A PROJECT BY

THE COUNTY SECONDARY SCHOOL

WOTTON-UNDER-EDGE, GLOUCESTERSHIRE.

CONSTRUCTION OF A SWIMMING POOL.

Our School, situated halfway between Gloucester and Bristol, draws its mixed population from a Rural area of about 30 square miles. Under the Headmistress, Miss A. Higgs B. A. the 450 pupils occupy Ministry of Works standard hutting on a temporary site close to the centre of the town. Here, it has been the policy of the School, since its opening in January 1954, to develop practical subjects both inside and outside the workshop. Under this system a large amount of building work has been completed. This includes the construction of various types of rabbit hutches, fowl houses, a greenhouse, goat sheds, a tool shed, a cycle shed and store room, a metal store, a photographic dark room, an electric pottery kiln, a number of retaining walls and a large amount of concrete paving.

During the Summer of 1958, a small number of boys, due to leave School at the end of the Summer term, began the construction of two pools for fish and aquatic plants. With a limited amount of instruction a very creditable effort was completed which led to a great deal of discussion on the possibility of building a learners' swimming pool.

The nearest public swimming baths were some twelve miles away and pupils of the School have also been taken by coach to a pool eighteen miles away for swimming instruction. This system was so unsatisfactory it was felt that a pool in the immediate vicinity of the school would be a tremendous asset to our facilities.

When the decision was finally made to attempt the project it was found that information regarding the construction of small types of swimming pools was very limited. After much searching we discovered one design,

from New Zealand, where a learners pool was advocated, 75ft long x 15ft wide, with a water depth of 3ft. This enabled the pool to be of fairly simple construction, above ground level if necessary, the dimensions also being ideal for learners to gain confidence and to progress rapidly. The one serious object to this type of pool, was that pupils, once having learnt to swim, the scope of the pool was too limited for very much further development of their swimming skills.

Many weeks of discussion took place before we finally decided that it would be better, if possible, to extend the scheme to produce a pool that would not only provide adequate safe facilities for learners, but would also meet the requirements of those already proficient in this art. We planned to provide these facilities, not only for our own pupils, but for those at the local Grammar School, the two Primary Schools and the Infants School in the Town. In addition, we very much hoped that it would be practicable to allow the use of the pool in the evenings to the Youth Club, the Boy Scouts, the Girl Guides and also to an organised adult body, should there be sufficient demand to warrant such action.

As it was impossible to build such a pool anywhere on the School site, we should have to consider the provision of changing room facilities. Also, as the bathing load would be very heavy, if all our plans came into being, a filtration and chlorination plant would be an absolute necessity, We therefore concentrated upon the siting of the project and found suitable land very difficult to obtain. One site, owned by the County Authority was considered too far away, the School garden also falling into this category, also being on too much of a slope to be of any use.

However we found that the Foundation Governors of Katharine Lady Berkeley's Grammar School were the owners of a large amount of land adjacent to the School site.

— AREA CONSIDERED FOR SWIMMING POOL SITE —

— SCHOOL GARDEN —

— PARISH COUNCIL PLAYING FIELD —

— WALLED GARDEN —

— COBBLED YARD —

— TO SCHOOL 150 YARDS —

- AREA DEVELOPED FOR SWIMMING POOL SITE -

-- SCHOOL GARDEN

- PARISH COUNCIL PLAYING FIELD -

- POOL SITE -

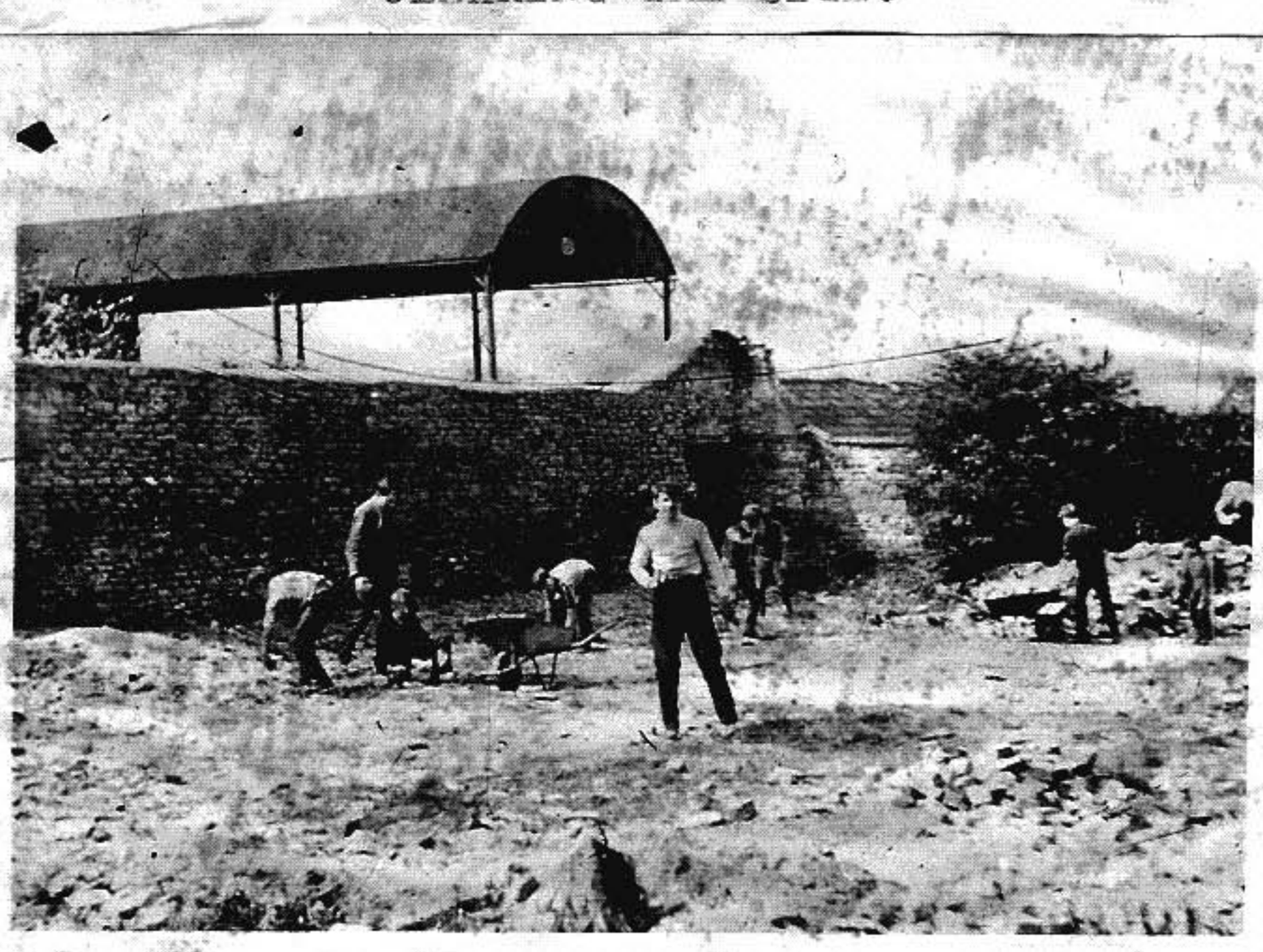
-- WALLED GARDEN -

This land was in use as the playing field of the Grammar School, as the Town playing field, a builders store yard with a large amount let for agricultural purposes. We therefore approached the Governors of the Grammar School with our project and were informed that, if we could find a suitable site which would not interfere with any future development considered by them, then this site would be handed over to us without any charge. Our thanks must be to the Governors, who, through their generosity, made the scheme possible. We were to find that throughout the project, this type of generosity would occur time and time again.

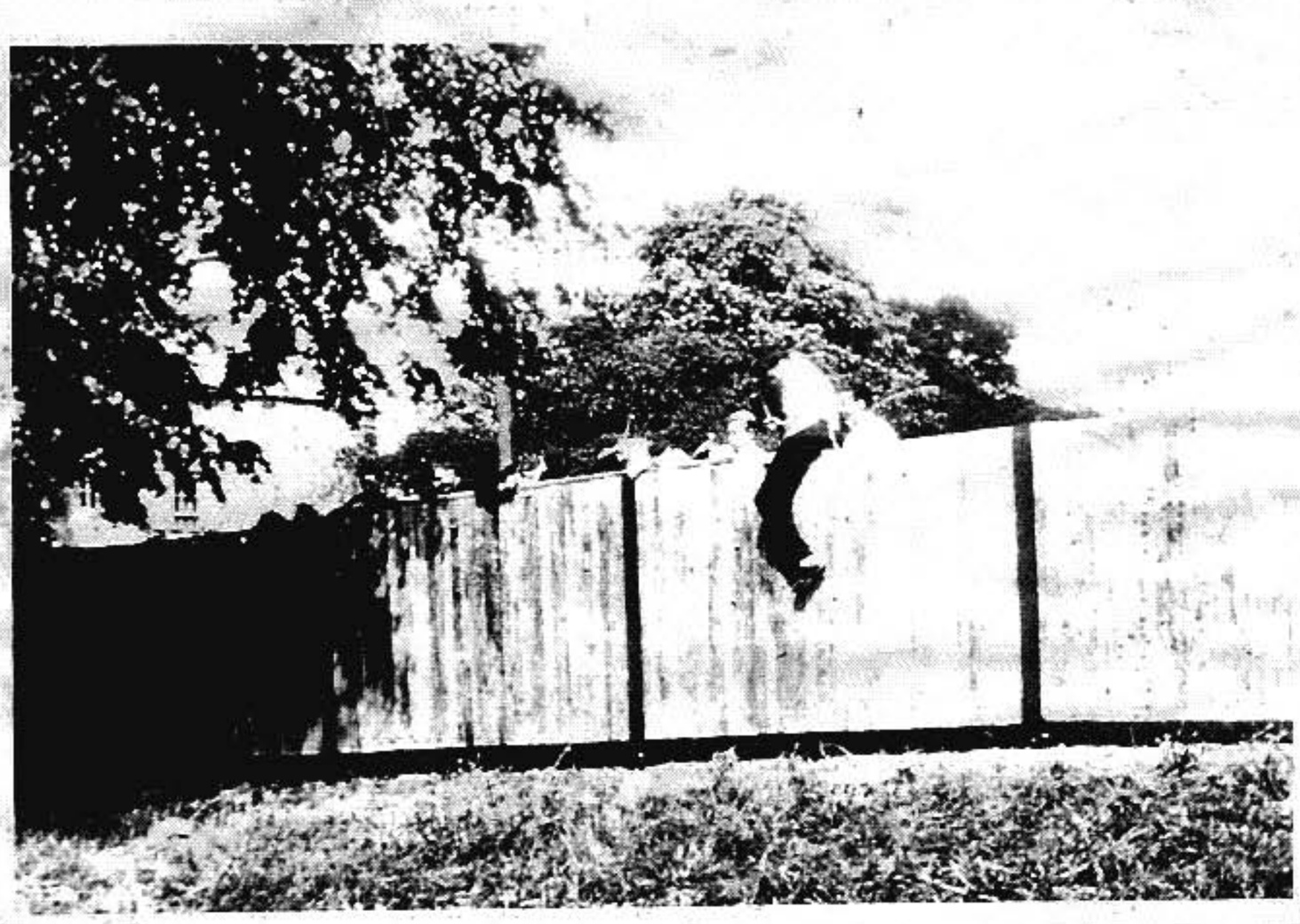
After surveying the land in question, two sites appeared to be suitable for our needs. We therefore made a request to the local Rural District Council and the County Planning Authority for an early meeting in the area to discuss the Scheme. At this meeting, in August 1958, both Authorities were most helpful. The first site we visited proved unfavourable for development, being too near the main road, and also having such a variation in levels, that our costs would have been prohibitive. The second site proved much more amenable and it was decided to ask the Grammar School Governors for its use.

The area chosen consisted of the builders store yard, together with a small part of the Town Playing Field which had not been developed. The site was approximately 150 yards from the School gates and, although narrower than we should have liked, it was ideally situated regarding road access, water, electricity and sewerage services. We were informed by the Rural District Council that they considered a Filtration plant was a necessity as they could not allow disposal of the bathing waters through the sewerage system every week - also we should have the trouble of emptying & refilling the bath

CLEARING THE SITE.



ERECTING THE FENCE.



once a week & lose warmth of water increase our costs at each filling.

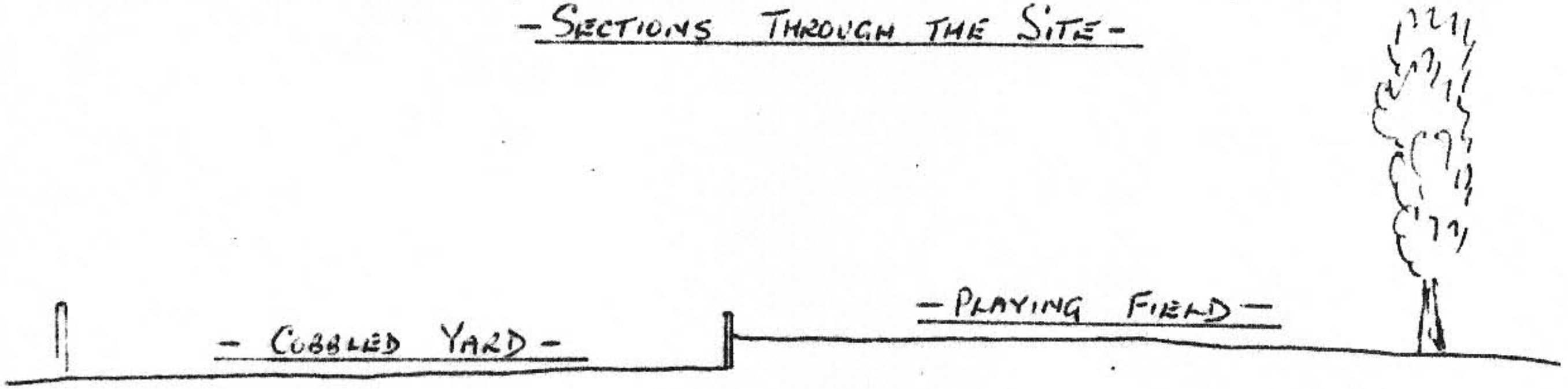
The Parish Council very quickly gave their permission for us to take over the land we required and the Governors of the Grammar School confirmed that we could develop the area. In September we were therefore ready to proceed with more detailed planning.

PLANNING.

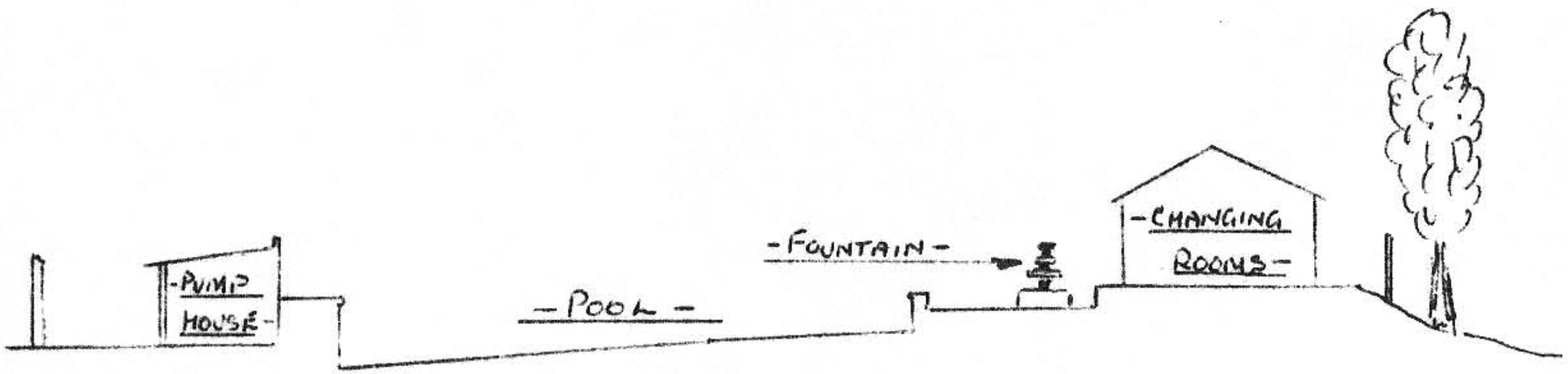
September and October were spent by senior boys clearing the area of bushes and weed growth so that we could make a rough survey of the site. This was roughly divided in half by a stone retaining wall, the cobbled builders yard being 2'6" below the level of the playing field. The length of the land we required was about 145ft and for a considerable part of this length the width of the site was 46ft, opening out to a width of 98ft at the western or playing field end. It was necessary that this end should be very adequately fenced, together with the northern boundary formed by the roadway. At the eastern end of the site, we decided to close the existing entrance to the site, leaving a 12ft entrance way to the walled garden on our southern boundary. A new entrance would be formed further towards the centre of the site.

We estimated that we should be able to provide a pool 60ft long x 20ft wide together with all the additional amenities required. For a length of 20ft, the water depth would fall from 3'0" to 3'6" and in the remaining 40ft length, the water depth would fall to 6'6" at the deep end. This would give an area at that end for instruction in

- SECTIONS THROUGH THE SITE -

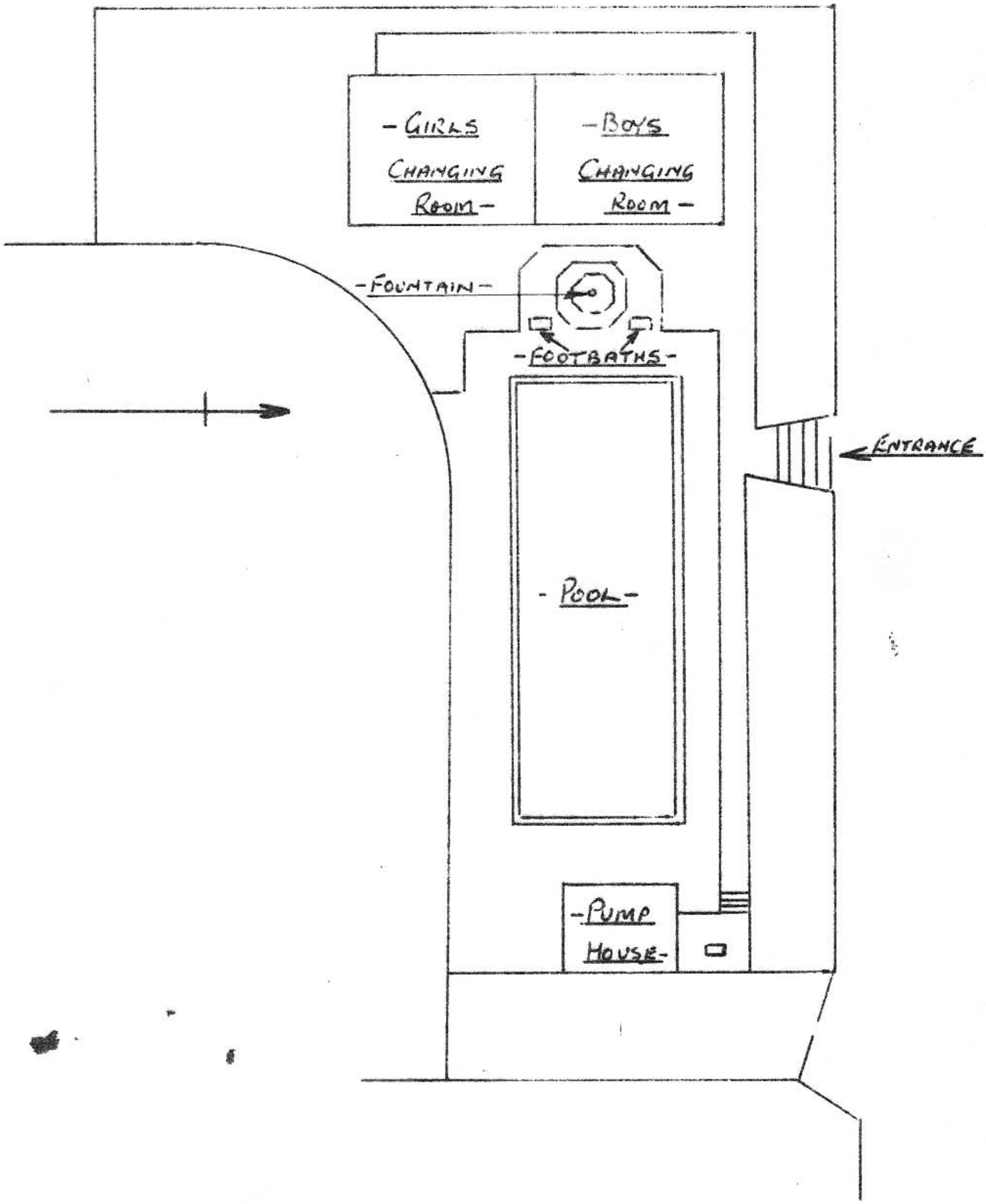


BEFORE DEVELOPMENT



- DEVELOPMENT COMPLETED -

- POOL SITE AS DEVELOPED -



plunging. To provide sufficient depth of water for full scale diving instruction would have meant an increase to our costs far beyond our means, and also increased the quantity of water required to fill the pool. As no provision was being made for the heating of the pool, it was important not to increase the water volume out of all proportion to the surface area.

Our rough survey had been suitable to decide what could possibly be accomplished on the site, but it was now necessary that the site should be accurately surveyed. A local architect, Mr. R. Edwards was approached for his professional assistance and once again we received great generosity. Without any charge, Mr. Edwards completely surveyed the land and spent a morning discussing the project with us. After carefully noting our proposals, he produced an outline plan of this scheme for our approval. This plan was then submitted to the Rural District Council and the County Planning Authority for permission to proceed. At the same time, Mr. Edwards gave us details of the pipe-work required for the outlet and the inlets to the pool and advised us to place an order for three 4 inch Puddle Flanges so that there would be no delay once concreting began.

Discussions now took place regarding the construction of the pool itself. As no-one realised the enormous amount of work being undertaken, we cheerfully agreed to build the pool by our own efforts. Professional advice would be sought whenever possible, but assistance would be obtained only where it was absolutely essential.

It was known that one pool had been successfully built, using 4 inch concrete blocks for the walls. This method required the inner face of the pool to be plastered with two coats of waterproof cement and the outside of the

walls to be backfilled with a 4 inch skin of reinforced concrete. However, in this case, professional assistance had been available throughout the construction without charge.

It was thought that the task of erecting walls, 60ft in length and up to 7ft. in height was asking too much of our young labour force and it was finally agreed that if possible our best plan would be to erect shuttering and cast the walls in situ. By this method, with unlimited time available, our boys could ensure that the walls were straight and upright before pouring any conrete, thus ensuring a successful construction. Although an ideal method on paper, as soon as details of the shuttering were planned, it became apparent that this method would be very difficult and costly. The matter was therefore left in abeyance to be finally solved when the need arose.

Large quantities of concrete would be required during the construction, but with good road access to the site, it was thought possible that bulk supplies of ready mixed aggregate would be an answer to our needs. This would mean the prepartion of a large amount of work at any one time to enable us to take an economic supply, and we should also be committed to using the concrete when delivered, no matter what the weather conditions would be like at the time of delivery. After much consideration it was decided it would be best if we produced all our concrete on the site. Two local builders agreed to supply all cement needed from their stocks at very short notice, so that we should not require to stockpile large quantities of cement with possible wastage and deterioration adding to our costs. We could also take delivery of bulk supplies of local limestone chippings and concreting sand, again very short notice being required for ordering.

The problem of the cement mixer was next to be decided. We required a 5/3½ type of mixer and found that it would cost 30/- per week to hire such a machine. Enquiries at a local builders' merchant depot showed that we could buy a good second hand mixer of this type for £45 and an order was placed to this effect. Without a doubt, this purchase proved a considerable asset, as for two years, with very little trouble or attention, all concrete in large or small batches was produced where and when required. All boys enjoyed using the mixer and we found that at least 5 tons of good quality concrete could be produced and laid in a school day if required.

A letter was sent to all parents of our pupils, explaining the scheme and asking for their co-operation. It was suggested that instead of Handicraft in the workshop, when the weather was suitable, we should concentrate on the pool construction. This would mean a great deal of hard work by all concerned and most of the work would be of a dirty nature requiring old clothes. Any parent who did not agree to this scheme was asked to inform the School in order that their wishes could be respected. We are very proud that no such a request was ever received.

