember what were the contents. On that end of the laboratory were two other double benches where the usual complement was two chemists and four or five assistants carrying out chemical analyses of explosives, mainly in connection with a programme of stability testing based on samples stored in climatically controlled huts or from the "World-Wide Trial." The trial stationed propellents around different countries in the British Empire giving the widest range of climatic conditions from which a travelling chemist took samples.

The other end of the laboratory was allocated to non-explosives with benches for analytical and other

chemical work for textiles, paints, lubricants and so on specifically for the services. In addition there were separate rooms for other work which needed specialised facilities. Thus early in my work I was initiated into operating a heat test for stability which demanded a high level of cleanliness. For this a white coat was supplied - not to protect me but to save contamination from my clothes. This was an exceptional issue because for all other chemical work we had to pay for our own coats, usually buying warehouse coats which sometimes wore out quickly following acid or caustic spillages. The main laboratory had a very large sink which in extreme cases of spillages, such as breakage of a Winchester quart bottle of concentrated acid, the individual could be thrown bodily and immersed in water. Fortunately this did not happen to me, but I did have a fire in a flask I was working with which was soon extinguished by a senior assistant on the spot. There were notices on the wall giving the name and location of the nearest first aid worker. This was useful to me when I suffered a bad cut when fitting some glass equipment and the first aid man doused it with iodine and made a skilful job of bandaging it. They sent me to the surgery at the other end of the Arsenal where the bandage was ripped off and replaced by a much more untidy one.

As soon as I was really working in chemistry I wanted to resume studies for a better qualification and the same month of starting, October 1929, I signed on for the Inter-BSc course and was accepted as an internal student of London University. This required four evenings each week at West Ham Municipal College which I just managed to do by snatching a quick tea at home and cycling to Stratford. In the laboratory it was accepted that we could do a little homework before the chemists arrived in the morning if we had some work in progress such as distillation. All evidence of this unofficial tolerance had to be out of the way before the critical time, and I remember forgetting to put away an open chemistry textbook and being told "What do you think this place is, a bloody college?" Because of a long established precedent set by engineering apprentices in the Royal Arsenal, laboratory assistants under 21 years of age who were attending an approved course were allowed three hours leave per week for private study. However no leave (except unpaid) was allowed in order to sit for the examinations which was the prime object of the study and attempts to accumulate study leave for this purpose were unsuccessful. So when I took my Inter-BSc in 1931 I had to use one week of my annual two weeks leave and my father had to pay the examination fee which was nearly two weeks pay for him! Fortunately I passed which

meant that I had taken it at the same time as if I had been a full time student so my work could not have been too disadvantageous to my academic studies.

My fellow workers

Joining the laboratory about the same time was Ridge, a tall heavily built amiable character and he had been allocated as laboratory assistant to Mr. Bryant. He had come from Highgate School and was one of the two or three ex public schoolboys. He distinguished himself in various ways. He blew his nose with a roar which tended to get the response "Fog on the river" - we were near the docks and could hear the big ships on foggy days. He always seemed to be walking around with a very large Stillson wrench (not a common sight in an explosive lab) but he enjoyed fitting up large equipment. His father was a prosperous builder and before long the son bought a large open car which I think was a Bugatti. When trying it out in the builders' yard he backed into and knocked over the little hut erected over the manhole to the sewer. Unfortunately one of the workers was sitting at peace inside at the time! Ridge claimed that he had bought the car from a well-to-do lady making her living in Piccadilly and it was several weeks before he was able to get rid of the exotic perfume smells from the upholstery. When he brought it in to work he made a

practice of switching on and off the ignition to produce loud bangs. Very few employees could afford cars in those days although there was a sprinkling of motorcycles, one or two with sidecars attached. Within the first year I had saved enough to buy, for £8, a very second-hand 250cc (known as two and a half h.p.) side valve Raleigh as I was getting tired of the involved journey to work and to college by tram, train and bicycle and hoped to save not only time but money in the long run. It worked out that way, just, but I had to spend weekend time on maintenance and money for second-hand spares. Reverting to Ridge I believe that his habit of making loud bangs in his exhaust system was for the car to live up to its nickname "Boanerges" the god of thunder - it could have been expensive!