Having planned so much throughout the winter months, it came as rather a shock in April 1959, to find that there had been an objection to our plans by the Highway Authority. Because the site was so close to the road, it was thought it might cause interference to any road widening scheme that might be planned in the future. This objection, if upheld, could have caused the whole project to be abandoned, and at once we requested a meeting of all interested parties to see if the objections could be met. This meeting took place in May 1959 and to our relief it was agreed, that, with a few minor adjustments to the siting of

the pool, work could continue as planned. At Whitsun 1959, we were finally ready to start work.

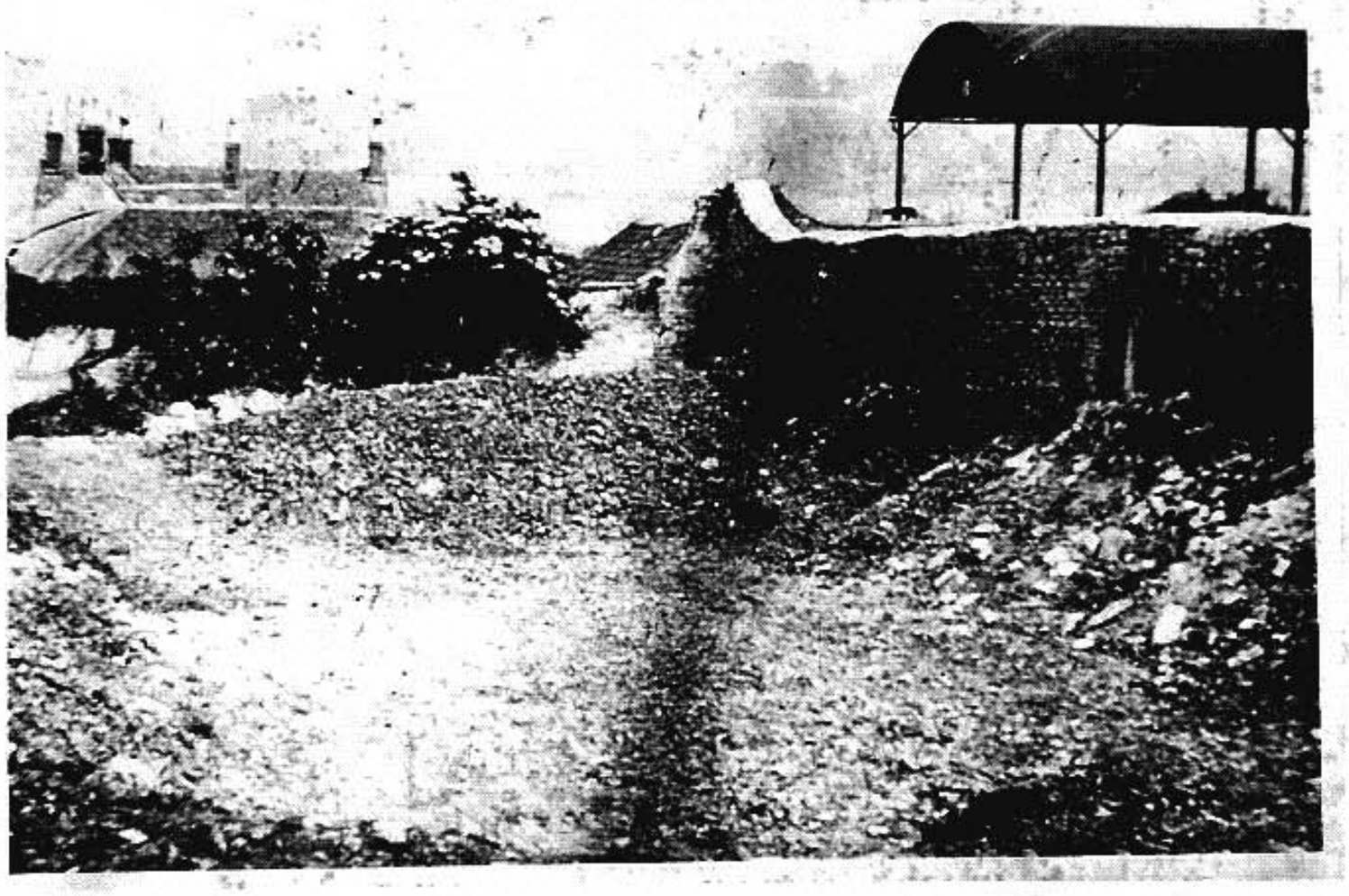
PREPARATION OF THE SITE.

Our first work was to shut off the site from the playing field at the western end. Various types of fences had been inspected and a close board type of fence chosen. Delivery was now taken of 120ft. of 6ft. Oak Pale fencing from the Forest of Dean, and ten boys were given the task of its erection. Having been shown where the fence was required the boys were left to their own initiative and in eight days erected the posts and rails, fitted the gravel boards, nailed on the oak pales and added the cappings. They then put up a large sign proclaiming that we had commenced work on the swimming pool.

The wall around the garden on our southern boundary was at least 15ft. high at one place, and the top looked rather unsafe. It was decided to reduce the height of the wall so that it would be about 7ft. above the pool level, when all work was completed. This would let in more sunlight on to the water during the summer months, as we had been obliged to site the edge of the pool only 7ft. from the face of this wall. Some volunteers spent a number of days on top of the wall, steadily reducing its height for a length of 90ft, The wall was 2ft. thick and a great deal of stone and brickwork was removed before it was finally finished with a concrete capping along its length, At the same time, other boys were busy removing the dividing wall on the site, all stone from the two walls being ementually removed to the School for use in further retaining walls around the

CLEARING BY HAND.

MECHANICAL DIGGING COMPLETED.



gardens.

The cobbles forming the floor of the builders yard were next removed and stored so that they would provided materials for small retaining walls at a later date. Much to our surprise we discovered that under the floor of this yard was a fine example of a stone well covered by stone arching in excellent condition. It was rather unfortunate that craftmanship of this type had to be removed so that we could continue with our work. We soon discovered that the ground was not very suitable for digging, consisting totally of limestone brash. We therefore sought the aid of a local contractor who loaned a bulldozer free of charge. In two days this bulldozer transformed the site, clearing practically all the area we required. Unfortunately, owing to confined nature of the site, it could not complete the digging, and we were forced to start attempting to clear the remaining debris with picks, shovels and wheel-barrows. Very little headway was made in this fashion so another request was made to our contractor friend for his assistance. This time a new digger was sent and in one morning had removed most of the remaining spoil, and banked it well out of the way. This kindness on the part of the contractor, Mr. H. Tily, saved us months of laborious digging which would have killed the enthusiasm the boys had for the project before it had properly begun.

Once the mechanical digging had been completed the overall sizes of the pool were pegged out and grading the surface commenced. To do this, the sides of the pool were marked with strings, instruction being given in the formation of right angles by measurement. The level so found. A trench was dug where the wall at the shallow

end was to be sited and them continued for the length of one side of the pool. A Cowley level was borrowed from a builder and being very simple to operate, the boys fixed pegs in these trenches at 5ft. intervals to conform with the slope required. Concrete was then cast in the two trenches level with the tops of the pegs, so giving a permanent set of levels for our future reference.

The whole of the site was next marked out as a grid with 5ft. intervals and classes began to grade the area to conform with the levels of the concrete layer. Owing to the nature of the ground, this was a very tedious and laborious undertaking, with weeks of work shifting stone and brash. Even the smallest rise in the ground level required a large amount of work with picks to break down the stone, and the very roughness of the surface made shovelling the spoil a difficult business for our unskilled labour. Class after class took turns in working over the surface until we decided that no further benefit could be gained from more efforts of this kind.

Meanwhile it had become apparent that the required technical "know how" was sadly lacking. The type of construction envisaged was completely different to that generally encountered in normal building operations, so it was not an easy matter to find anyone with sufficient practical knowledge to give us definite guidance. We had attempted to interest a company dealing in reinforced concrete in our scheme but were informed that to produce a design for the pool and to supply the necessary steel would cost £275. At the end of June 1959, although work to that point had proceeded much faster than we had hoped, we arrived at a stage beyond which it would be difficult to go.

POOL DESIGN

Under these circumstances we received a visit one afternoon from Mr. J. Wood B.Sc(Eng). who offered us his assistance if required. Mr. Wood was employed as a Civil Engineer at a nearby Power Station project and had come to live at Wotton-under-Edge very close to the School site. By chance he had heard that we had started a Swimming Pool project and was so interested in the idea, that he has called to see if his experience could be used. He could not have arrived at a more opportune moment and we could not have found a better adviser or friend as, from that time on, he gave us unlimited advice and spent a great deal of his spare time working on our behalf.

After inspecting the site we discussed our rather sketchy plans for the construction and it was agreed that he should consult with Mr. Edwards, the architect, with a view to producing a detailed reinforced concrete design for the pool. He advised that in the meantime, we should lay a 2 inch layer of concrete blinding over the site. This would give a true working surface to operate upon and also act as an additional safeguard to our base. During the last week of the Summer Term we set out 2 inch battens to enclose an area 15ft. x 10ft. and the first area of blinding was laid.

During the Summer Holidays, Mr. Wood, Mr. Edwards and myself spent a morning on the Pool site to finalise our plans. Mr. Wood produced a design for the construction of the pool, with cutting and bending specifications for the steelwork. From these instructions, it was easy to see where each piece of steel should be fixed, what length and size it was to be and what shape was required. To our surprise

we were offered steel surplus from the power station which would be cut, bent and delivered on our site. I was invited to visit the power station to see the steel and also to see the steel shuttering in use there. It was amazing to see how simple this shuttering was to erect and the finish it was possible to obtain on the concrete surfaces. I was informed that if we wished, a supply of this shuttering could be made available for our use, an offer which was accepted on the spot. The method of erection was explained, how the shuttering was treated prior to casting, and also information regarding a concrete mix which would require no water-proofing additive. We were to find that in addition to all this help in the supply of materials and technical knowledge, because we were attempting to help the children of our area, the price of the steel was fixed at £43 as the total cost of its supply; this for steel to the value of £83. No other charge was made; the use of the shuttering which would have cost about £60 was made free of charge.

In addition, Mr. Wood also produced drawings of a scum trough and coping stone with which to finish the pool. It was suggested that although this would entail extra labour, the finished pool would be considerably enhanced, and this would be well worth the effort required. During the rest of the summer holidays, with the help of friends in the joinery business, I produced three moulds so that we could start casting the edging stones as soon as School recommenced. The scum trough and coping was to be in three separate pieces and each stone was to be 27 inches long. We therefore would require eighty of each type of stone, and it was estimated that we should require the whole of a school year to enable this amount to be produced.

ORGANISATION OF LABOUR.

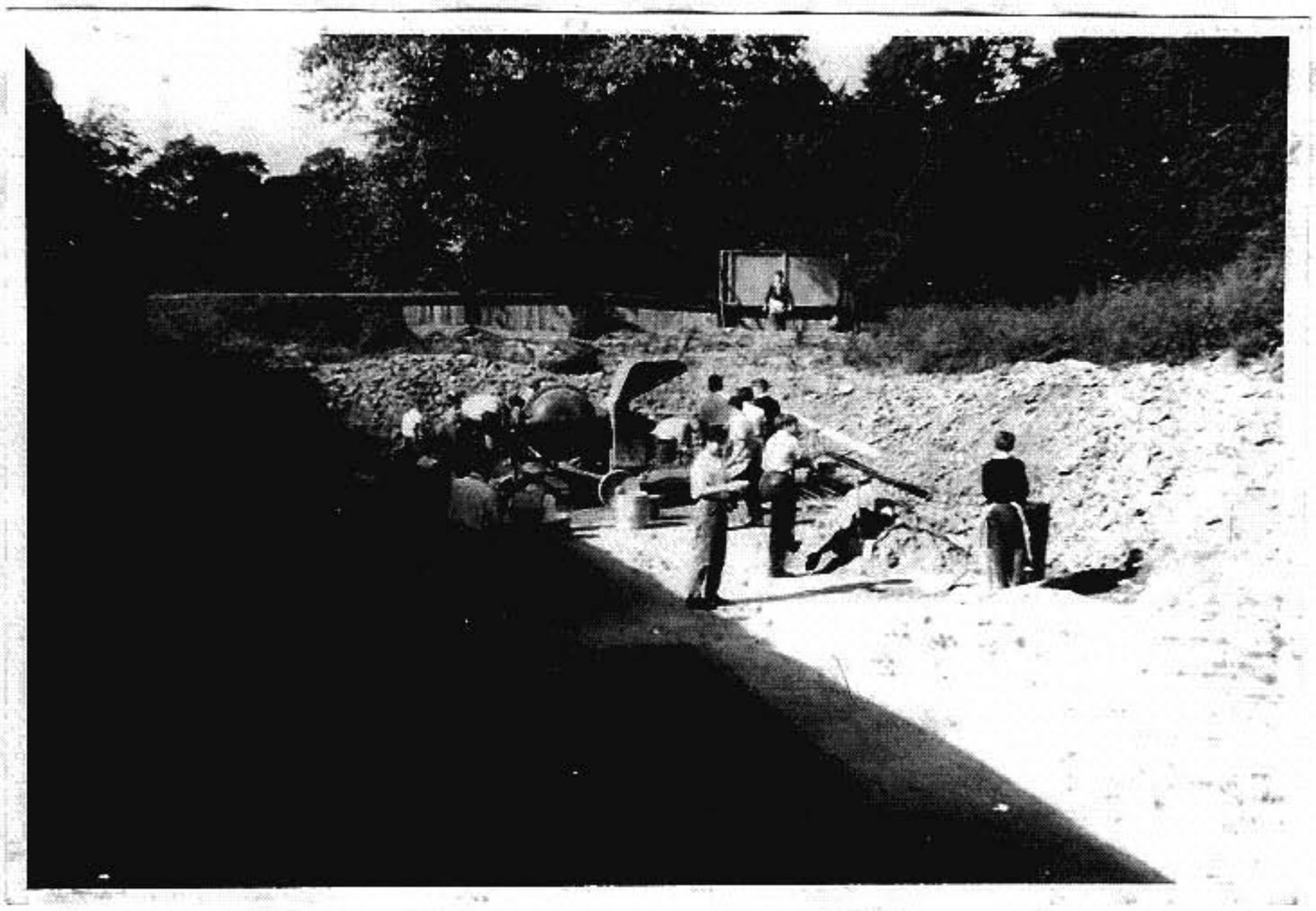
When School resumed in September 1959, it was necessary to plan our exact labour force for the term. It was agreed that as previously adopted, Handicraft classes should continue to work on the site and to be supplemented when casting took place, by additional senior boys to bring the numbers up to between 25-30. During a cast, a second member of the Staff, Mr. A. Coward was to assist in controlling the work so that we could ensure that all boys were protected, mainly from their own enthusiasm, as well as ensuring that the concrete was correctly prepared and laid.

It was also decided to appoint two senior boys as "foremen" to be employed on the site permanently as chief assistants. This system proved highly successful and was continued throughout the scheme. It was found that boys of all academic standards were capable of taking charge of working groups and overseeing jobs to be done, as long as they were sufficiently interested in the work and that the reasons for a specific job had been explained.

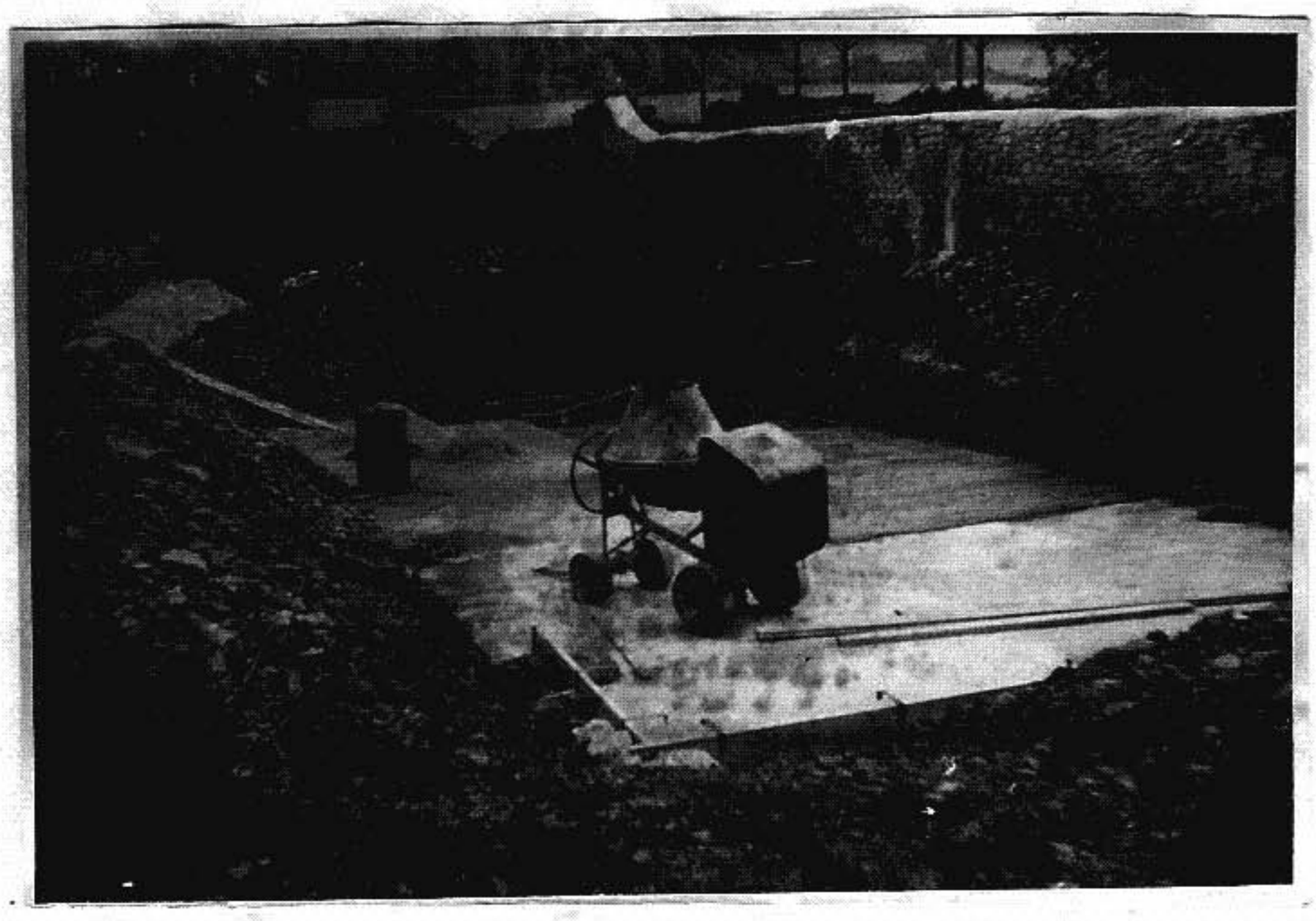
Our initial choice of "foremen" was probably the best, this being in no way a reflection upon any lad subsequently employed in that capacity. The two boys were well into their last year at School and had already decided that upon leaving School, they would take up practical occupations. One was to be apprenticed to a local specialist in Cotswold stone tiling, whilst the other had decided upon Forestry as a career. Both lads were willing to undertake this work and their parents were pleased that they should be given the oppotunity to prove their practical ability.

During the casting of the base and the walls, quite a lot of the work could only be carried out after the concrete

THE BLINDING LAYER LAID



THE FIRST BASE SHUTTER LAID.



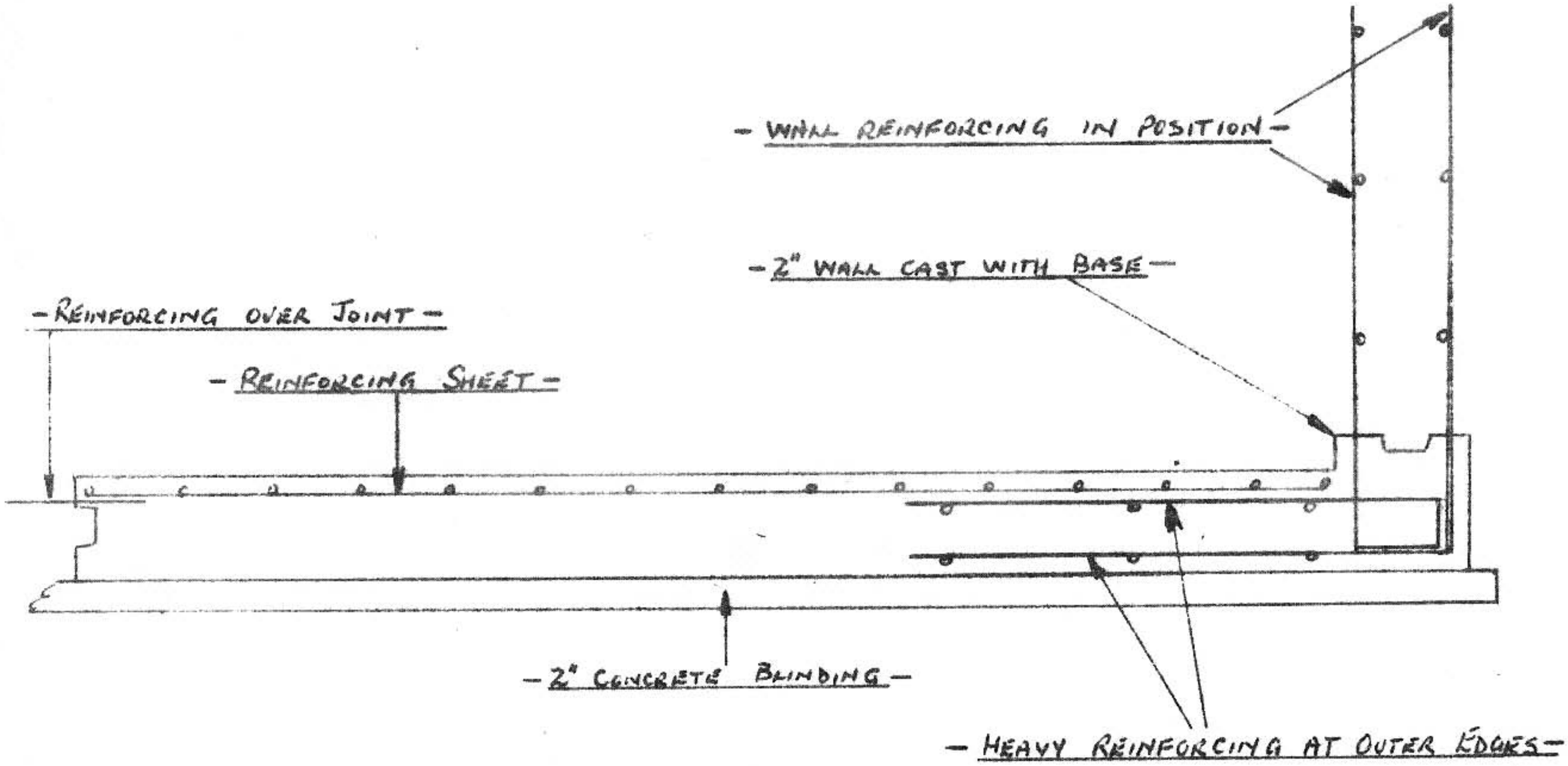
had been laid and allowed to partially set. This meant that it was necessary for work to be continued after School hours and both boys worked cheerfully on, even providing their own lights when it became necessary to see properly. On one ocassionm when there was a possibility of a snap frost damaging a cast, I was surprised, on visiting the site to cover the concrete, to find that they had already organised a working party, and that the protection was well under way. Even after they had left the School, their interest continued, and during the Summer of 1960 they spent hours in the evenings helping to erect the pump house walls and to lay the edging stones around the pool.

They were not the only willing helpers of the scheme by any means. It was difficult to have to tell all our enquirers that organising our efforts during the day time took all my spare time and that it was not advisable to attempt to try and work in the evenings and at the week ends as well.

LAYING THE BASE.

The first step to be taken at the commencement of the Autumn Term, 1959, was to continue the laying of the 2 inch blinding over the whole of the site. This was done in strips, 15ft.x 10ft, a three day interval being allowed before attempting a joint between strips. The intervening days were spent in preparing the next strip ready for the concrete, to bringing materials on to the site, and placing the mixer handy to these dumps so that it could discharge concrete direct on to the casting area. All the ground forming the area of the base of the pool was covered by this blinding layer with the exception of nine square feet in the

- DETAILS OF JOINT BETWEEN BASE AND WALLS -



centre of the pool at the deep end, left so that the outlet piping could be fixed at a later date.

Whilst working with the concrete for the blinding, it was found that as the layer was rather shallow, we were finding it difficult to obtain a smouth surface as a finish. Consequently, the amount of limestone chippings was slightly reduced and the amount of concreting sand increased to correspond, whilst a slightly larger amount of cement was put in to each mix going through the mixer. This enabled us to produce a cast giving the desired surface although costing a little more than had been hoped.

Once the blinding was completed it was possible to make a start on the base proper. Fourteen sheets of steel mesh had been ordered as reinforcement for the base, each sheet measuring 12ft. x 7ft. We had also received all our other reinforcing requirements, cut and bent as promised, ready for use.

The plans called for a double layer of steel bars to be inserted round the outer 3 feet of the base, the bars being one foot apart, the bottom layer being 1 inch above the blinding concrete and the other layer being 4 inches above this again. All steel work in the walls would be wired to these two layers thus providing heavy reinforcement at the junction of the walls and the base, where most thrust would be experienced. The layers of steel would be connected through the base by the sheets of steel mesh, wired to the outer reinforcing, whilst each joint in the base would be further reinforced by steel bars set at 9ft intervals. As each section of the base was cast, a small section of the surrounding wall would be cast with it, thus providin g a spacing for the shuttering of the walls when it was erected. As an additional safeguard, this new design

called for heavier reinforcement in the base over the area where the change in slope took place.

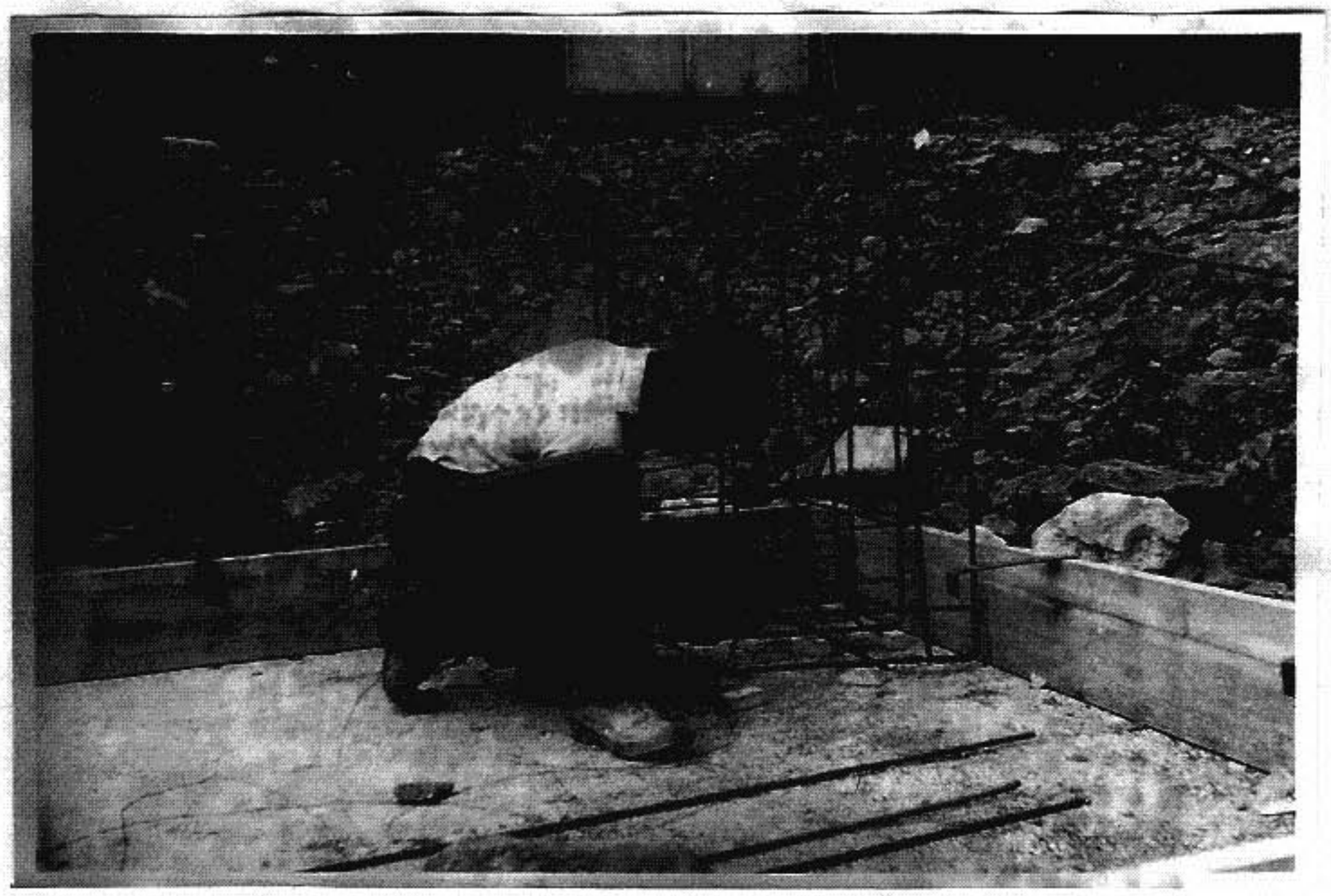
Work was commenced at the shallow end of the pool where a shutter 21'6" long x 9" high x 1½" thick was set. To the outer ends of this shutter, two other shutters were set, 7'9" long, to conform with the outer edges of the sides of the pool. These measurements were such that when the walls 9" thick were cast, the initial base casting would be 20' x 7', so that we could lay the steel mesh with the least amount of cutting. The side shutters were so constructed, that although conforming to the slope of the base, the tops of the shutters were level. This was to prove ah advantage when we set the shutters for the walls.

We also made shutters for the inner faces of the wall sections, which, when fitted to the top edges of the outer shutters, would form the moulds for the inner portions of walls to be cast. Underneath these inner shutters, small le ledges were fixed to form screeds for the base. Steel brackets were made to hold the inner shutters in position, attachment having to be made from the outer shutters, so that the inner casting area remained clear.

To complete the area to be cast, a movable shutter, 21'6" x 7" high x 2" thick, was made. A bevelled piece of wood was securely fixed in the centre of this shutter along its whole length, so that at each cast we should form a water bar. This was essential to provide an additional barrier to water seepage at each joint. The movable shutter was drilled at each point where steel would pass through during casting, i.e. the double layer of steel all round the outside edge of the pool base, and also the steel strengtheners at 9" intervals, to be inserted when the cast was made.

Three 20ft lengths of steel were then placed in position

REINFORCING COMMENCED.



PREPARING THE FIRST CAST.

across the shallow end of the pool, and supported by small squares of concrete, 1" off the blinding layer. These bars were set 12" apart and a further three 20' lengths of steel were set 4" above them. The upright bars in the wall at the shallow end were next wired to the bars set in the base and these uprights were then interconnected by steel bars stretching right across the length of the wall, set at 10" intervals to each other. In this way, the double reinforcing skin of the wall was formed.

Six 20' lengths of steel were then fed through each end of the movable shutter and placed in position in the outer edge of the base, as had been done across the shallow end. They were fixed to the steel already laid in the base and fixed 1" and 5" above the blinding layer as the previous bars had been. The steelwork in the side walls was then wired to them for the first 7 feet of the walling, and these uprights were again interconnected by their own stretcher bars to form the double reinforcing skin of the side walls. To complete the necessary reinforcing at this stage, special angle pieces were wired into the two corners of the walls now formed, so that all steelwork in the part of the base to be cast, plus all the steelwork in the walls above this part of the base had now been set.

To set the steel in position the boys worked in pairs under the overall guidance of the "two foremen" and myself. The reinforcing plans were shown to all concerned and were practically self explanatory. The steel was interconnected by binding, using pliers and soft binding wire. It was found to be important that no small ends of this binding wire stuck out to protrude through the base or the walls and so give an opening for water seepage to commence. If seepage did take place in this fashion, it was explained that the water would tend to follow the run of the steel until a further outlet was found on the outer face of the walls.

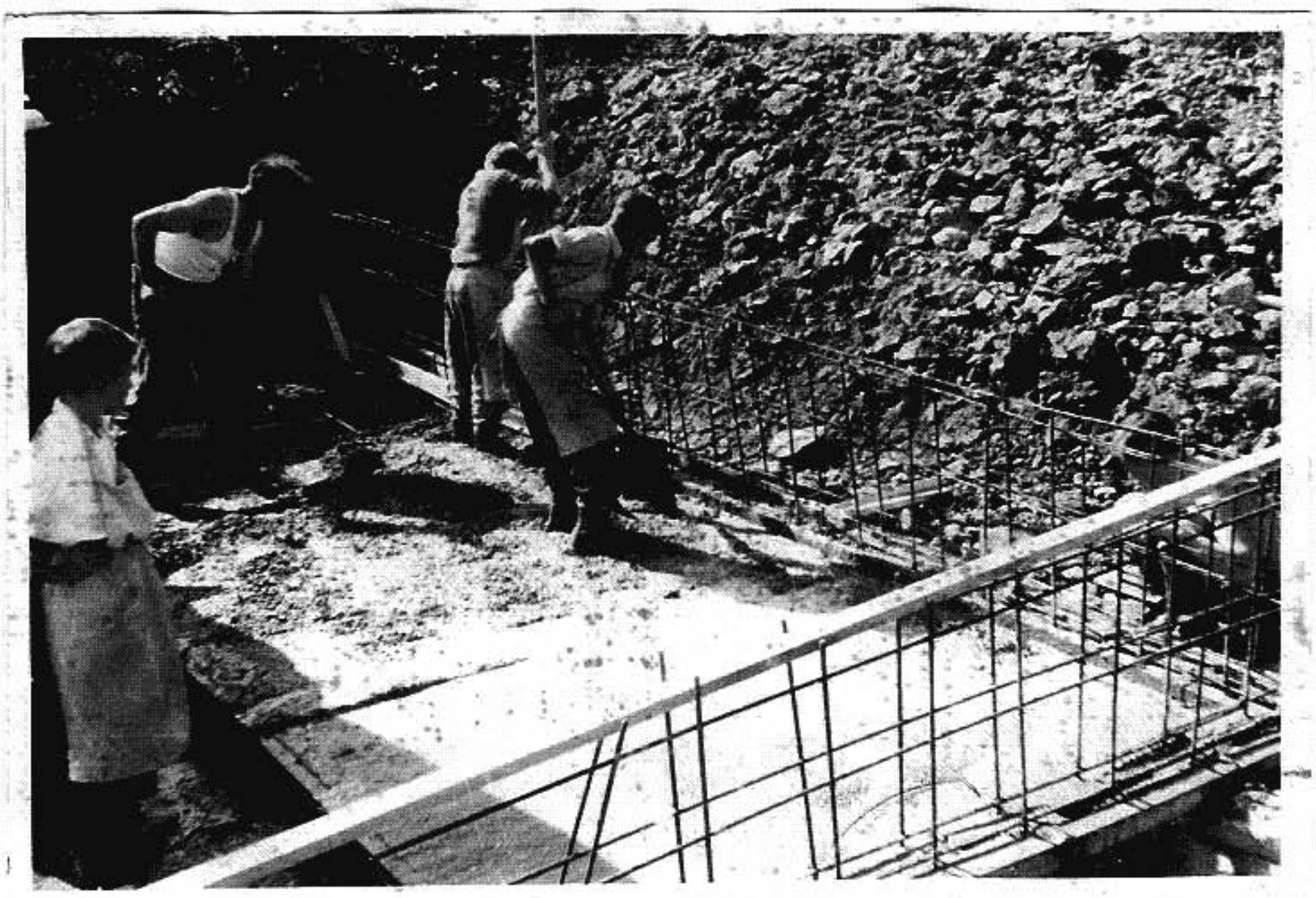
If this took place, then we should therefore experience great difficulty in tracing the leak, which, if not plugged would prove rather serious.

When the erection of the steel was completed, 34 feet of steel, 3' high, marked the outline of the beginning of the walls, and was so secure that it required a great deal of effort to produce any movement. Our instructions had been very clear on this point, as when the concrete was placed in position, it would require a great deal of consolidating, and we could therefore not allow the steel to move from its set position.

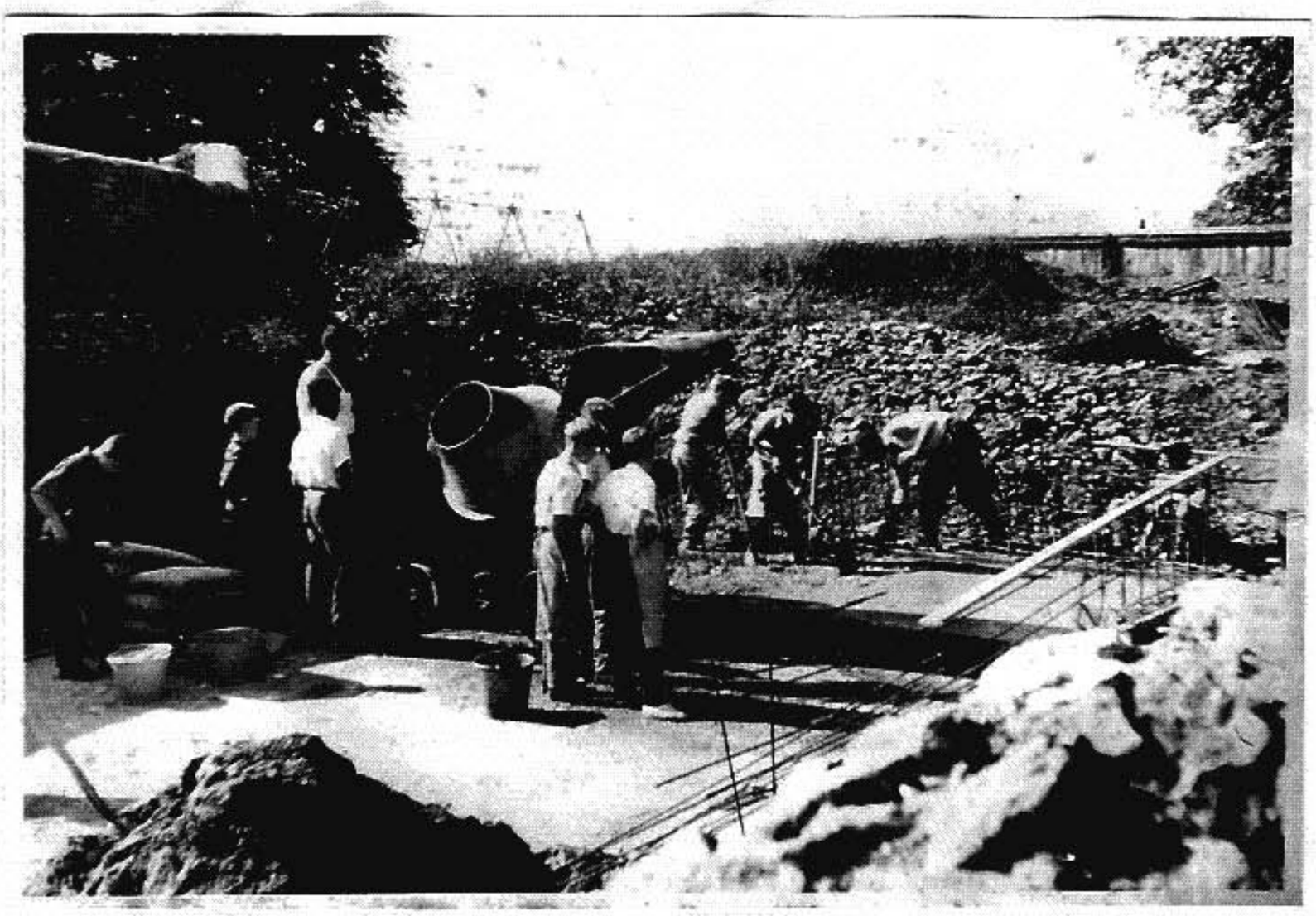
The concrete mixer was positioned so that it could be charged from the dumps set up on the blinding layer and then swung to discharge straight in to the casting area. Here, it was necessary to fix a sloping chute under the mixer so that the concrete as it was poured would clear the movable shutter, but two planks and a steel sheet provided a simple solution to this problem. Large dumps of $\frac{1}{2}$" limestone chippings were wheeled into position from our delivery area at the roadside, together with 3/16" concreting sand dumped in the same manner. A gang of boys with four wheelbarrows could shift ten tons of material in a day, changing over from loading to wheeling on their own initiative. Water was stored in a large tank which arrived on the site from an unknown source with no questions asked.

Proportions of the mix were to be $2\frac{1}{2}$ cu.ft. of limestone to $1\frac{1}{2}$ cu.ft. concreting sand to 56 lbs. of cement, and if well mixed and properly laid and consolidated would require no further additive to give a waterproof mix. To enable us to produce a constant mix, bins were obtained to give the correct loadings. This method also helped to speed up the concrete production, as while one mix was being processed,

MAKING THE FIRST CAST.



TROUBLE WITH THE SHUTTER.



another dry mix could be measured out in the bins ready for the next filling to take place. Buckets were used to measure the correct amount of cement required, three buckets being needed to supply 56 lbs. of cement. While the final preparations to the mixer were beimg made, the last of the shuttering was fixed in position by its brackets, and all the shuttering oiled to facilitate its easy removal. This was quite a difficult task, as no oil was to fall on the steel work, and much of the oiling had to be carried out in very awkward positions.

One Monday morning, at the end of September, the first cast of the base was commenced. At 9.15, a cement grout was spread over the blinding enclosed by the shutter, and the boys were detailed to different jobs, to ensure that we should not be held up for the lack of either limestone, sand, cement or water.

It became a normal practice, that, at regular intervals each boy was moved to another task, thus ensuring that all boys had a spell of time at all processes involved. This also helped to maintain interest in the work at a high level over as long a period as possible. Mr Coward took charge of the squads supplying and working the mixer, to ensure that the correct mix was delivered. One of the "foremen" assisted here while the other took charge of another group who moved the mixed concrete from the delivery shute to where it was required around the steelwork. More boys then took over, packing the concrete down, making sure that all corners and spaces were well and truly filled. As the concrete layer over the casting area built up it was rammed and trodden down until completely compacted, this being easy now that the depth of concrete was so much more than that we had encountered when laying the blinding.

Work continued without stopping for the whole morning,

both the breaktime and the dinnerhour being worked in relays to ensure that the concrete mixer should keep up delivery. Word soon spread round the School that the first part of the base was being cast, and quite a number of volunteers had to be told their assistance was not required, as the boys already working were quite capable of doing the job properly. In a combined project fo this nature, there is no critic quite as harsh as someone who has worked on the scheme and then finds that it is not his turn to complete a set amount of work by actually laying the comcrete.

Casting continued steadily until the whole area was cov covered to a depth of 6", when the steel mesh was placed into position and wired to the surrounding steelwork. Concrete was then packed between the wall shutters and well rammed, the top edge being fitted with wooden keys, held in position by weights, to form the water bar for the next cast of the walls. The base was then finally brought up to the 7" level and screeded off and all tools, the mixer and the whole working area cleaned up. The steel bars as strengtheners for the joint were inserted through the movable shutter and by 2.30 the cast had been completed, ready for its final finish. At this time of the year it was possible to commence trowelling off the surface of the cast practically as soon as casting had been completed, but during later casts in November, the concrete surface was longer in reaching the stage where this could be done. As already stated, this presented no problem, as the two "foremen" and myself wereable to work on when necessary, and trowel the surface up to suit our requirements.

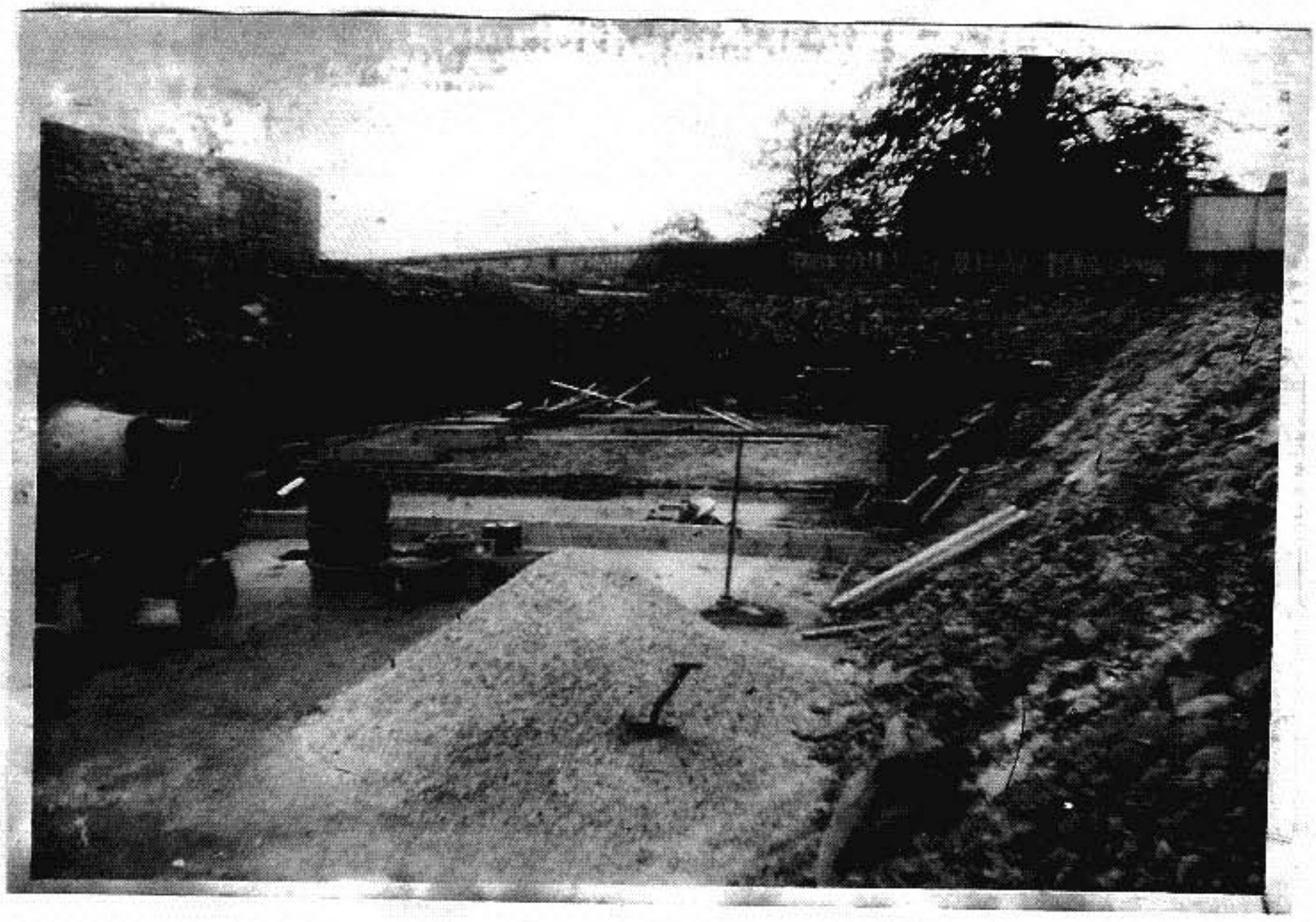
The next day, when the cast was examined, it was found possible to remove the shutters, although great care had to be exercised when tackling the movable shutter and its key piece. Although the concrete was still very green and

probably should not have been disturbed, the shutters were sucessfully removed, cleaned down and set up for the next casting position. Care had to be taken to ensure that they were set running in line with the previous work, but once set the erection of the steelwork continued as before. Once again when all the steelwork had been set, the shutters were oiled and all preparations made for the next part of the base to be cast.

It was found that the time taken to reset the shutter and to make all the necessary preparations for casting, took the three days we were to allow for contraction of the previous cast, so that work could proceed very smoothly, with very little loss of time, waiting to lay more concrete. On the following Thursday, therefore, we could start on the next cast. Once again a cement grout was spread over the blinding to be covered, and also over the joint of the first cast in the base. Once more our working parties operated smoothly and the second cast was made in about the same time as before. The concrete was screeded off, the steel strengtheners for the joint were inserted and cleaning up carried out. The surface was then trowelled off, care being taken to form a smooth joint at the junction with the first cast. In one week, we had therefore been able to cast a length of 14 feet of concrete across the complete width of the pool.

Under ideal circumstances, three casts could be made in two weeks. The weather provided some small interruption, but the nine casts necessary for the completion of the base were completed early in November. The final cast incorporated the 4" outlet from the pool and this pipework was carried well clear of the outer edge of the deep end wall, so that in future the necessary pipe connections could be made with ease. After each cast of the base had been made, while the surface was

SET FOR CAST NUMBER FIVE.