Joe Howard had been in the laboratory since a junior and during the years had made a study of the interesting people in the Research Department. They included laboratory attendants who had been so keen on explosives that they took some home for their various experiments. One lad had a father who was an enthusiastic gardener who took pride in inviting his friends to be present when he dug his very early potatoes; on this occasion the boy had wired up detonators to explosive charges along two rows of potatoes and as his father put his fork in he threw the

switch and uncovered all two rows at one go. Another lad, whose father kept a pub on Woolwich Common, was busy grinding up phosphorus and chlorate with a pestle and mortar in his bedroom. There was an explosion which blew a hole in the wall and the dressing table toppled into the street below; the boy survived but only just. Joe had a weekend job to supplement his income and on Saturday afternoons was a sports reporter for Dixons, a sports agency, when he covered the less common sports such as fencing and badminton. A previous assistant had been a spare-time cinema operator and after the public performances took home the films to project to his friends. Joe described when the take-up was not working properly and the whole room filled up with loose film. There were stories about the Assistant Superintendents, one of whom drove his car in the middle of the night through the Kingsway Tramway Tunnel, but the gates were locked at the other end; the affair was hushed up and the officer seconded to India. Another made demands on one of the typists which were accepted in rather more than the usual call of duty.

My friend at the lunch table, Mr. "Bill" Walker had the job of carrying out the tests for the sensitivity classification of explosives and was quite indispensable. One of the tests, the swinging mallet

test, had been filmed in slow motion in an attempt to make a machine instead, but without success. Bill liked to smoke his pipe and had friends in the metallurgical laboratory where smoking was allowed and he would go to visit them at intervals. He also had a spare time job as a photographer and lived over the shop at Woolwich. The third member on the lunch table was Mr. Napier, a draughtsman, who wanted to know all about the pay and conditions of work for laboratory assistants as his younger brother thought of applying for a job. He got the job and many years later became a close colleague of mine. Playing table tennis in the canteen were those laboratory assistants who all came from the Williamson Mathematical School at Rochester. One of them was sadly killed in an explosion a few years later when a demonstration of shell filling was being given in an isolated explosives building. I remember him from the early days when he looked after the lab preparation of shoe polish, one of our few perks, and complained, quite rightly, when other members of the lab put the polish on too thickly. Sometimes we were joined at table tennis by two brothers, Fred and Percy Dupre, whose father set up the first testing of explosives for the Home Office and they continued his work.

Apart from the one in the head's office there was only

one telephone in the lab, which sometimes let us know what was happening to our colleagues. For example Mr. Pullman, our paints expert, was arranging accommodation at an hotel and we heard him asking for a room served by the red-headed chambermaid. He was very short-sighted and we considered he was near to nitrating his nose when he was pouring concentrated nitric acid into a test-tube a few inches from his eyes. Another chemist was Mr. Hutchison known as "Hutch" who was very deaf and had an elaborate valve operated hearing aid. On the telephone he tended to shout and I recall one occasion when this disturbed Mr. Merriman who asked his clerk what all the noise was about. To the reply "It's Mr. Hutchison speaking to Manchester" he said, "Then why the hell doesn't he use the telephone." A trick played on Hutch was to go to the window first thing in the morning and apparently comment on the nice day but say "You miserable old so-and-so" to get an affirmative reply from Hutch. This had to be done carefully without turning round because Hutch was an excellent lip reader who enjoyed going to see the films, which were all silent of course, and finding out what the actors were really saying to each other. Mr. Merriman sometimes had difficulty in remembering names which was a little complicated in that we had a Bishop, a Priestley and a Monk who was the senior laboratory assistant who always

wore a stiff collar and had a special cupboard with expensive glassware which was never used but kept locked.