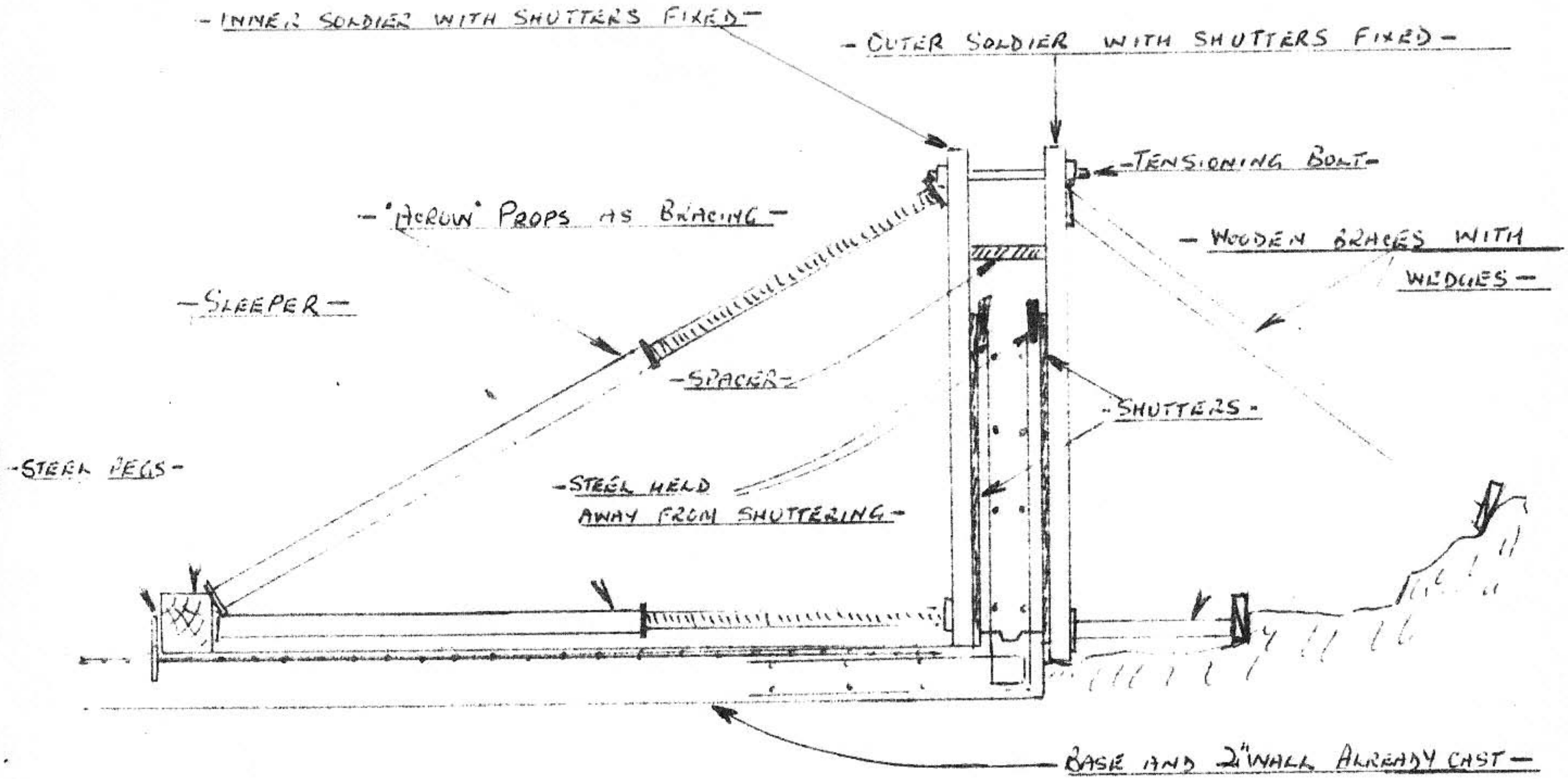


TRYING THE WALL SHUTTERS.

being trowelled, heavy steel pegs were inserted upright in the base to a depth of four inches. This resulted in a row of pegs in a line down the centre of the pool base, 10 feet from the position of the side walls to be used to anchor the bracing for the wall shuttering. This procedure was also carried out at each end of the pool for the same purpose. As soon as each cast had hardened, a thick layer of sand was spread over the surface and damped down. This layer was kept continually damp so that the drying period of the concrete was prolonged. This prevented cracking and powdering, possible if the surface had been exposed to the sun, which at times had been very hot, even so late in the year.

It had been found that by now, all boys had become quite expert at the type of work we had been doing and required very little instruction. As noted before, they were also the harshest of critics and would not allow anything but the best to pass. Everyone was always willing to pull out that little bit extra to get the work going and even at times when left practically on their own, just kept on working as hard as they could.

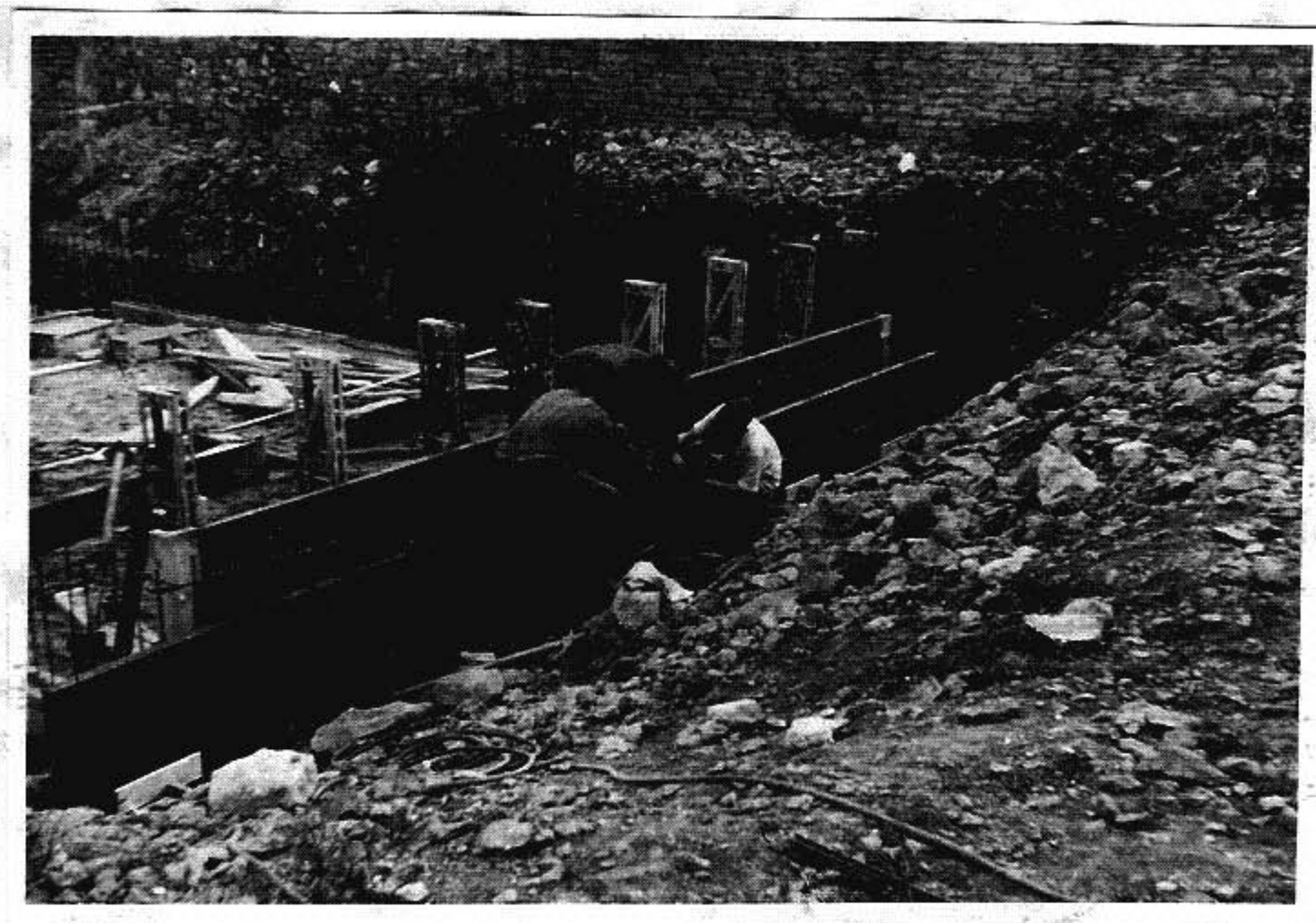
We were constantly visited by members of the public, some of whom came every day to see the progress being made. We found that we could handle five tons of concrete comfortably in a day and were also able to continue steadily casting the edging stones we should require to finish the top edge of the pool. When the last cast of the base had been made, we were able to judge roughly the layout of the surroundings, and although the area had now been transformed, it was, at this time difficult to calculate how we should dispose of the spoil surrounding the site. Eventually we found this to be no problem at all, but at this stage it appeared that we should be forced to transport some off the site.



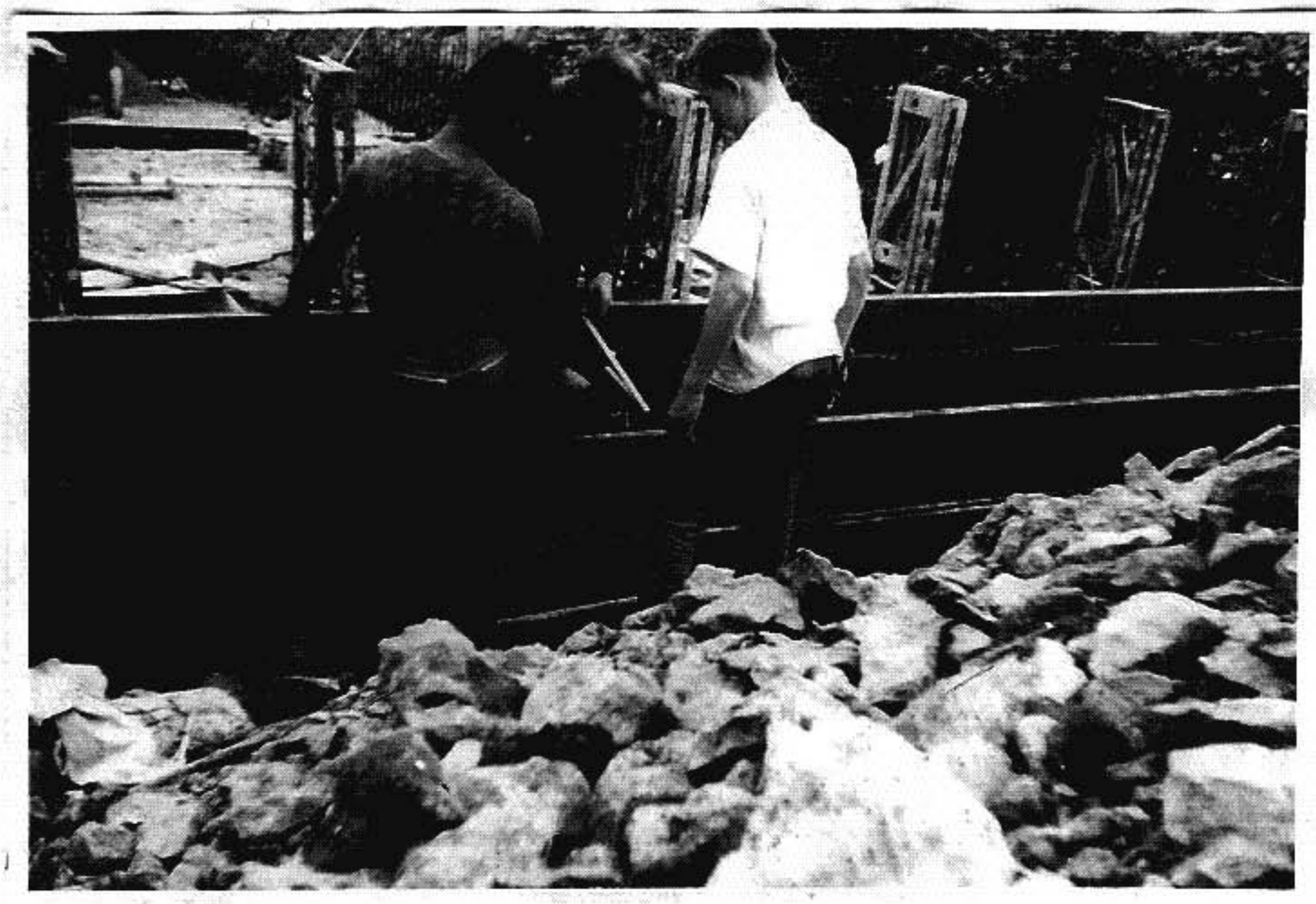
- SHUTTERING SET FOR CASTING -

BRACING THE FIRST OUTER SHUTTER.

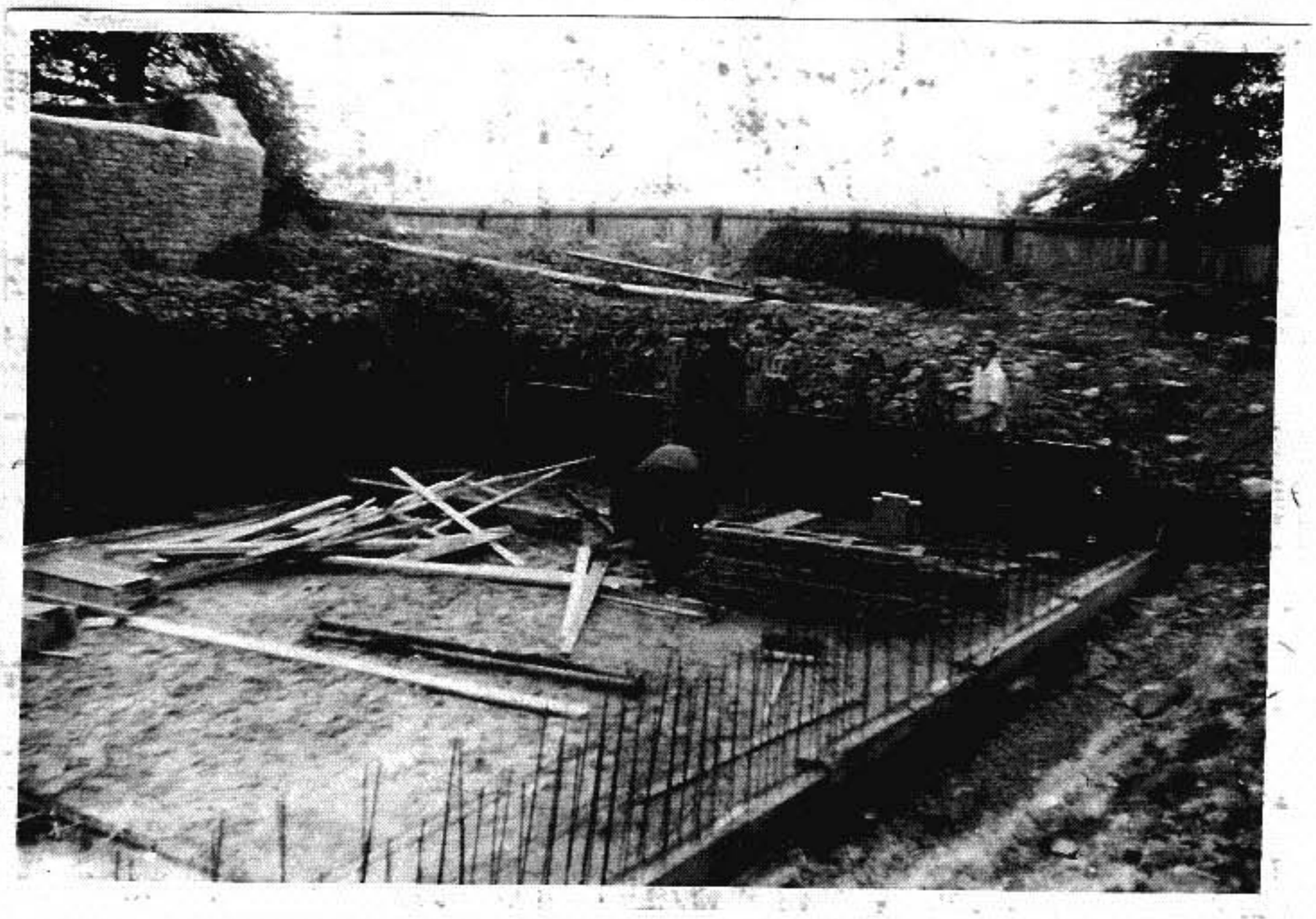
WEDGING THE SECOND OUTER SHUTTER.



CHECKING STEEL POSITIONS.



WHAT LENGTH WAS WANTED ?.

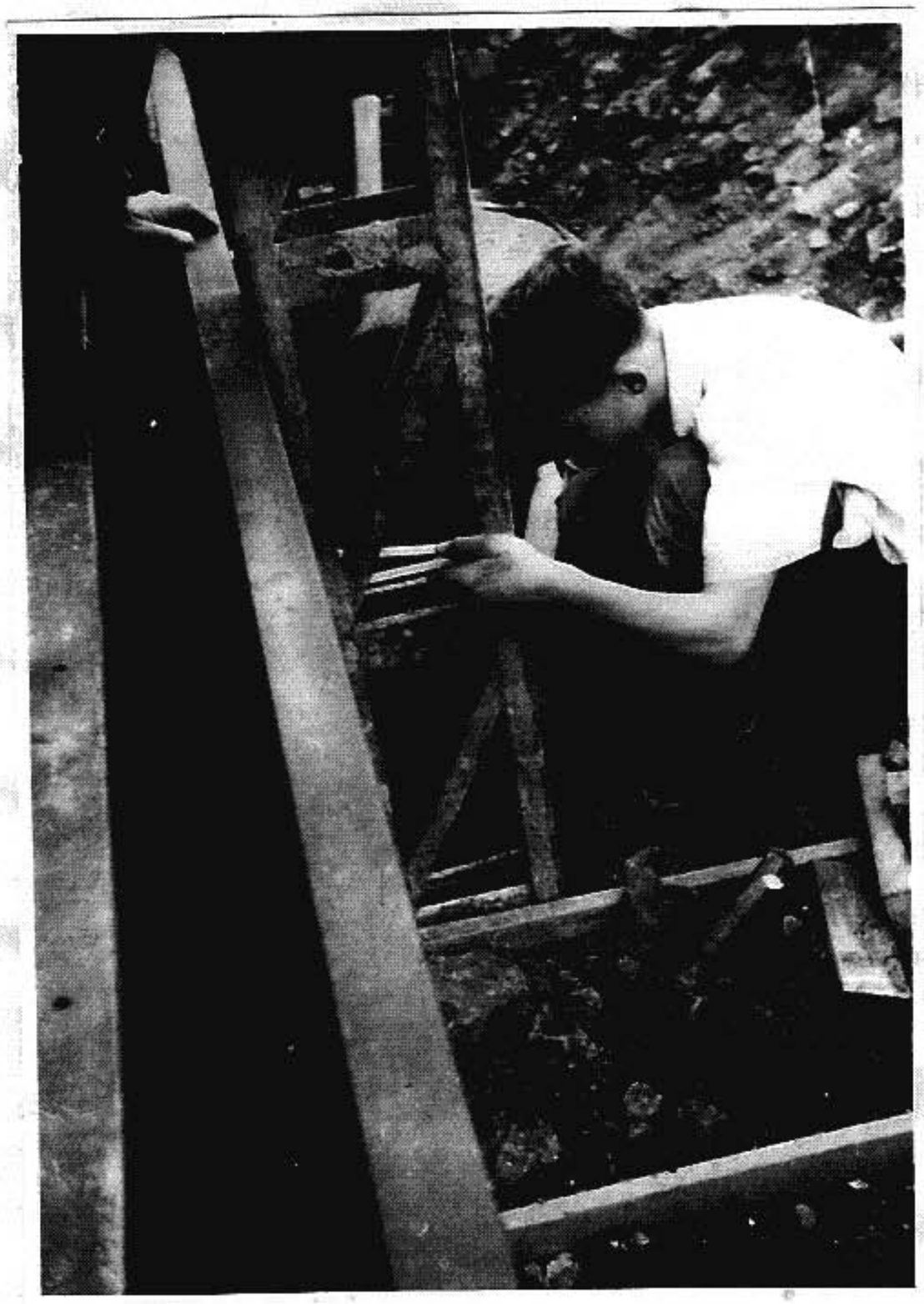


CASTING THE WALLS.

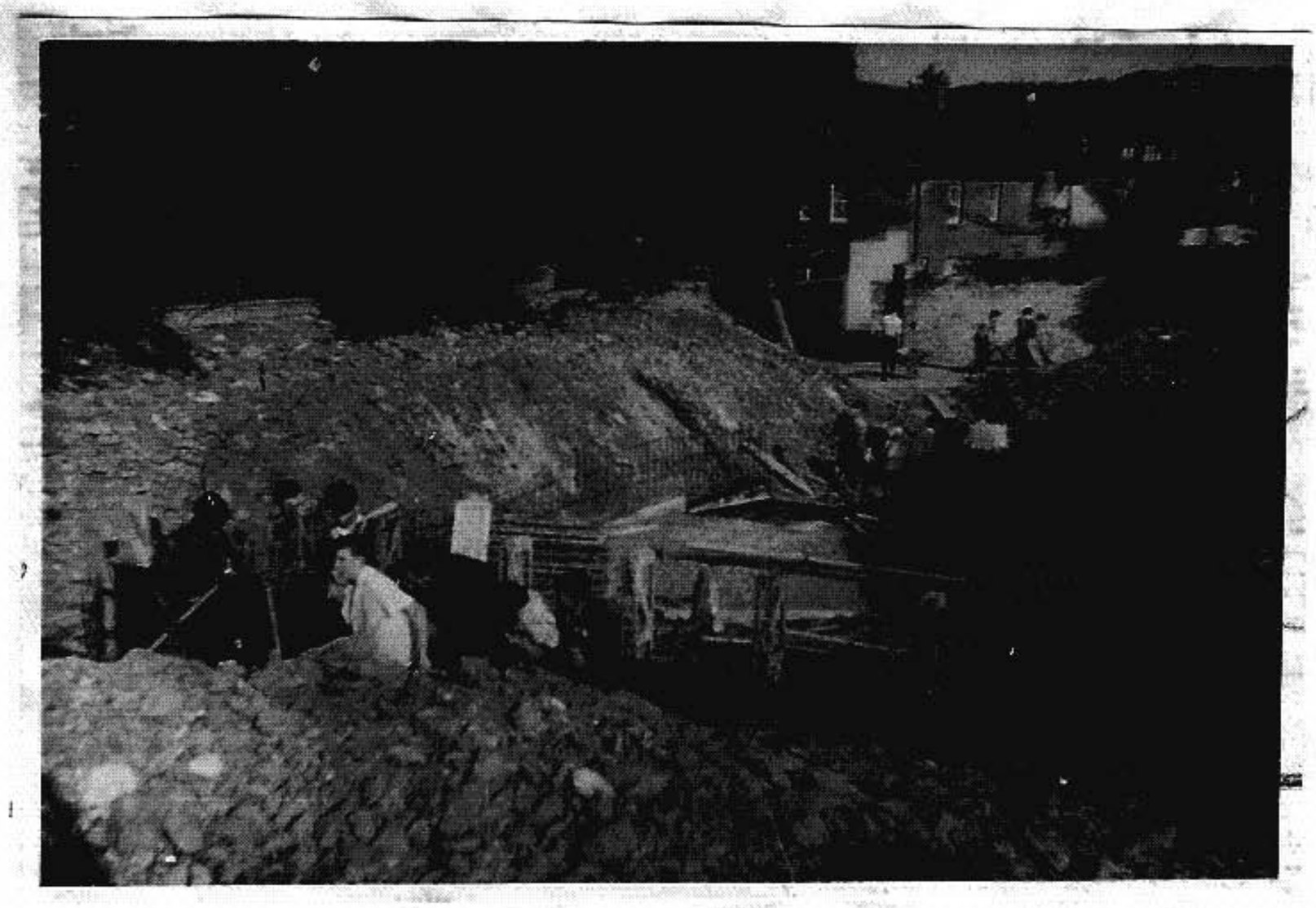
By this time delivery had been made of sufficient steel shuttering to enable us to cast approximately 120 square feet of walling at one time. The walls were to be 9" in thickness, so that this amount of concrete could be easily handled in one day. The shuttering was complete with soldiers, clips and wedges, together with railway sleepers and a number of "Acrow" props for bracing. We obtained a large quantity of secondhand 4" x 2" timber for additional bracing and also laid in a large store of folding wedges. Once the boys had been shown the method of erection, we found the shuttering fairly easy to handle, although if not started off correctly, its weight made it rather difficult to manhandle. The shutters were placed in position and clipped back securely to the soldiers by means of spring clips and wedges, so presenting a smooth surface towards the face of the wall. Difficulty was found in forming the corners, as here it was necessary to introduce wooden formers, great care being required to ensure that these formers stood level with the face of the shutter.