The Director of Explosives Research was Dr. Rotter, a small slight man wearing pincenez spectacles, who came in occasionally as did his deputy Dr. Farmer who was also thin, but very tall and had a great reputation for telling jokes in a rather halting voice. He recounted how Noah got all the animals in the ark to multiply except the adders, until he thought of giving them a book of log tables. Both men had achieved fame by their pioneering researches in explosives safety and stability respectively. One feature of reports of research department work was that they were issued only under the title of the Chief Superintendent, a practice which lasted until the influx of academics during the war.

In the balance room were about eight sensitive balances, accurate to the fourth place of a gram, and the glass case had a label giving the name of the chemists or assistants to whom each balance had been allocated. Although they were mounted on anti-vibration shelves they were difficult to use on Tuesdays and Fridays when the big guns were fired in the proof Butts. I recall one of my chemist

colleagues, who had lunched well at the lunch club, sitting in front of his balance at 2 pm and steaming up the glass front. One of the laboratory attendants who seemed well educated and came from an old established school, soon disclosed homosexual tendencies which made him the butt of usually good humoured comments and this was a situation strange to me. In those days such individuals could expect a difficult time in a typical workplace and after a few years he took his own life. I suppose we all thought he was led astray from his experiences at school.

During my period in the Heat Test Room, I was nominally in charge of two industrials who were the Cordite Grinders (and I was also responsible for giving out samples). They obviously resented the higher status of the very young junior lab assistant but we made our peace. They were old soldiers, the younger being an ex-bandsman in the Worcester Regiment who cupped his hand to give trumpet renderings of the regimental marches. The older man described his young days in Woolwich when he helped the milkman who trundled the trolley round the streets. An important part of his duties had been to look out for the Weights and Measures Inspector when he had to turn on the big tap under the milk churn so that all the milk ran into the street; then pretend to run away and be caught then hit

round the ear very smartly by the milkman. This earned him sixpence which was a lot cheaper than the fine for selling watered milk. In the heat test room was a large press and every few days a tall, uncommunicative lab assistant came in and pressed out a sample of nitrocellulose the first stage in drying it for analysis. After about three months he spoke "Do you come from Chatham?" I said "No" and this was the end of conversation for many months. He was George Welby, and I got to know him very well eventually. He did Lunge nitrogens which required energetic shaking of a heavy mercury filled nitrometer. At every shake his long lank hair fell over his face and he had to shake it back again - a fascinating performance! When I was given instructions about giving out samples, I had a book to record signatures and was told how important this was, for one or two recipients might try to avoid doing the work and claim the sample had not been received. This was indeed true and the head of Calorimetric Section, Mr. T. Carlton Sutton, a very friendly and courteous man was the one to watch. On one occasion, when I was doing a delivery to him, he invited me to sit at his desk and have a slice of bread and butter from the loaf he had there. Apparently not to worry about getting a signature during the hospitality. At that time I was put in charge of the alcohol stock and given the key to the locker. I

suspected that I was losing some and made a very tiny blue mark at the level in the Winchester. Next time I found that there were dozens of blue marks all over the glass! Cynical humour but I never lost any more! (Possibly I, as a trusted keyholder, was the only one in the laboratory who had never drunk any alcoholic drink and this is still the situation in 1991!)