The small cast at the base of the walls ensured that the shutters could be wedged firmly in position, the correct distance apart, whilst the top of the shutters were positioned by inserting spacers between the opposite pairs of soldiers, and then holding the completed fitting with large tensioning bolts. The open ends of the shutters had to be very carefully closed and bevelled pieees of wood placed in position to form water bars at the joints. It was necessary to ensure that all joints in the complete shuttering were sealed, so that the fine particles of the concrete mix would not run out, thereby tending to leave a bad area of poor concrete in the

CLIPPING THE SHUTTERS.

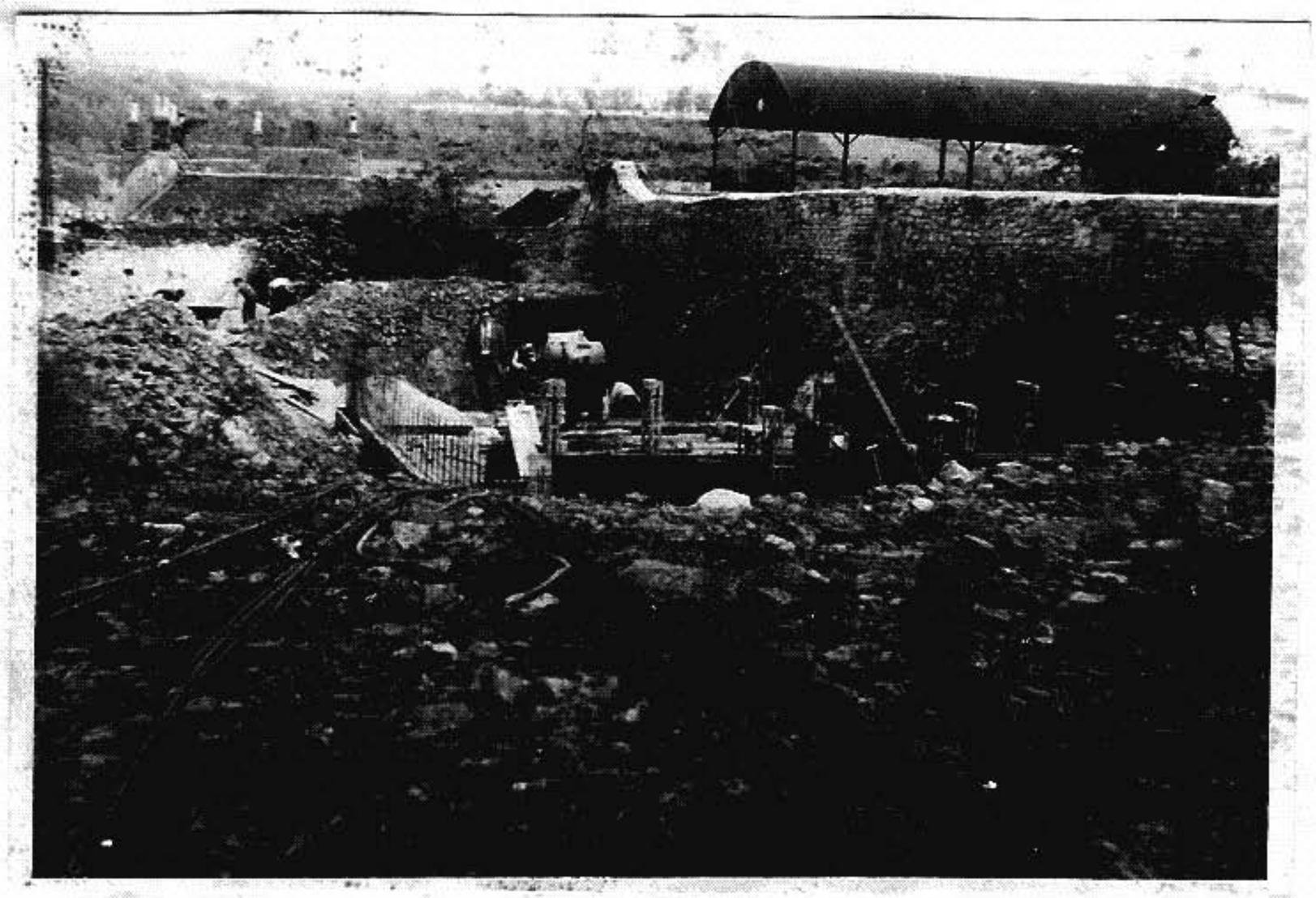


GROUP WORK IN PROGRESS.



SPACING THE SHUTTERS.

SITE IN OCTOBER 1959.



finished cast. All shuttering was also toobe oiled to ensure a clean and easy removal after casting, with the usual problem of being sure that no oil was allowed on the steel work. Tallow was the substance generally used to seal the shutters, but we found that we could improvise with putty, whilst a local garage supplied as much sump oil as we cared to fetch for the oiling. When all shutters had been clipped together and sealed, everything was braced with props, timber and folding wedges, so that it was all straight and upright. The first cast was to be the complete wall at the shallow end, together with the first 10' of each side wall.

The return pipes from the filter to the pool were to be fixed in the wall at the shallow end, so in this initial cast we were faced with the problem of holding the pipes in position while the cast was made. The pipes, with their puddle flanges fitted, and sealed with lead, were let through special wooden shutters in the outer skin, and securely wedged in position with the open ends tight against the inner face of the inside shutters. Everything was checked and when it was all secure, the cast could be commenced.

The concrete mixer had been left on the floor of the pool, and was positioned as central to the whole casting area as possible, clear of all braces. As the base had been completed, we were surrounded by all steel, set up for the walls. One point, nearest to the road was opened out, to form an entrance, so that we could continue to bring all the necessary materials from the roadside and continue to make dumps on the pool base as before. The mix for the walls remained as before, except that the size of the limestone chippings was reduced to $\frac{3}{8}$" to enable the mix to be easily worked around the steelwork in the walls. It was important that this steel was covered by an inch layer of concrete, so

wedges were inserted between the steel and the shutters to make certain this was carried out. These wooden wedges were to be removed when the concrete reached the level of the top of the shutters.

As the height of the walls to be cast was approximately 3' at this point, we had to use buckets to pour the concrete between the shutters. Once again the work was assigned to gangs of lads, with the usual changing of occupations at set intervals. Handling the concrete in buckets and continual lifting and pouring over shutters, with bracing in every direction, proved to be a thankless task, made more difficult by the fact that we were now in the month of November, with the weather inclined to be cold. Braziers were provided to give a little warmth to the hands, at first proving very expensive to our store of folding wedges. These were followed as fuel by coke soaked in old sump oil, until we decided it was better to do without the little heat available, as long as it was possible to breathe.

All concrete poured between the shutters was rammed continuously by boys wielding long lengths of 2" x 2" timber. In this way we improvised a method of vibrating the concrete to ensure an even mix, well consolidated, with a very smooth finish. Although this was warm work, it became one of the few jobs the boys did not like, there being insufficient action for them to feel that it was important. Great care was therefore taken to ensure that the job was properly done.

Casting was carried on throughout the morning, and was completed just after mid-day, when the wedges holding the steel in position were removed. Wooden key pieces were placed in position along the tops of the walls and weighted down to provide the inevitable water bar. At all times the lads were made to carefully clean all tools, equipment and the area

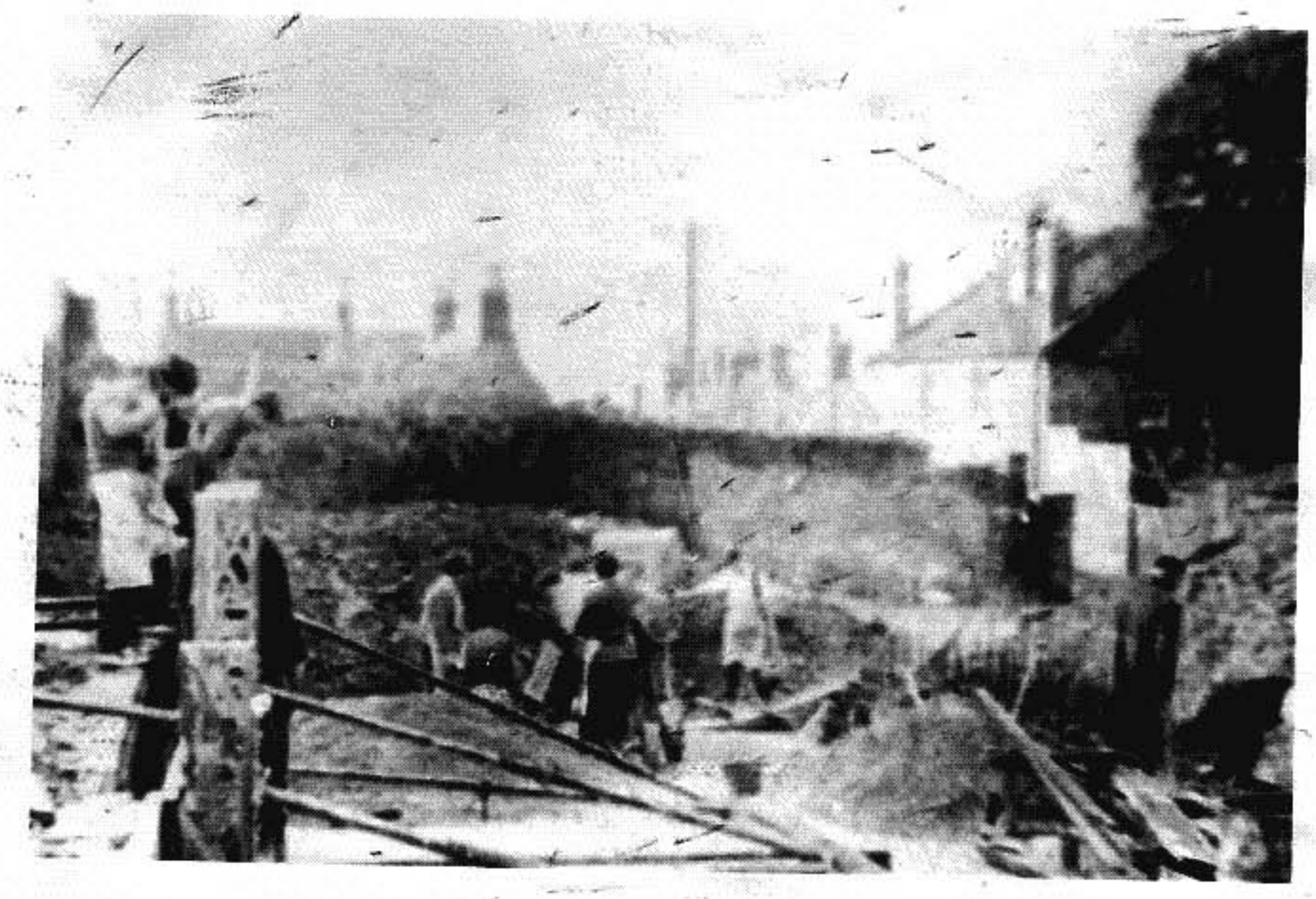
in which they had been working, thus ensuring that we could start work immediately the next morning with everything in good order.

After leaving the shuttering in position for twentyfour hours it was struck and cleaned off. We were very anxious to see the result of our first cast around the walls, and this shuttering was removed on a Saturday afternoon, in order that we could tell how sucessful we had been. The labour force on this occasion consisted of Mr Coward, Mr Wood and the two "foremen". It was found that there had been a slight leakage in the shuttering, but this was overcome by a grout of sand and cement being well worked in to the surface, the whole area being then "bagged over". The finish to the wall was all that we had hoped for, the imlet pipes were perfectly positioned and the whole cast had been a great sucess.

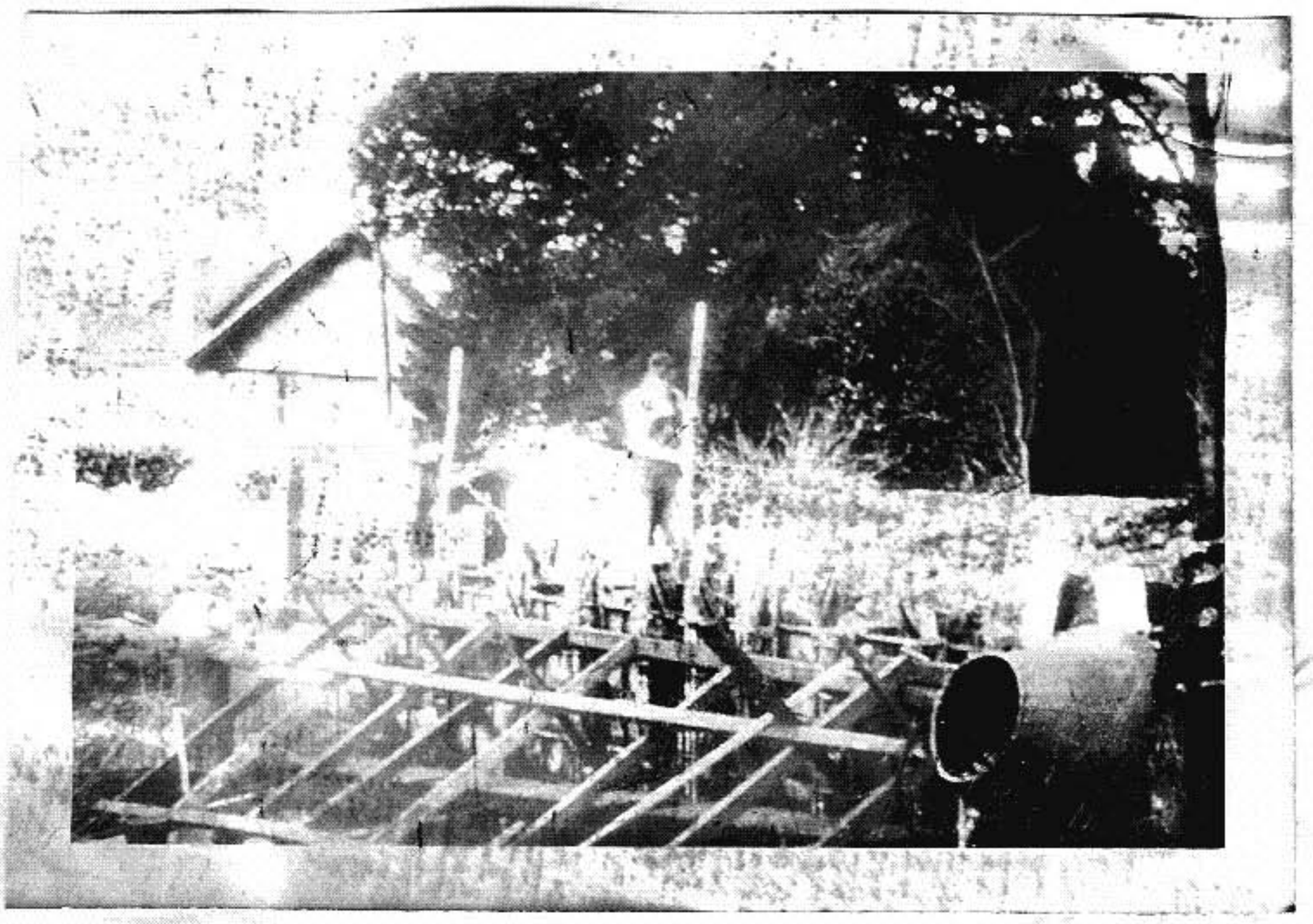
The next cast was to be for the next 20' on either side of the pool, to continue both sides to the halfway stage. Once again the shutters were erected, the ends closed and keyed and all joints sealed. The railway sleepers were laid against the pegs cast in the base, and the inner shutters braced off. The outer shutters were braced from the surrounding banks with timber and folding wedges. The shuttering was oiled, and everything again checked for straightness and plumbed upright. The steelwork inside the shutters was again wedged into position and the site got ready for the next cast.

Casting was carried out in the same manner as before but it was necessary to leave the shutters in position for fortyeight hours before the concrete was sufficiently set to allow safe removal. Again we found that a very successful cast had been made, requiring slight attention in a small number of places to reach the standard we required. It was found that slight variations in the shuttering unfortunately

SIDE SHUTTERING SET.



BRACING NEAR THE DEEP END.

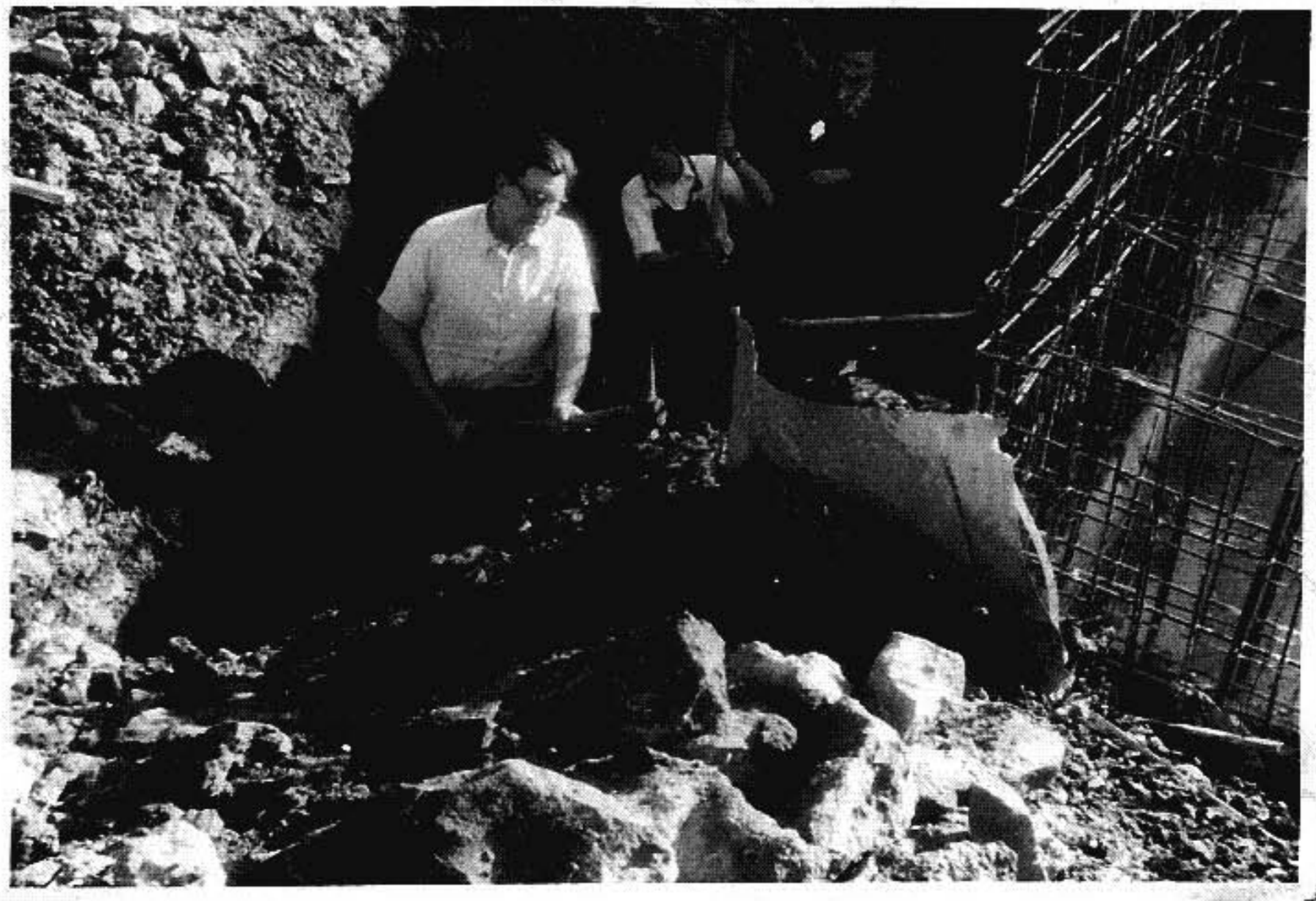


left very small ridges at the joints, but this could not be avoided and could be rubbed over later.

The height of the walls was now over 4 feet and we could only proceed with casts of 20 feet lengths at a time. During the next fortnight we completed casts of this size on each side of the pool, so that the completed walling was now the 20' at the shallow end with 50' on either side of the pool. We were left with 10' of walling required on either side together with the complete wall at the deep end. This amount of walling would stand approximately 6'6" in height, and it was therefore decided to cast it in two lifts, each lift being practically identical to that made at the shallow end. The first of these two casts was made as usual, from the inside of the pool, all materials having been brought through the gap in the wall before the shutters were set in position. Once the shutters were set and checked, the cast was made, allowed to set and the shutters struck. The remaining days of December were spent in backfilling as much as possible around the outside of the pool, to give a solid pathway after the holiday period.

At the beginning of the Easter term this backfilling had settled sufficiently for us to haul the mixer out of the pool, and move it around the side as near to the deep end as possible. The shuttering was set for the final cast of the wall, being more difficult at this height to overcome the problem of safe bracing. When this problem had been solved, we were able to make the final cast during the second week of the term, so that in a period of four months we had completed the shell of the pool. No-one had imagined that this was at all possible when we had commenced laying the blinding, but we had been very fortunate with all the co-operation that we had received and also with the weather which had been in our favour throughout the whole period.

TRENCHING FOR OUTLET PIPES.



HARD AND ROUGH DIGGING.

After the shuttering had been struck for the last time, it was cleaned and returned, while a general effort was made to tidy up the site. The weather was now very unpredictable, and for the next two months work was rather spasmodic. A few boys however, were employed on the site, mainly without a great deal of supervision. They continued to backfill around the pool walls where possible, but the deep end had to be left completely alone, so that we could install the required pipework and the filter plant.

At the deep end, these boys began to take out a trench to take the outlet pipe from the pool towards the position of the pumphouse. This was very hard going, very large rocks being encountered, that could only be moved by splitting into small pieces with stone chisels. As the piping depth was roughly 2 feet below the level of the deep end of the pool, this trench was well down into the ground. Rain, snow and frost with a great deal of mud all combined to make this a very disagreeable task, but the boys stuck to the job, and when March arrived, the trench was cut ready for work to be resumed. They had also continued to cast the edging stones when the weather was suitable, and had levelled off the spoil to about 12" below the top edge of the pool.

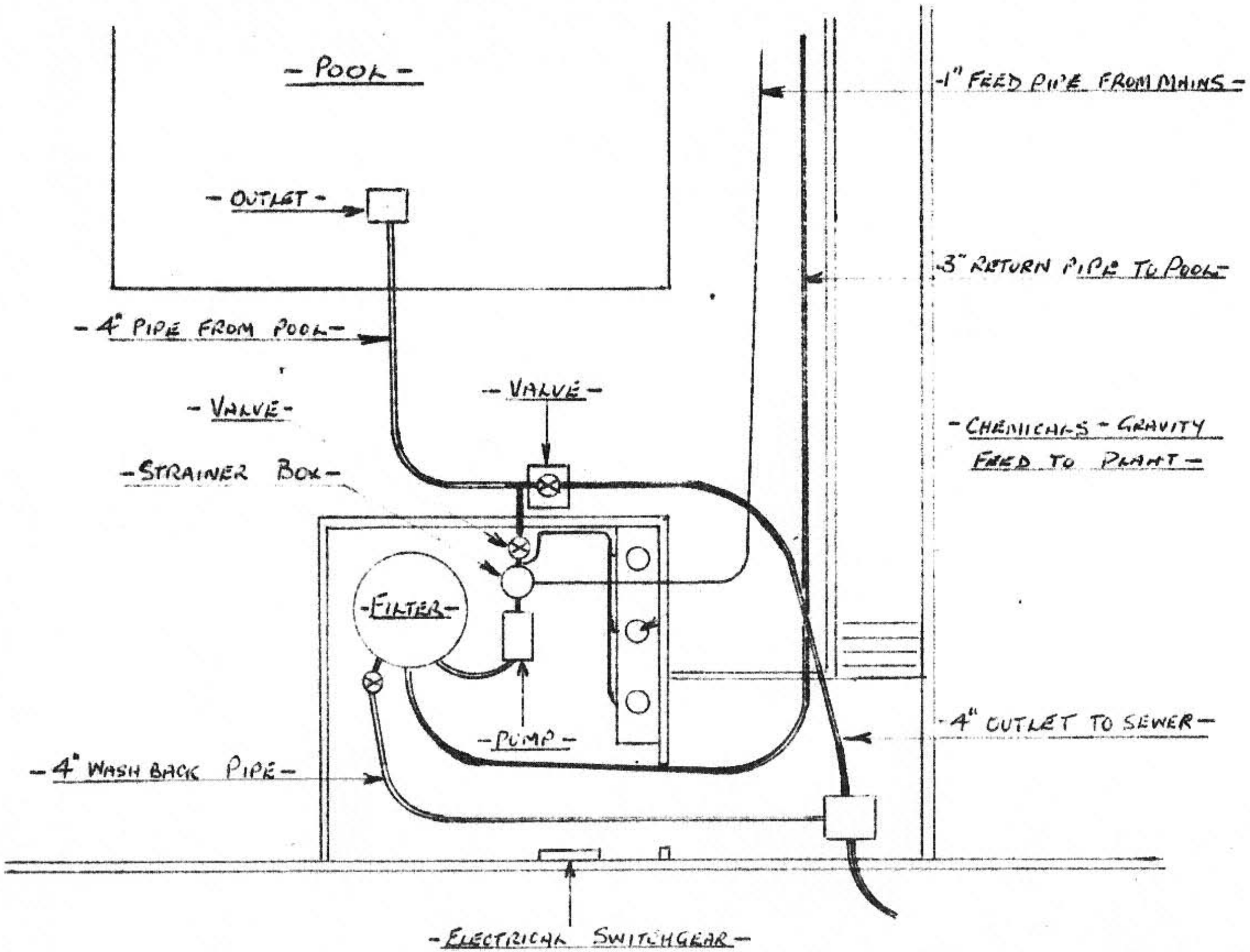
This backfilling was again allowed to settle, while we continued the work by cutting a trench at the top end of the site so that we could connect on to the 3" water main. The Rural District Council had installed a water meter at this point, but the water was required to be fed to the pump house area, a distance of some 120 feet. This we intended to do by laying a 1" bore polythene pipe, which would require no jointing in its length. We had now arrived at the end of the Easter term 1960 and work was suspended until after the School holidays.

CHLORINATION AND FILTRATION.

While the casting of the pool had taken most of our time during the Autumn term 1959, planning had gone ahead for further requirements to be decided. Various firms dealing with the treatment of water for swimming pools had been contacted for their estimates and costs of a plant suitable for our use. It was estimated that our pool would hold 33,000gallons of water and we required a plant capable of filtering this amount in about six hours with the necessary equipment to inject chlorine, soda and alum into the water in adequate amounts to keep the water within the limits set by the Ministry of Health.

We received a visit from the local representative of Messrs. Bell Bros.(Manchester) Ltd., and were able to discuss our exact position with him. Acting upon his advice, we decided to install high pressure asbestos pipework throughout, to avoid rust deposits in the water. This piping was also reputed to be easy to joint, using unskilled labour. It was possible for this firm to supply various types of plant, and as we wished to keep our costs to a minimum, we agreed upon the installation of a standard filter, capable of dealing with all pool water in 5½ hours. The pump would be driven by a 3 phase electric motor and chemicals would be introduced into the water circulating through the plant by gravity drip feed. At a later date, if we so required, this method could be changed to injection of chlorine gas, a much more satisfactory way of chlorination, but more expensive to install.

Agreement was reached that we should supply all pipework to and from the pool, that the foundations for the plant and the construction of the pumphouse, electrical supply and connections should all be our responsibility. The installation



- LAYOUT OF PUMP HOUSE -

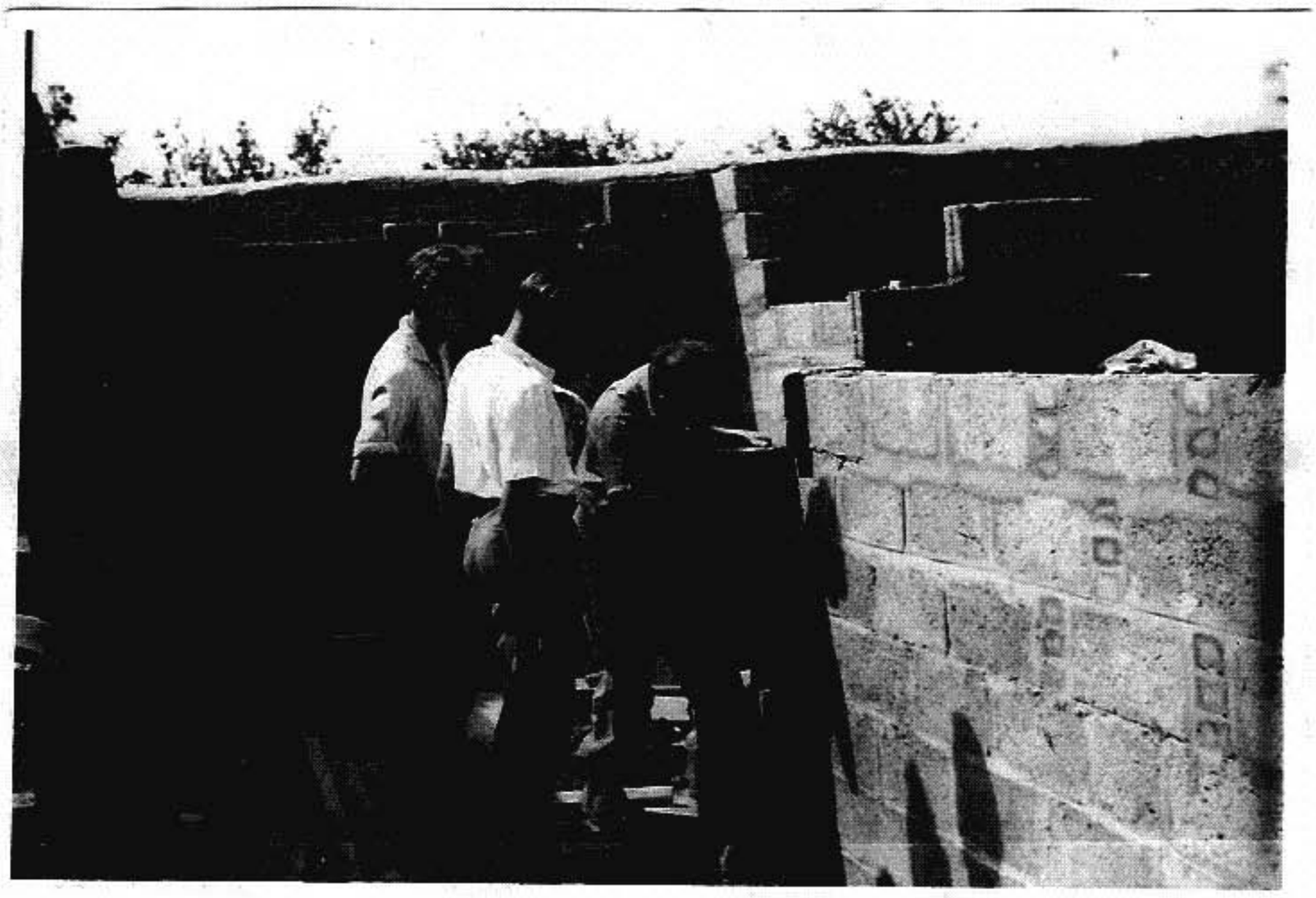
of the plant would be carried out by the firm, although we should be required to supply sufficient labour when needed, to help move various parts of the equipment. Delivery of the plant would take place in May 1960 and the total cost would be approximately £770.

This tender was accepted and our various requirements of three inch and four inch asbestos piping ordered. By April1960 we had received details of the base necessary for the filtration plant and had planned the layout of the pumphouse. The trenching from the pool outlet was ready so that it was possible to fit additional four inch pipework to that already cast in the base of the pool. A "Tee" junction was fitted into this pipework for the take off to the pumphouse, and directly after this junction, a 4" valve was also fitted. By operating this valve, we should be able to empty the pool direct into the sewerage system if so desired, and would be able to control the flow of the water to avoid a sudden surge through the filter beds.

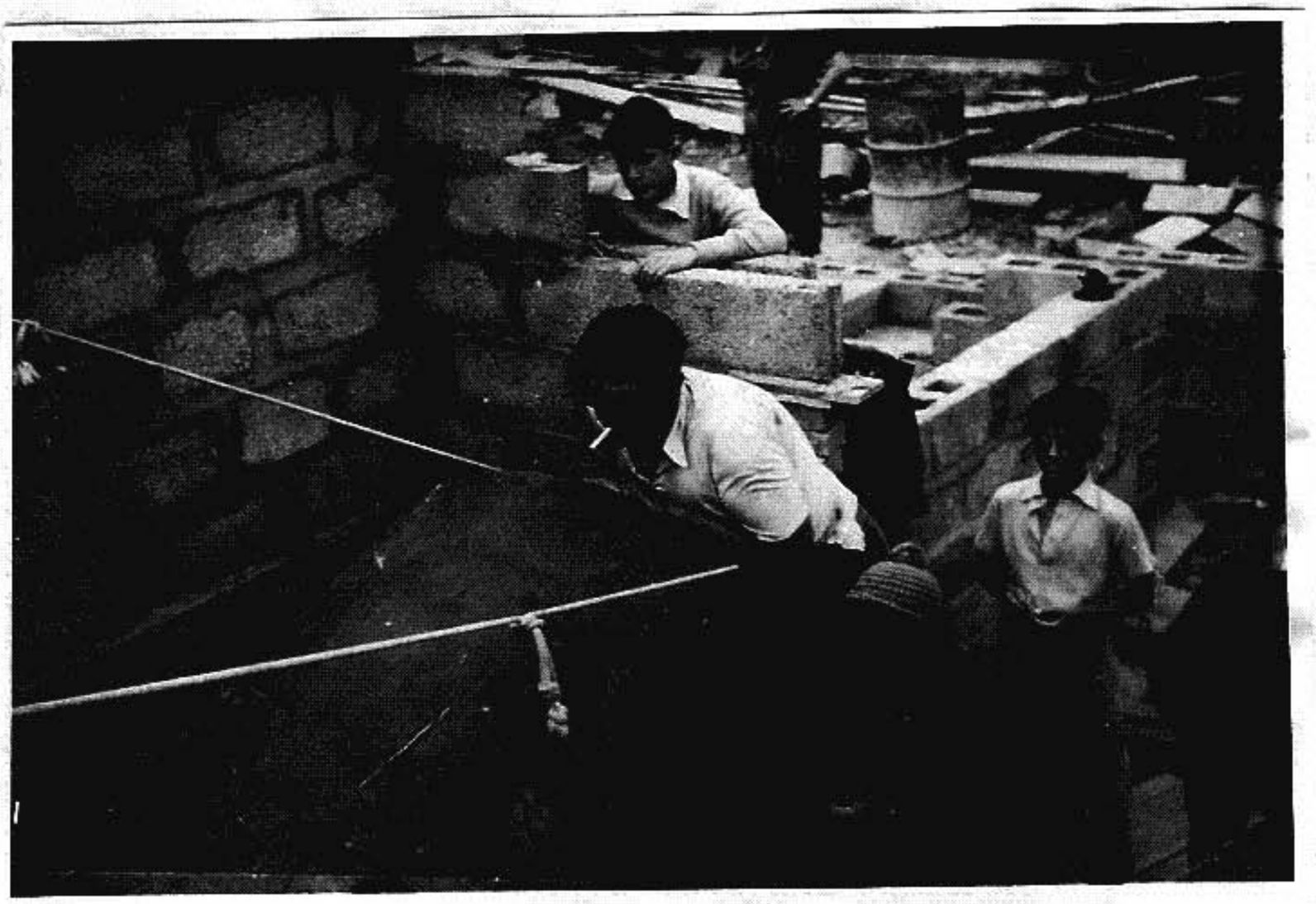
The piping was continued from the valve to a point approximately 10 yards from the sewerage service in the road outside the site. Here we intended to form a manhole which would incorporate a 4" outlet from the filtration plant itself. This pipe would be necessary as an outlet when the filter was washed back, an operation which would be frequently necessary for the filter to operate with maximum efficiency.

Having positioned these points in the pipework, it was then possible to backfill all trenches in the area so that we could set out the foundations of the pumphouse. A manhole was formed around the 4" control valve and the brickwork brought up to the estimated level of the pumphouse floor. This level was to be 3ft below the water level in the pool and a great deal of backfilling was needed to reach this height.

WORK ON THE PUMP HOUSE.



FIFTEEN CWTS. OF FILTER VESSEL.



The pumphouse was therefore to stand on ground which had been very much disturbed by trenching etc., so the base was laid as a concrete raft reinforced with steel left over from the pool construction. Large trenches 18" deep were formed in this base so that the pipework could be fitted to various points of the plant..The bearing blocks for the filter vessel and the pump and electric motor were keyed to the base with steel bars, and cast in position. Messrs. Bell Bros were notified that the foundations were ready to receive the plant and work was continued erecting three of the pump house walls in 10" cavity blockwork. It was necessary to leave one wall of the pumphouse so that the filter vessel and other parts of the plant could be brought into position when needed.

When the plant was delivered we found that the filtration vessel was a terrific problem. Standing 5ft high, with a diameter of 4'6", it weighed 15 cwts and could only be moved with levers. Luckily the pumphouse had been sited very close to the entrance to the site, so that we only had a short distance to cover. A ramp was constructed to ease the vessel into position, this taking over a day to accomplish. Once again we were indebted to Mr Coward who provided most of the power required to move the tank. Having terrific strength, Mr Coward was called upon unceasingly throughout the scheme to move the apparently impossible. Boys would stand back and watch with amazement his displays of strength, to be reminded in no uncertain manner that they too were supposed to be helping.

Once the filter had been set in position on its four concrete blocks, it was a comparatively simple matter to comtinue the fitting of the plant. Inside the filter vessel, collecting roses were set in a concrete bed, and we obtained the assistance of a bricklayer to carry outthis tricky

operation. It was not easy to clamber through a small manhole to work in a confined space and to produce the accurate surface required so that the filter would function satisfactorily.

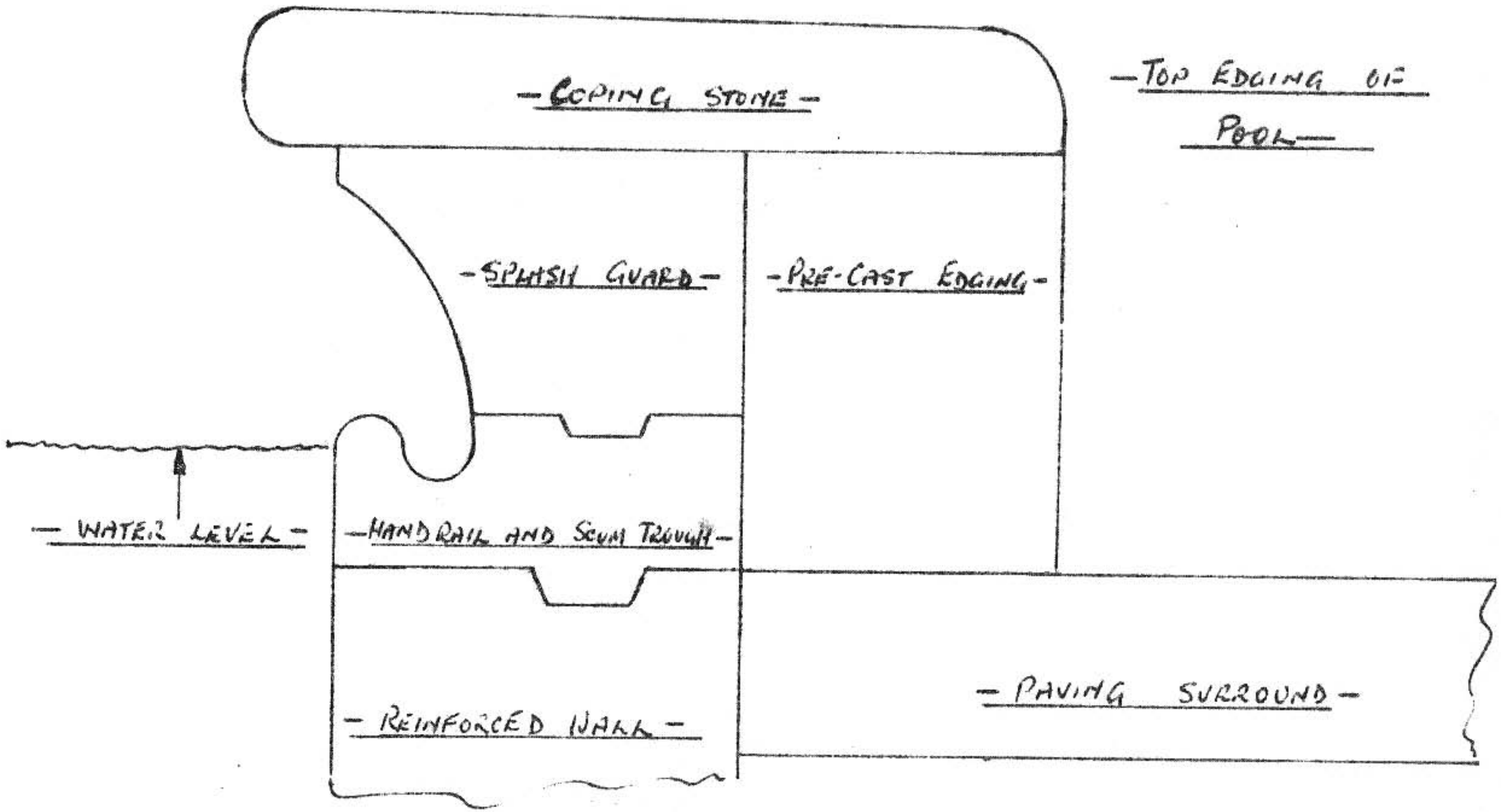
Work on the installation commenced on a Monday morning and by the following Friday afternoon we were able to load the filter with 30 cwts of special sand, after which the filling manhole was locked down. As we had not yet reached the stage where we could provide a supply of water or electricity to the plant, no testing could be carried out at this stage and had to be left until we were nearly ready to open the pool.

With the filter installed, we continued to erect the walls of the pumphouse so that the plant could be covered. At the same time the wall to enclose the site at the eastern end was commenced, much of this building being carried out in the evenings by the two original "foremen" who had both left School by this date. A shelf, 3 feet high was fitted in the pumphouse to take the chemical jars. These and the gravity feed pipes were then installed. An electrician installed the switchgear, and the local electricity authority was asked to complete a 3 phase supply as soon as possible.

Arrangements were made for a builder to form the manhole outside the pumphouse and to connect the 4" pipes from the pump and pool control valve, extending the connections to the sewer in the road. The workmen sent to carry out this contract found the digging very much of a problem and expressed amazement at how much the boys had achieved under such conditions. While these connections were being made, we commenced connecting the filter to the pool and also installed the 3" return pipe from the filter back to the shallow end of the pool. Having backfilled to within 12" of the top edge

HIGH PRESSURE ASBESTOS PIPING.

A 4" ASBESTOS PIPING BEND.


-COPING STONE-
-TOP EDGING OF POOL-
-SPLASH GUARD-
-PRE-CAST EDGING-
-WATER LEVEL-
-HAND RAIL AND SCUM TROUGH-
-REINFORCED WALL-
-PAVING SURROUND-

of the pool, this pipework could be laid without much trenching, and being supplied in 10 ft lengths, was soon finished. The joints were simply made by rubber rings which were compressed on to a sleeve fitted over the pipes and then held in position by rebated brackets, locked with three bolts. Where a small length of piping was required, the odd length could be cut off with a hacksaw, the end trimmed with a rasp and normal jointing procedure carried out. When installed, all pipework on the site was water tested and all joints checked. After we were satisfied that the system was water tight, we bedded the pipes in concrete at intervals of 3'6" to prevent movement. At the same time all bends were completely surrounded by concrete as further security precautions.

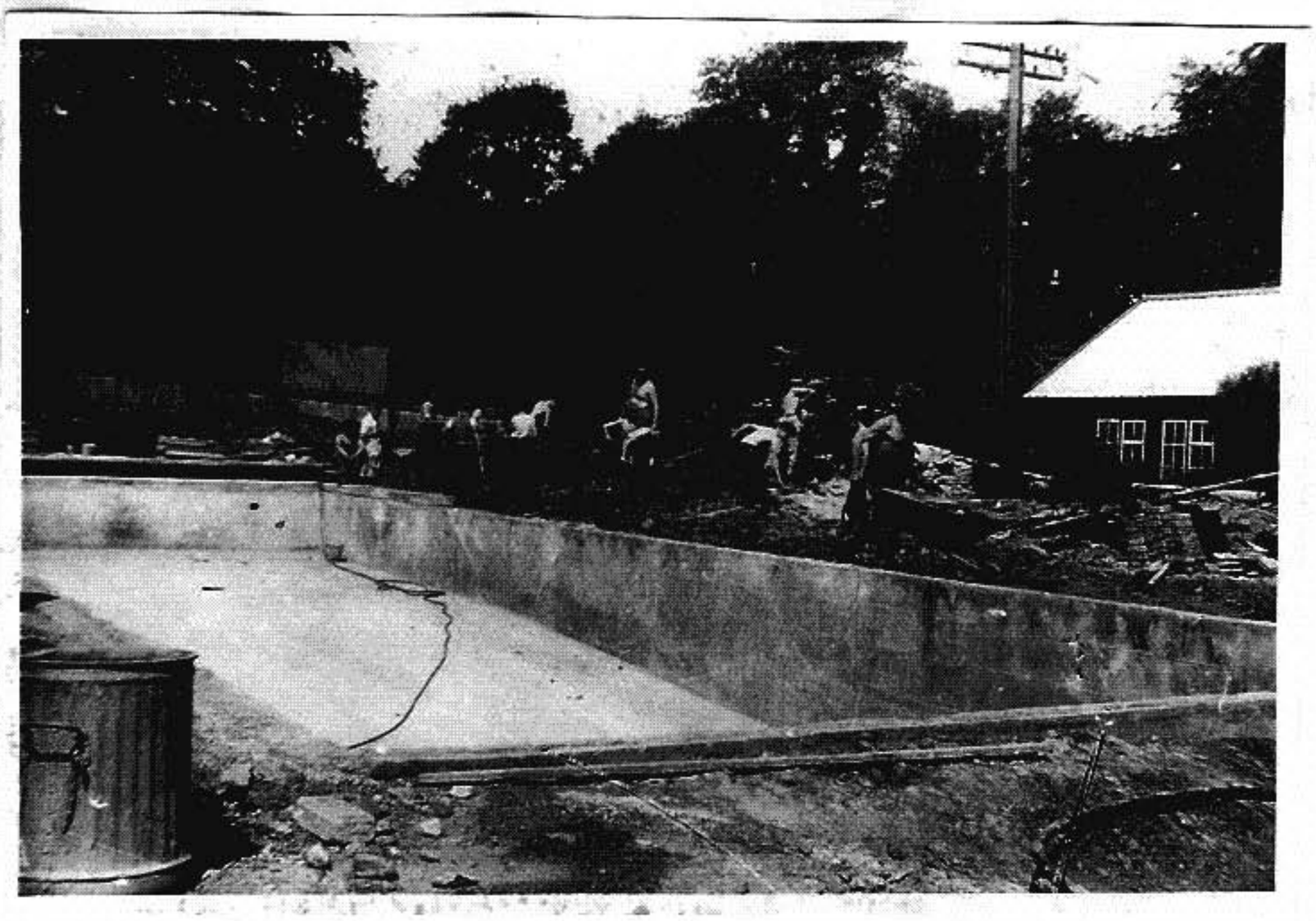
When we had completed this stage of the installation, we continued to level out the site by backfilling around the walls, so that we could allow a fair time for this to settle before laying paving around the pool edges. The remainder of the Summer term was spent in preparing the position for the new entrance towards the centre of our northern boundary, steps having to be cut out to reach from the road level up to the level of our paths.

PREPARATION FOR SWIMMING.

During the August holidays the top edges of the pool walls were checked for level and the few small variations were corrected. Throughout the previous year we had continued to cast and store all the stones required for the scum troughing and coping around the pool edges. These

SPOIL FOR BACKFILLING.

BACKFILLING UNDER WAY.