The textile research was under Dr. Barker, a stocky Yorkshireman and his lab assistant, Bill Dascombe. I had not been there very long before it was decided that, to meet rising costs, the tea club should raise its charge per week from one and a half pence to two pence, still rather less than a farthing a cup. Dr. Barker protested about this "I don't know what things are coming to". Bill Dascombe seemed to be running around with sample jars of canvas attacked by termites, but he was also active in running a magazine club and I was told by Joe Howard that he had been the secretary of a fencing club started in the Department, and held at a school at Charlton. One night coming back to Abbey Wood by tram, all the others members got on, but Bill who was carrying all the foils was not allowed on the tram because the conductor considered them too dangerous. This was typical the ways things seemed to work out for him. It was noticed that among the Strand, the Windsor etc. magazines the Amateur

Photographer was most in demand and it was decided to form a Photographic Club with Bill Dascombe as secretary. We obtained the use of a darkroom and Bill proceeded to demonstrate how to develop a film in the dark. After some time he came out with a red face and no film as he had "developed" in the fixer and "fixed" in the developer. Despite this beginning the Research Department Photographic Club was destined to progress and Bill's experience was good for me to relate to students when I became a photography tutor, a long time later. Eric Priestly was our key member who memorised all his photography lessons from Regent Street Polytechnic and "regurgitated" it to fellow members. Apart from being a good physicist he had a very good memory and he also entered for exhibitions, portraits entitled "J.B. Priestley" which were truthfully of his father and not the other one, Eric also had literary accomplishments and could give learned lectures about poets and their work.

The Rules and Regulations relating to time-wasting, stealing and gambling were sometimes broken. Thus one of my colleagues was quite often up to two hours late arriving for work and warnings had little effect. The head of his laboratory was very reluctant to take action because, when he was there, this young man was a very able organic chemist and after he had been advised

to move nearer (he came from Barking in Essex) without response he had to go for good. There was a little stealing and one process worker lost all his money one payday after a mock "show-most-take-all" contest in the canteen! Platinum laboratory ware is very expensive and on one occasion when a dish was missing detectives questioned members of the staff, apparently without getting any clues; one senior lab assistant told me he was asked "Quietly now - who do you think has taken it?" On a much later occasion a young man from the department was actually picked up by the London police in the West End in the act of trying to sell a platinum crucible. The two War Department detectives, one short and one tall, were known as Mutt and Jeff after the well-known cartoon characters, and one day they were called in to apprehend an "exposer" reported by a typist. They hid behind a truck and pounced when the villain appeared but in their anxiety they tripped over each other and he got away over the wall. They also ran a football pontoon goals competition for the police (despite the rule about gambling) which was apparently in order until it was observed that their families and friends did very well and they lost their jobs in accordance with the rules. There was a sacking of a different sort of the lab attendant who, despite having the name of Joy, made his associates unhappy in that he was just plain clumsy, dropping almost anything he

touched, usually glassware, an unpopular habit in an explosives laboratory. After he left us he started in an oil firm, did very well indeed and was last seen by the head who sacked him looking very prosperous as he got out of a taxi to go into the Savoy Hotel with no sign of recognition and thanks for his old boss!

The next ten years

As I worked on the same site from 7th October 1929 to 4th September 1939 it may be useful to summarise developments.

On 17th October 1936 I received my very first assessment for income tax. With gross pay of £127 p.a. I was required to pay 12s 8d in two six-monthly instalments of 6s 4d. Part of the pay was Civil Service Bonus (C.S.B. or C.S. Bryant!) which was linked to cost of living and I remember when this actually went down. After long delays the Carpenter Commission report was finally implemented and we were all regraded, but interpreted by the Treasury to give the lowest possible pay. I became Assistant 3 and qualified chemists, Scientific Officers or Assistants 2 or 1.

Before then I had carried out quite a range of tasks on analysis and testing of explosives and was ready for a change. The opportunity came when a woman lab

assistant in the Radiological Research Directorate was leaving to get married and I applied and was accepted for a parallel transfer. The work was essentially photographic but I was able to apply my leaning towards chemical interest in X-ray and later in gamma ray applications. I carried on my studies for a degree in chemistry but with the tougher option of subsidiary physics. Most of my fellow students chose either mathematics or biochemistry. It was a hard slog because I found it necessary to take the mathematics degree course in order to accomplish the physics. In 1938 the chemistry and the physics was accomplished and I could now apply for any vacancies in the Assistant 2 grade starting at £315 p.a. In the meantime I found myself giving lectures on photographic theory to engineers being trained by the department in Industrial Radiology. I started a post graduate course in metallurgy at the Chelsea Polytechnic. Then a vacancy occurred in the Organic Chemistry Branch which I applied for and obtained, with promotion, and was assigned to scaling up a crystallisation process which had given prolonged problems.

During my time in the Radiological Directorate there were two outstation duties of interest. Both involved the manufacture and testing of very large naval guns. Large gun mountings were being cast at Darlington Forge

and I was a member of a small team which left Kings Cross Station by the Flying Scotsman train with a tube of radium bromide crystals in a thick lead container. We had a reserved first class compartment which was the reason why the stationmaster assumed that we were entitled to full courtesies and instructed the stationmaster at Darlington to be ready to greet us personally, complete with top hat, on arrival. He must have been puzzled why such a very ordinary looking bunch should have such high social status! We stayed at Darlington for about two weeks taking gamma ray pictures of the very thick castings for the presence, if any, of cracks or other flaws in the metal which, if undetected, could have been disastrous. I still have photographs which I took during this trip.

The Proof research unit needed a technical assistant to join a marine major and a technician for duty on the battleship H.M.S. Rodney, which had been recently commissioned, to test the firing intervals of the sixteen inch guns aboard. I was invited for the job on the basis of my photographic experience and I had to present myself at 6 am at the Royal Arsenal Gate on a certain Sunday morning. To meet this deadline before any public transport was available I cycled from Plaistow to North Woolwich, carried the bike on my shoulder down the stairs into the foot-tunnel and so on

until I reached the Main Gate where I found a cycle shed to leave my machine. Then by Navy lorry to Sheerness and liberty boat out into the estuary where we reached Rodney. I doffed my trilby hat to the quarter deck to honour Lord Nelson and the first question I was asked was "Had I brought a dinner jacket?" This had not been the essential item to pack on my bike at 4.30 am even if I had one! So instead of the Ward Room I was allocated a cabin in the Warrant Officers' Mess which suited me nicely. My job was to prepare and use the chemical solutions to process the films from high speed camera recording the time intervals. We started firing one gun, then three and finally nine as a full broadside. Quite an event even in the fire control room where I was located. This duty coincided with the time Mussolini invaded Abyssinia and the League of Nations was considering the action to be taken. The general opinion in the W.O. Mess was that H.M.S. Rodney would be immediately ordered to the Mediterranean and there was great regret and disappointment that our trials were continued in the North Sea instead - perhaps the whole course of history leading up to 1939 would have been changed. I had full admiration for the very delicate and patient ballistic galvanometer settings by the major and the back up by the technician so I was glad that I did not let them down and we got full results which were

essential for the ship's efficiency and safety. Then after two weeks at sea we returned ashore, I collected my bike from the police cycle rack and cycled home.

Perhaps it was a coincidence but the next episode in my career also involved the large naval guns as I had the only processing plant, still experimental, which could provide the essential composition to activate correctly the base fuses for the largest shells. When I reported at Woolwich on Monday morning 4th September 1939 my sealed orders were opened and I had to proceed to Dorset with my equipment which was at once loaded on to a lorry. Most people thought that Woolwich Arsenal would be bombed and gassed within hours. I escorted the lorry on my motorcycle and we decided to stay the night at Winchester where the driver and I stayed in a pub after delivering transport and load to be safeguarded in the yard of the police station. So exactly ten years from starting work at Woolwich I was setting up a chemical plant at the Royal Naval Cordite Factory at Holton Heath.

Postscript - looking back 60 years on

The old Research Department at Woolwich is no more, because most of the site is being used for a new H.M. Prison. The administrative and some laboratory buildings which later housed chemical inspection staff

are due to close with the work transferred to North East England in 1990.