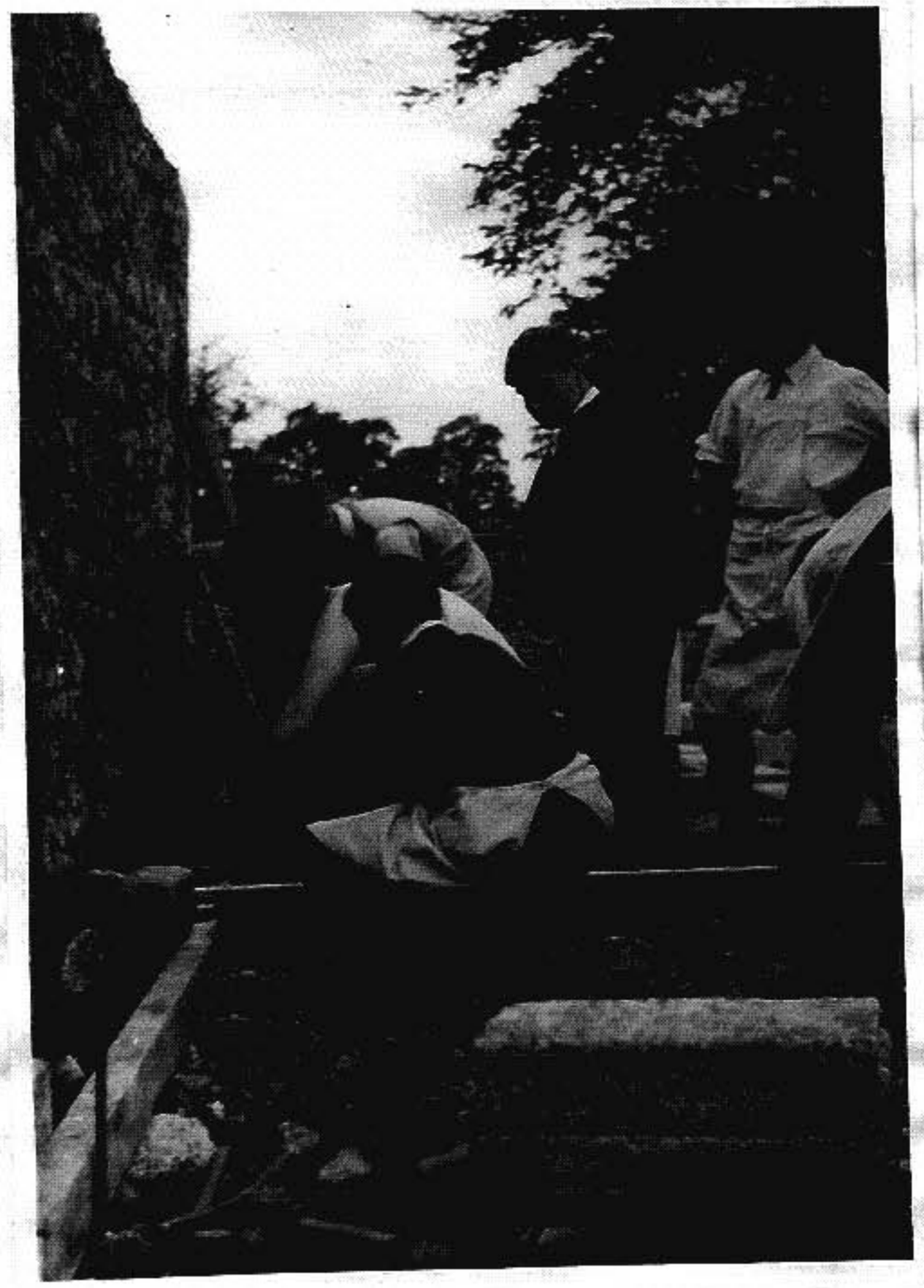


stones were now laid in position, assistance in this work being given by "old boys" engaged in the building trade.

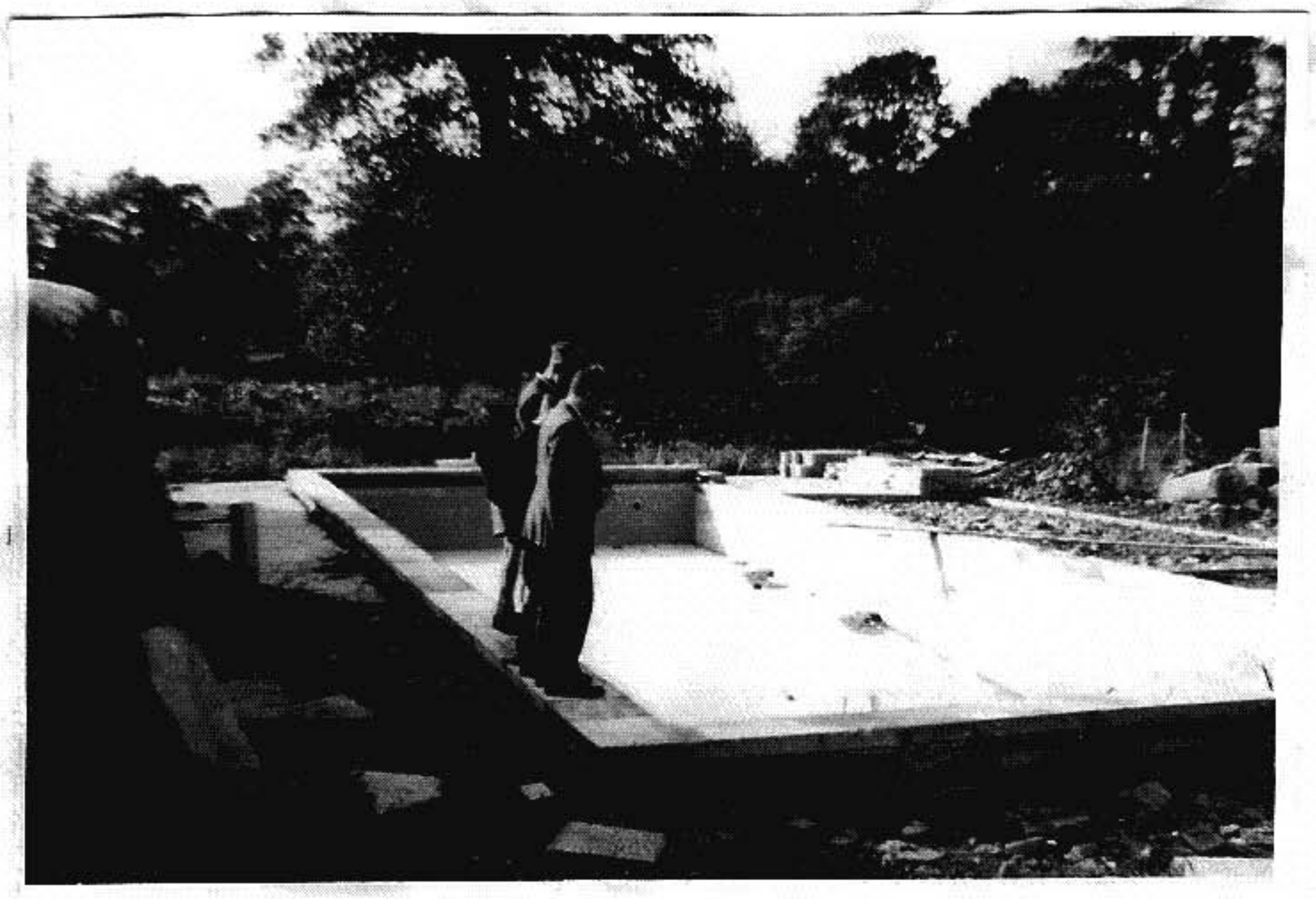
When School was resumed in September 1960 work was concentrated upon finishing the new entrance, the steps were cast to the roadway and new double gates were erected. The whole of the northern boundary was fenced with a 6 ft wire mesh fence and the concrete block wall at the eastern end of the site could then be completed, shutting off the original entrance as had been previously planned.

Difficulty had been experienced in obtaining a suitable design for the fountain required at the shallow end of the pool. We made two attempts to cast a fountain ourselves, both proving failures, so it was decided to attempt to cast the structure in an octagonal pattern instead of circular that had been originally attempted. The 3" return pipe from the pump house was extended and carried up through the centre of the fountain area, and two 4" pipes were run to the pipework through the shallow end wall. An octagonal block of concrete was laid, 12" high and dished at the top to retain a small amount of water. Above this base we then cast three trays in three different stages, each tray being smaller than the one below. This enabled us to use the same shuttering throughout the whole of the cast, reducing the sizes for each sucessive cast. Each tray was adequately reinforced and they were all dished to retain a certain amount of water when the fountain was in use. This was to ensure that there would be a good aeration of water returning to the pool. The fountaim was completed by erecting a 9" wall around the outside to form a collecting trough for the water as it was delivered. As the return piping to the pool was situated in this troughing, the filtered water was therefore channeled back into the pool.

SETTING DRAINAGE FOR PATHS.



EDGING AND PAVING PARTIALLY COMPLETED.



Two footbaths were formed, one on either side of the fountain, drainage from them being taken to soak-a-ways away from the immediate vicinity. This part of the site was then completed by retaining walls, these being set out to ensure that all bathers would be directed through the footbaths before entering the bathing area.

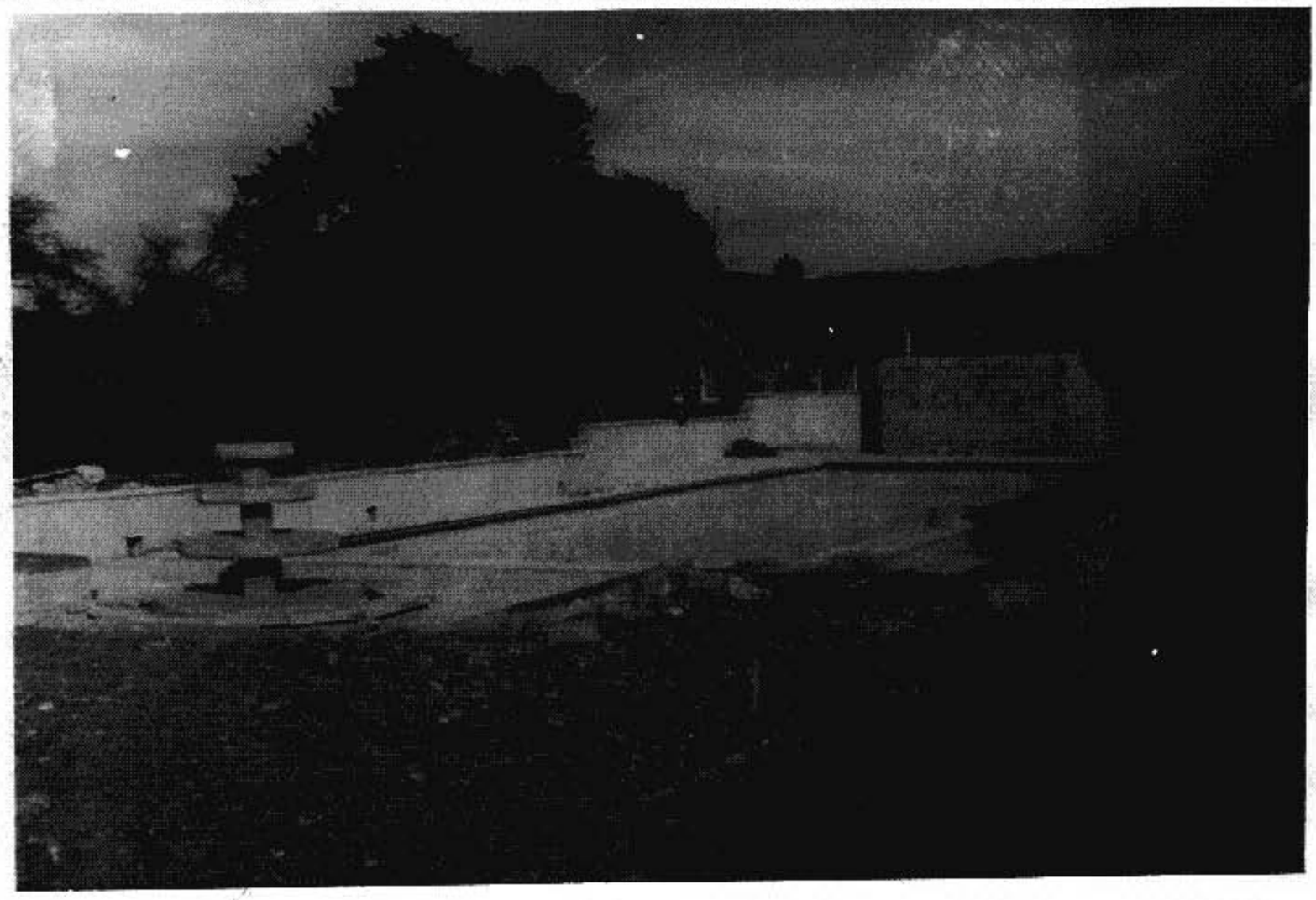
We were then able to cast the paving surround of the pool. This was designed so that the swimming instructors would be able to stand at water level around a great deal of the pool, but also at the deep end, where plunging would be possible, the levels were brought up flush with the top edge of the coping stones. The whole of this paving, 4" thick, took over 20 cu. yards of concrete for its completion.

A 3 ft. concrete block wall was built down the length of the pool so that people entering the site would be kept back from the bathing area. A path was laid to provide a separate access to the pump house, and small retaining walls were built around the site and the surrounding earth levelled behind them. The areas thus formed outside the pool area were to be for the use of visitors who wished to watch the swimming.

The main walls around the site, together with those of the pumphouse were capped with coping stones and rendered with two coats of cement plaster and finished with cream coloured Cullamix rough cast finish.

In March 1961 we commenced to rub down the inside faces of the pool with carborundum rubbing blocks. When this was satisfactorily completed, the surfaces were then treated with two coats of Cementone Number 7 primer paint. The top edging stones and scum troughing were painted white down to water level, the remainder of the pool being finished light blue. Water depth marks were painted in and a wide

READY FOR PAINTING.

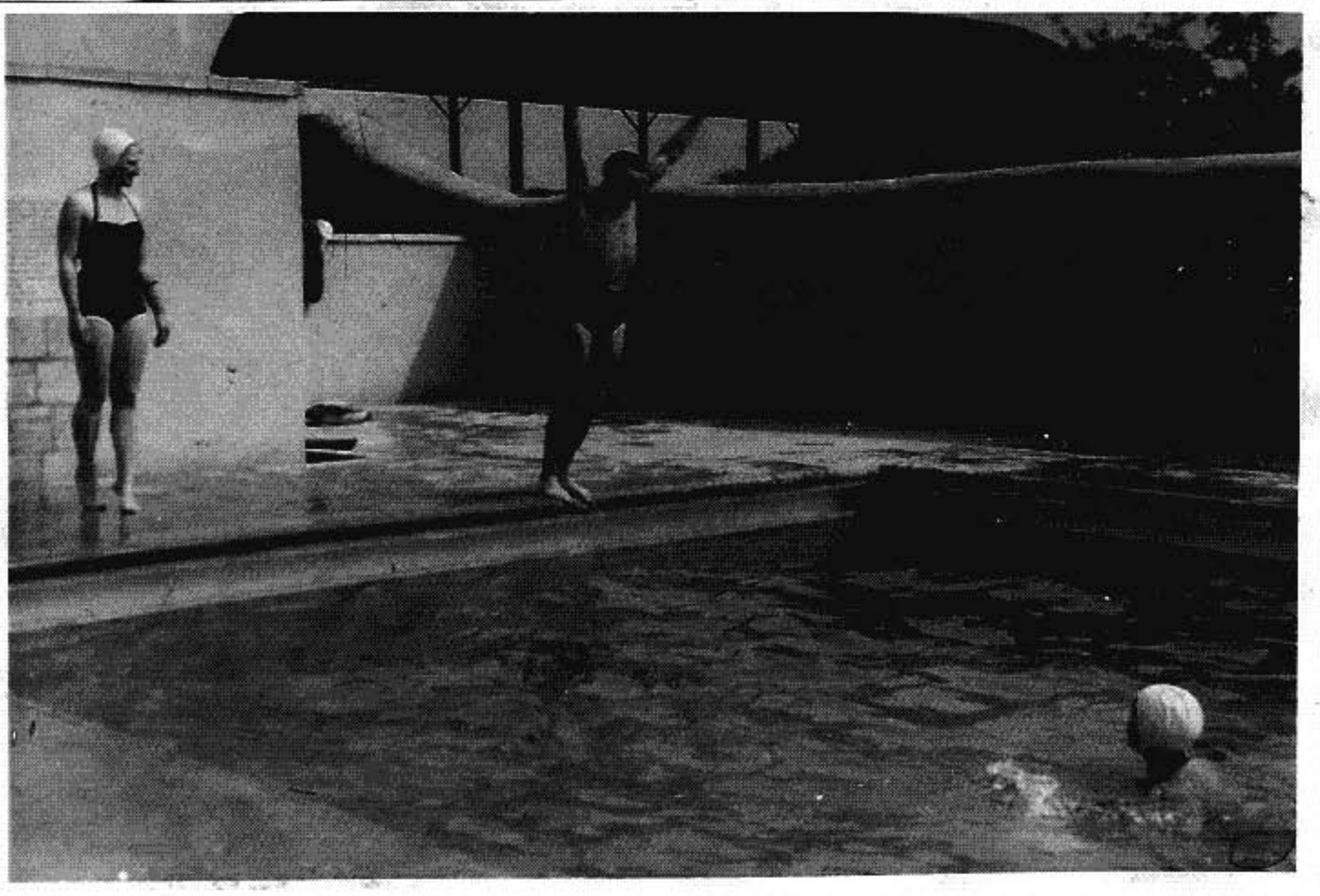


LEVELLING OUTER AREAS.

white band painted across the pool where the slope of the base changed. At this point we also fitted a nylon rope complete with corks, to indicate the end of the safe area for non-swimmers. Other safety precautions included a life belt and a rod with a large ring at one end which would nearly span the width of the pool. These were installed at strategic points on the walls surrounding the area. A plaque setting out details of the work done, was erected on the pumphouse wall, and at the end of April 1961 we were ready to fill the pool.

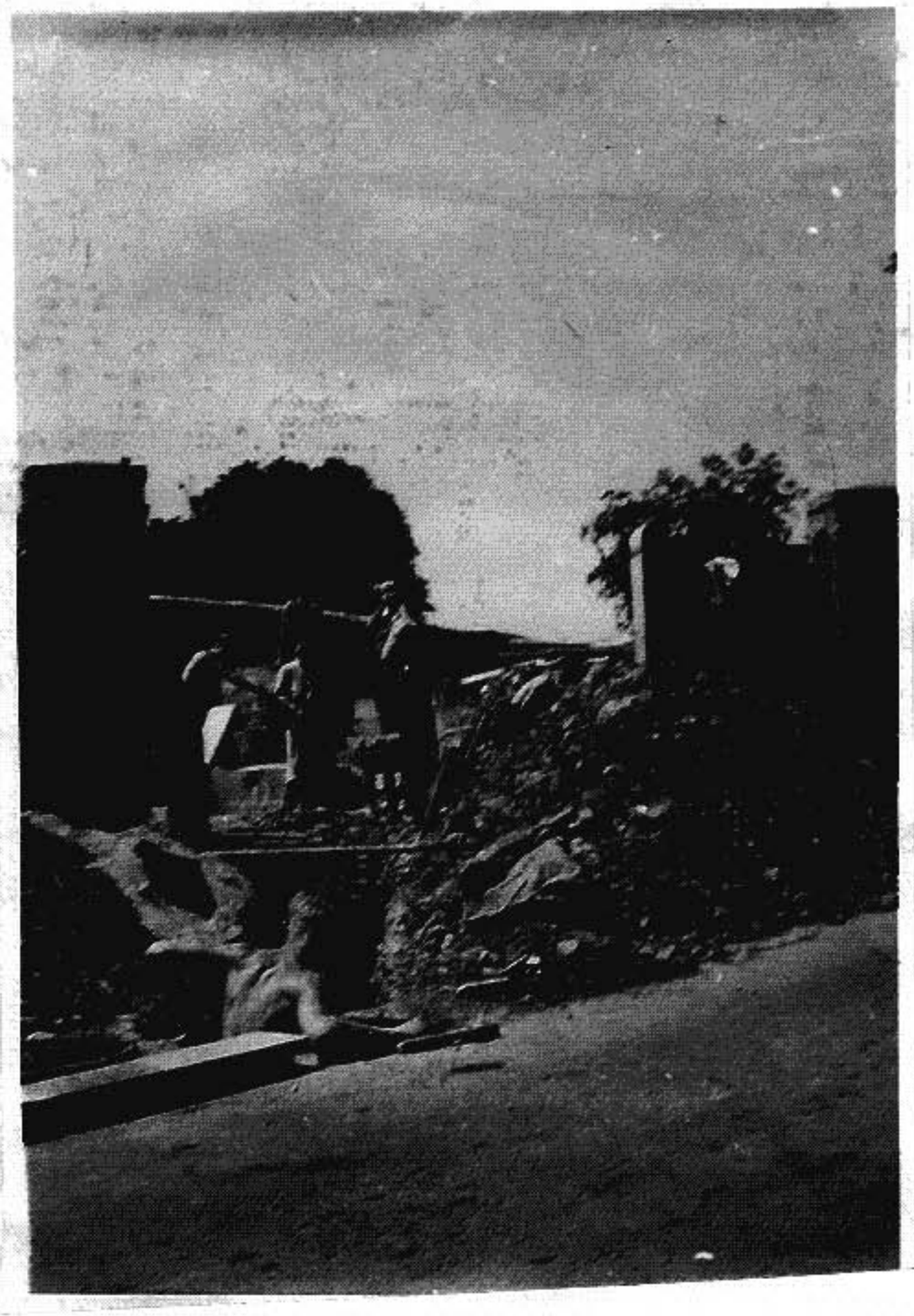
Water for filling the pool was taken by the 1" polythene pipe off the town's main water supply, four days being needed to complete the filling. During the whole of this time an anxious watch was kept for any signs of leakage, no fault being apparent when the water finally reached the level required. The water was given a heavy dosage of sodium hyperchlorite while we waited for a visit from the filtration expert to test the plant. When testing took place, everything was found to be in good order, but to our dismay, the amount of water discharged over the fountain was so great that it splashed everywhere except on to the fountain trays and the collecting trough and thus back to the pool. We had not anticipated such a pressure of water over the head of the fountain, which appeared to be another failure. It was decided to attempt to relieve this pressure by cutting a hole in the feed pipe at the base of the fountain. Luckily by very careful adjustment to this hole, it was found possible to regulate the flow of water so that the fountain worked as we had hoped. At the same time, through the relief hole, the filtration plant continued to deliver its full quota of treated water back to the collecting troughs for the return pipes to convey back to the pool.

TESTING THE CONDITIONS.



PRESENTATION AT OPENING DAY.

TRENCH TO SEWER.



LEVELS FOR THE PATHS.

SWIMMING INSTRUCTION.