The development of the special process being completed in Dorset later in 1940 I was transferred to University College Swansea, where a major part of the Explosive Research Directorate had been located. I worked in laboratory and plant development projects which included duty at Royal Ordnance Factories especially at Bridgend. I was promoted to Scientific Officer and, as head of a section came back to Woolwich to new facilities although the war was still on. In 1952 I was officially transferred to the former Royal Gunpowder Factory at Waltham Abbey, although I still visited Woolwich frequently as the experimental plant and laboratories were still my responsibility until I retired in 1974. From 1950 onwards I became increasingly involved with overseas visits on collaboration in research and development starting with Italy and continuing with Canada, U.S.A., Sweden and Australia as well as U.K. commitments to other research establishments, universities and contractors. I could not have predicted this in 1929! Where I had my plant in Dorset is now part of a nature reserve - progress!

On retirement I was asked to continue part-time as a

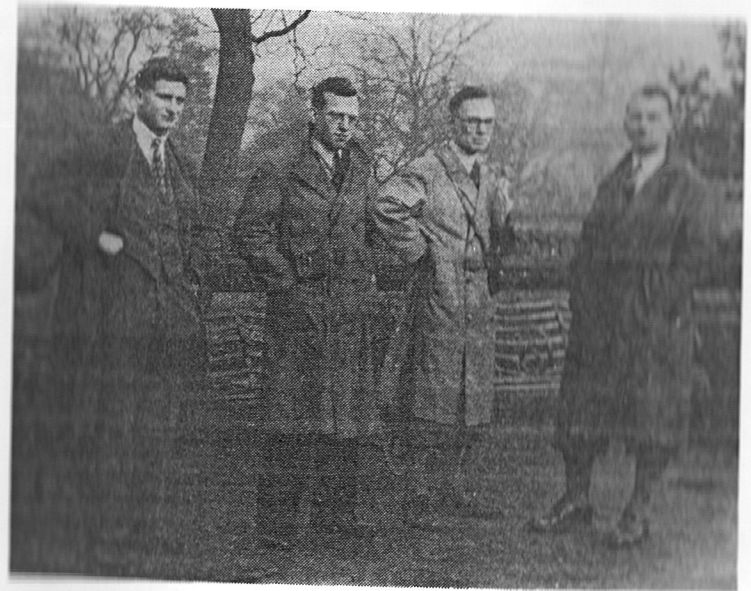
consultant to the Ministry of Defence to write a detailed monograph of my research and development work. They later asked me to be a consultant to an engineering firm which wanted to develop processes in which I had been the inventor or co-inventor. This continued into the 1980's until the firm was taken over by an American organisation, probably as an asset stripping operation, but my photographic interest and practice is still active in 1990.

So looking back to 1929 I feel that it was a good but hard beginning to a busy and satisfying career. Perhaps the most rewarding happening was in 1955 when I was given a special merit promotion to Senior Principal Scientific Officer for research contributions. However I think the last word and acknowledgement should go to the many colleagues, including those abroad with whom it was such a pleasure and a privilege to be associated, and I can even forgive the very few who sometimes made life that little bit harder.

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The photograph

The author George Taylor, with colleagues on a photographic club outing in 1935. He is on the left with Bill Dascombe (later Sanitary Inspector for Epping R.D.C.), third from left. By this time hats were becoming discarded and the smart thing was plus fours and accessories to be worn at work on Saturday morning and for any outings, preferably sporting, in the afternoon. Hence the expression "Plus fours and no breakfast" because after paying the Fifty Shillings Tailors for a suit with one pair of trousers, plus one pair of plus fours (50 bob) there was nothing left for food!



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Acknowledgement

To Lady Pat Gibberd who suggested that this account should be written because the records covering 60 years ago needed personal work experiences, and to the Ministry of Defence for permission to publish.