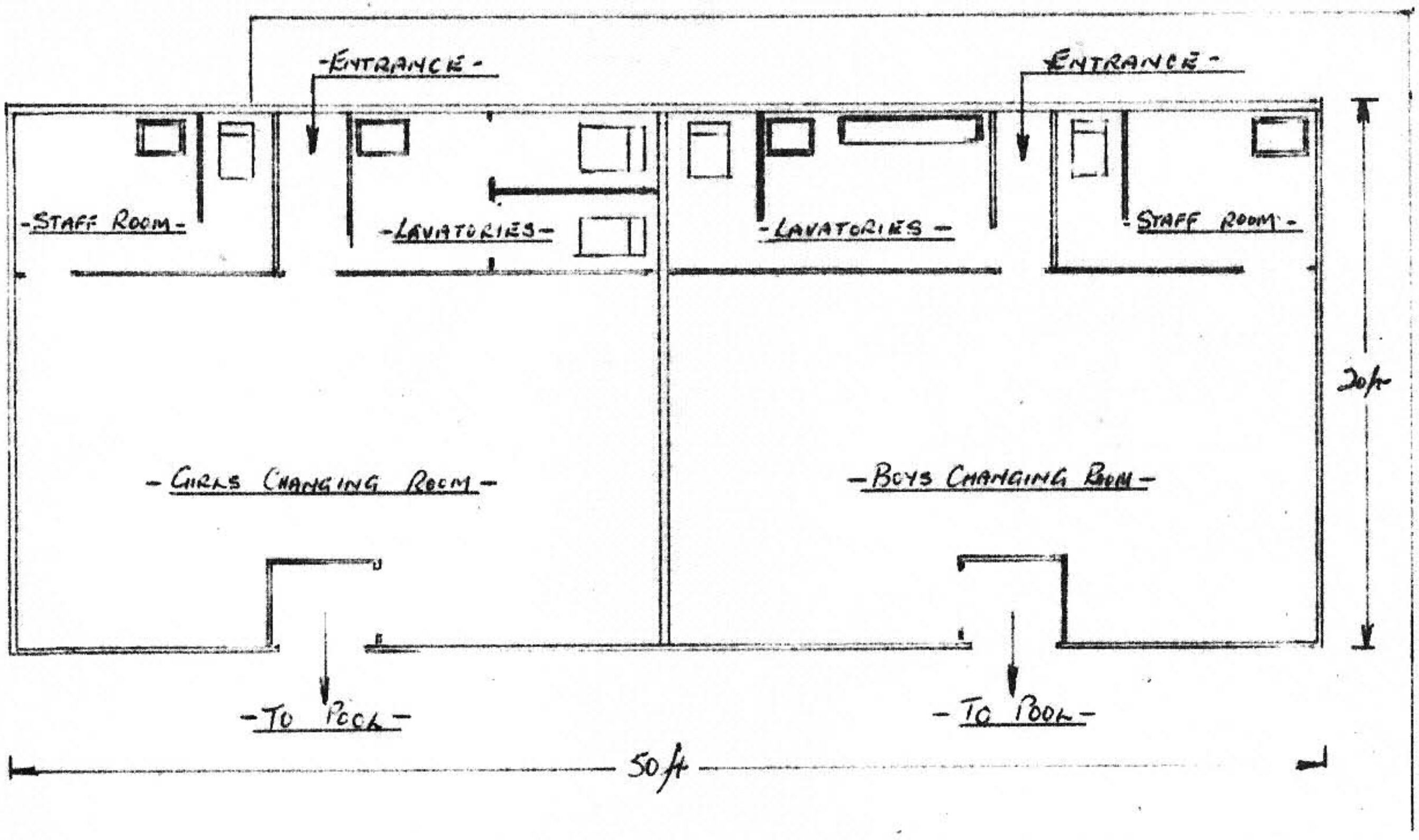
THE GIRLS' SWIMMING CLUB.

Although the water had not been in the pool long enough to warm up to air temperature, many of our pupils and some members of Staff were pleased to be invited to test the conditions. During the last two weeks of May, swimming instruction began in real earnest.

The official opening of the pool took place on Thursday 1st June 1961. Pupils, Staff and a large number of guests shared the pleasure of demonstrations by children and exhibitions by two friends from the Army. Although the day was rather overcast, we all derived great pleasure on seeing the job well done and in use at last.

From that date onwards, although hampered by the lack of changing room facilities, the pool was in continual use. A timetable was drawn up ensuring that the five schools in the town were able to receive their full quotas of swimming instruction during the day. A committee was formed to co-ordinate the use of the pool in the evenings by the various youth organisations, and before the end of June, a very large Swimming Club had been formed in the district. This club organised Life Saving Classes and Adult learner classes and provided a large amount of voluntary assistance, without which the pool could not be successfully operated out of School hours.

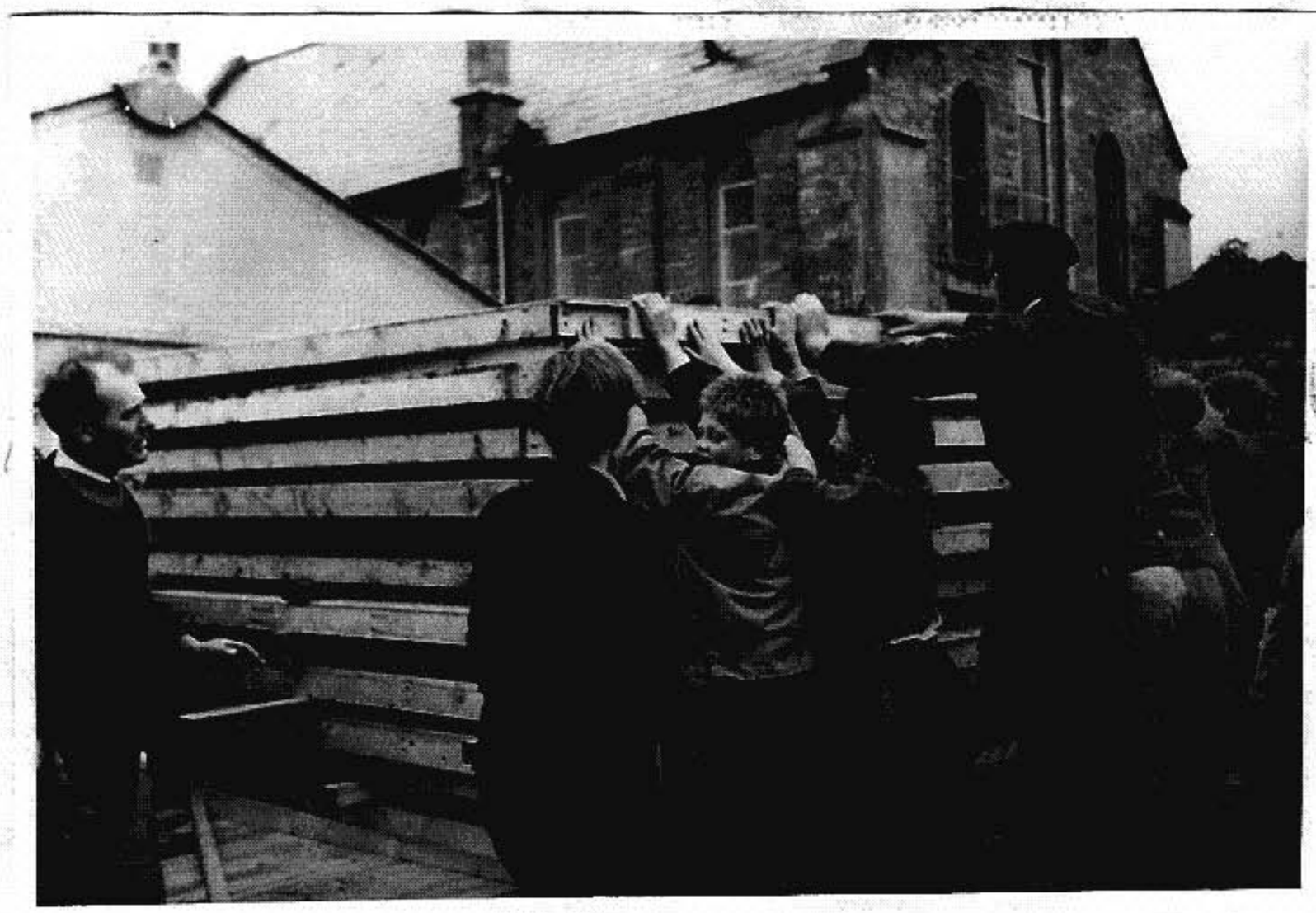
Although primarily designed for use by the Schools of the town, there is no doubt that the pupils of the County Secondary School have provided the whole district with a long wanted amenity and we most certainly have proved that not all children are lacking in spirit and endeavour, as long as adults are prepared to direct their energies in the right manner.



-PLAN OF CHANGING ROOMS-

THE CHANGING ROOMS ARRIVE.

STORING THE SECTIONS.



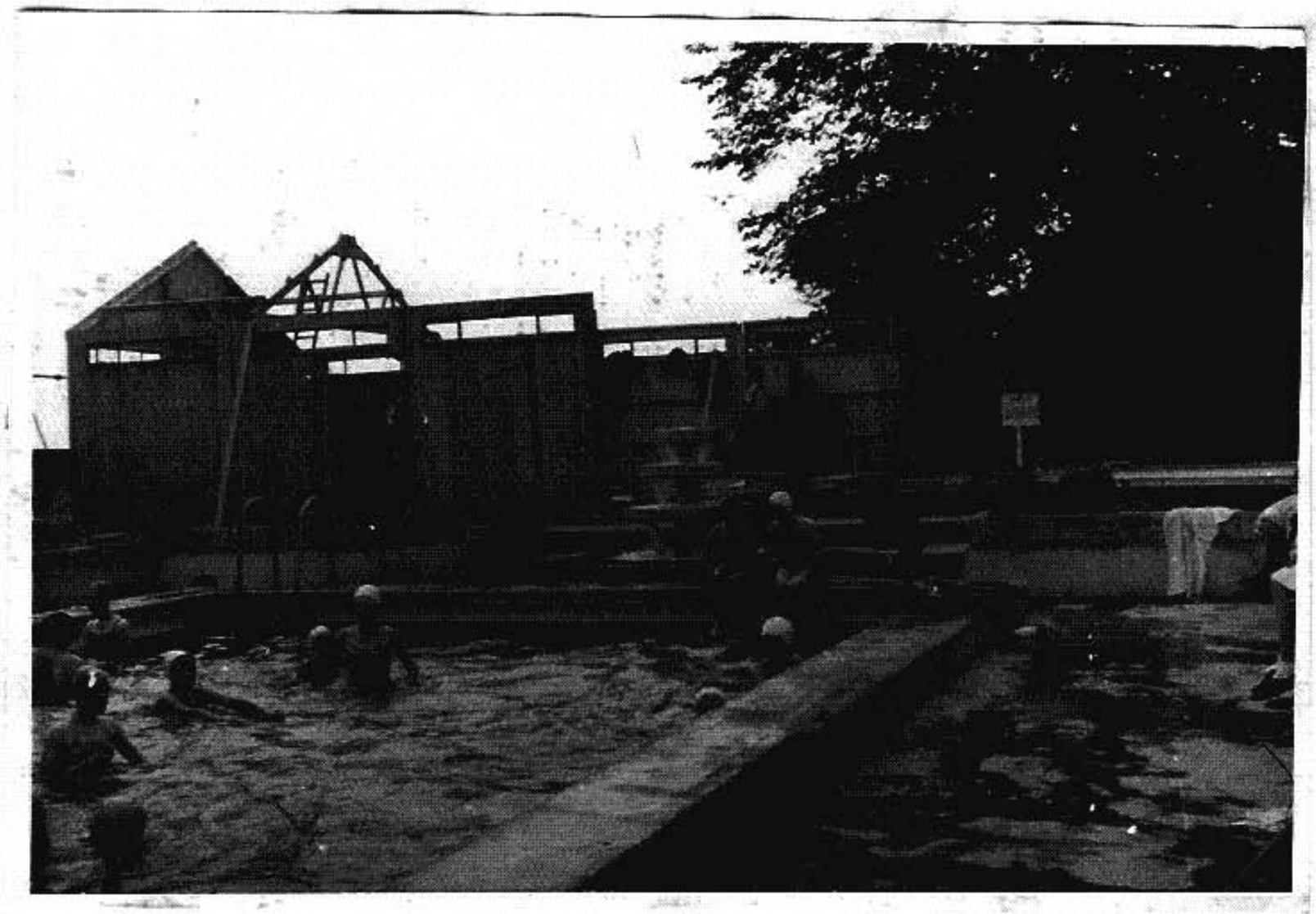
CHANGING ROOMS.

Before the opening of the Pool took place we had already planned the changing room accomodation. Requests were sent to a number of firms dealing in prefabricated buildings for quotations of their products suitable to our use. Most quotations were considered to be too expensive but it was found possible to obtain the shell of a suitable building for £400 and that by installing the linings and partitions ourselves, a saving of £250 could be made. Plans were again submitted to the Rural District Council and the County Planning Authority and permission to erect the building being received, a start was made at the beginning of May.

A bull dozer levelled the area required, the site was pegged out and footings laid for a low wall set to the outline of thebbuilding. This low wall was used to provide the levels of the concrete base, 6" thick, which was cast to contain the damp proof course set 2" below the top screed. Pipework for lavatory connections were set in the base before casting took place, and wooden battens, treated with a damp proof repellent were fixed in the top screed to provide adequate anchors for the room partitions. This base was completed by the end of May and was left to provide a useful stand for seating a large number of our guests on the opening day.

On June 2nd., work was recommenced on the building. The prefabricated sections had been stored on the School site and working parties carried them on to the pool site, to be placed in handy positions prior to erection. The walls of the building were in eight foot sections, and we commenced erection at one end, putting up the complete end with a section of each side to assist in holding the position. The sides were then extended by the addition of one section on each side and we

CHANGING ROOMS WELL UNDER WAY.



READY FOR THE PURLINS.

PREPARING FOR SHUTTERS AT
THE DEEP END.

THE COMPLETED SHELL.

attempted to erect the first roofing truss. Our first effort proved somewhat disastrous, the truss finishing on the floor with all willing assistants scattered out of harm's way. Luckily no-one was hurt and another attempt was made. We obtained as many P.T. ropes as was possible and with these attached to the truss to provide steadies, the second attempt proved successful. The truss was bolted in its correct position and braced off of the sides securely. The side walls and five trusses were erected in this manner and the other end wall then placed in position. The whole structure was then levered straight and the walls braced upright before three boys spent three days fitting purlins to the trusses.

With the purlins properly secured, these boys completed the shell by covering the roof with green corrugated asbestos. This was followed by the ridge pieces and finials and then the rain water guttering and down pipes. The windows were painted with aluminum paint and glazed and the outside of the building was given two coats of preservative.

Meanwhile we had obtained all the necessary framing timbers for the internal partitions and started to convert the inside of the building. 3" x2" joists were fixed between the bottoms of the trusses at 16" intervals, and 8' x 4' sheets of plasterboard fixed to form the ceiling through the building. The 4" main partition framing was then fixed and lavatory and other accomodation formed with 3" framing. All partitions were eight foot to ceiling height and so designed to be covered with 8' x 4' sheets of $\frac{3}{8}$" exterior quality plywood, with a minimum of cutting and wastage. Door linings were next fixed and the whole of the interior lined with its plywood skin. With this stage completed, all doors were hung and fitted with locks and handles, skirtings

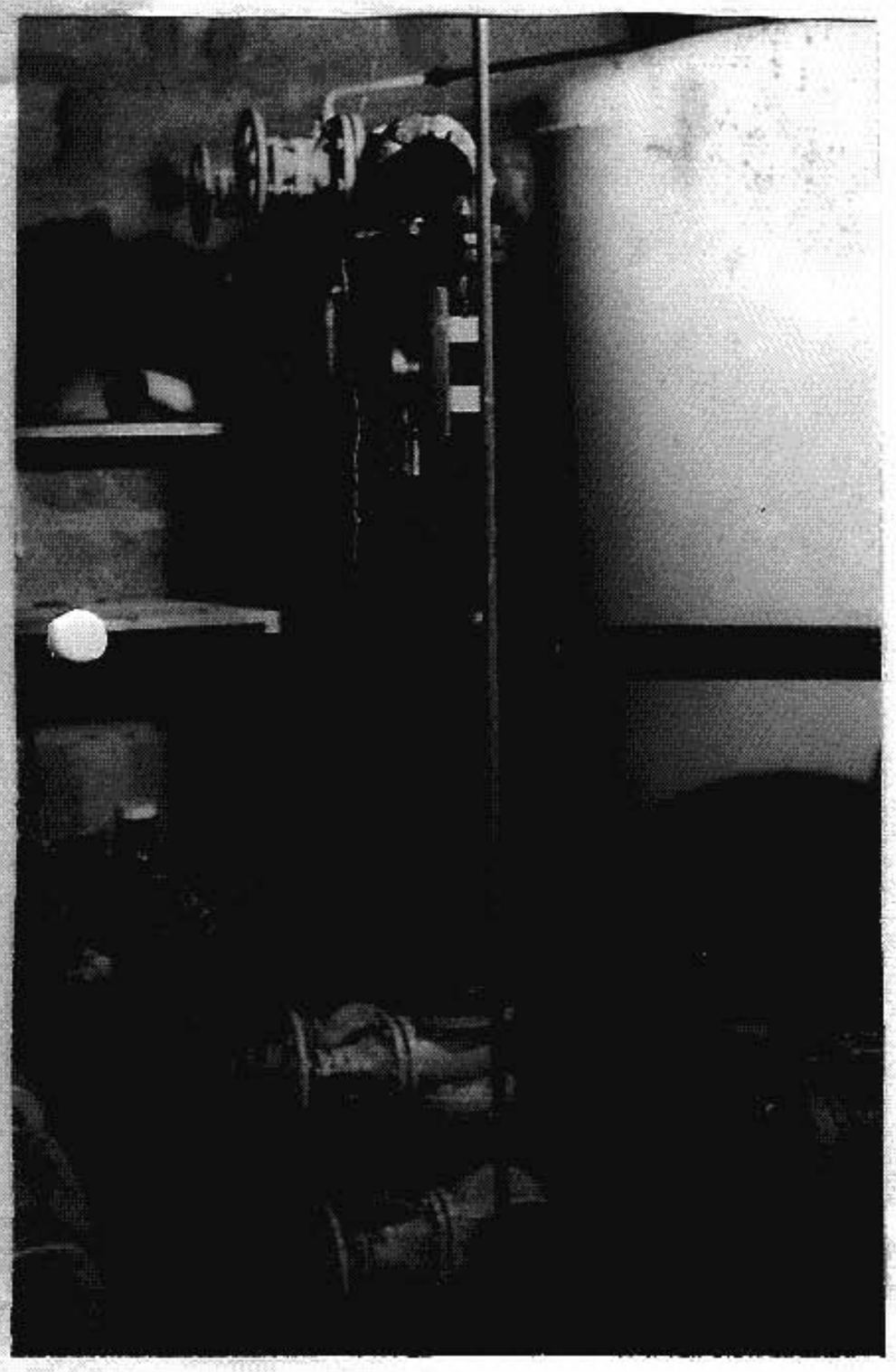
and architaves fixed and the joints between the lining sheets were stripped. Although still unfinished, it was then possible for the changing rooms to be used during the remainder of the swimming season, although no lavatory facilities were available.

Washbasins and lavatory suites were installed during August 1961, this work being carried out by more "old boys" now employed as plumbers. A contractor undertook the necessary sewer connections from the changing rooms, this work having to be carried to a depth of 8' below the floor levels to reach the sewerage system. This connection was scheduled to be complete by April 1962, ready for the new swimming season.

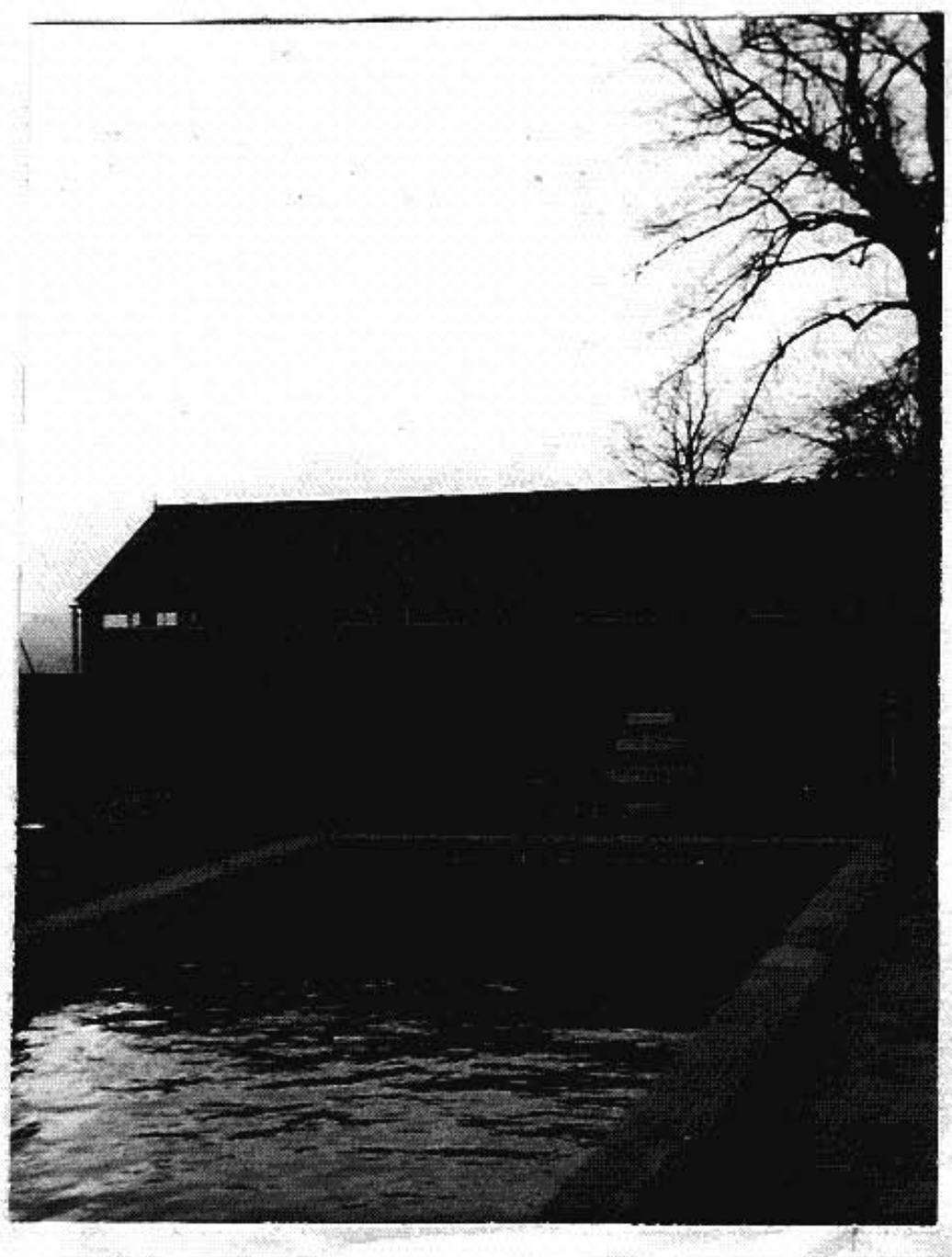
At the beginning of the Autum term 1961, it was possible for boys to return to their normal Handicraft lessons, while a small number of lads, under the direction of Mr Coward, completed the changing rooms. The inside of the building was rubbed down, all blemishes filled and the walls given a coat of wood sealer. Final decoration was completed with emulsion paint, coat rails and pegs were fixed, so that when the swimming season of 1962 does arrive, the whole project will be complete. It will have taken three years to build since we first fenced the land, and overall costs will amount to approximately £3400.

It is anticipated that, with any income derived from evening use of the pool, it will eventually be possible to tile the floors of the changing rooms, to improve the walls with a plastic surfacing, and also to install a gas chlorination plant in the pumphouse.

THE FILTRATION PLANT.



THE COMPLETED POOL AND CHANGING ROOMS.



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MONEY RAISING ACTIVITIES.

The major part of the construction of the pool was naturally carried out by the boys of the School. It must however be pointed out that the girls did their full share in raising money to pay the bills. They organised dances, sold icecream during the school breaks and through all their various activities raised about £220. The School caretaker, his assistants and all the Canteen staff were also very busy on our behalf and raised £120 by their efforts. From 1958 to 1961, whildt the project was being built, we ran four fetes and received tremendous support from the public. Children, Staff and friends all worked very hard to make these fetes a success and from them we raised over £1500. In 1960 we raffled a television set and raised £180, in 1961 it was a refrigerator,and this time we raised £139. Local schools made us gifts totalling £402 and the County Education Authority gave us grants totalling £750.

We were very proud, in July 1961, to announce that the complete scheme had been paid off, especially as in April of that year we had raised a five year loan of £500 and in four months had been able to clear this outstanding debt.

From this project the School has no doubt obtained a great amount of public support,while the pupils and Staff have benefited, not only from the provision of a Swimming pool, but also from the co-operation that grew out of the work.

FACTS.

Length of pool.	60 feet.
Width of pool.	20 feet.
Depth of water at shallow end.	3 feet.
Depth of Water at Deep end.	6 feet 6 inches.
Capacity of pool.	33,000 gallons.
Changing rooms.	48'6" x 20'.
Outlet from pool.	4" diameter pipe.
Return pipe from filter.	3" diameter pipe.
Concrete laid.	250 tons approximately.
Steel.	30 cwts approximately.

APPROXIMATE COSTS.

Fencing.	£150
Concrete mixer.	45.
Pump House.	100.
Walls.	100.
Steel.	75.
Pipes and water supply.	150.
Filtration plant.	770.
Concrete.	550.
Paint and fittings.	130.
Electrical fittings.	70.
Connections to sewer.	160.
Changing rooms.	1050.
Tools, moulds and wooden shutters.	70.