

# Heavy Craft Work in the Middle School

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While the coming of the middle school clearly presents teachers with a wide range of opportunities for exciting new work the problems involved in the new enterprise are equally clear. Secondary teachers ask themselves to what extent their approach and subject matter will be applicable to younger children; their junior colleagues, teachers of general subjects in the main, consider what increased degree of specialization will be required of them. In no subject are the opportunities and problems more apparent than in craft. A speaker at the Exeter conference reported in *Middle Schools – Themes in Education no. 14* (p 15) was enthusiastic about craft opportunities. 'The middle school provides two tremendous advantages. One, boys and girls could have equal opportunity in these schools and secondly a child can start specialised craft work before the age of eleven.' The section on craft in this publication is helpful, but useful references in this area are not abundant. In *Towards the Middle School*, DES Education Pamphlet no. 57, good examples are given of planning for heavy craft work. *The Middle School – a Symposium* comprises eight articles which first appeared in *The Teacher* and which embody a lot of good sense. Two very good articles on the subject of this paper appeared in the *TES* of 24 July 1970. There is a need for a lot more discussion, however, on what wood and metal work can be done with the middle school age group, what place it should have in the timetable and who should teach it.

In the course of an investigation into these matters a visit was made to a junior school due shortly to become a middle school. The buildings are modern, single storey, built on an open plan. In conjunction with team teaching an integrated day operates, with the exception that a particular place in the timetable is allocated to maths and also to craft. The head had not given any detailed consideration to heavy craft in the future curriculum although he

taught craft himself, including making simple musical instruments out of wood. His particular misgivings are echoed in *Launching Middle Schools* (p 13): 'The safety aspect worries many head teachers who ... would appreciate expert advice on the matter and the establishment of a definite code of practice.' He was apprehensive about the use of the traditional cutting tools and although he saw a place for woodwork in his new organisation it was limited by this factor. He did not see metalwork as a practical proposition. The craft carried out at the school was of a high standard and included weaving, tie dyeing, lino cutting, cardboard modelling and book binding. It may be noted that the cutting instruments used with the lino were very sharp but they were used according to a sensible procedure and no injuries resulted. Examples of work done with first year secondary boys were shown to the head and his staff – model ships, wicker work, wood sculpture and laminating work, eg, salad servers. Of these the last in particular aroused interest and was thought an ideal activity for the age group under consideration.

At a comprehensive school with a traditional approach to craft teaching culminating in fifth year examinations with emphasis on technical drawing the head of department was asked what craft background he would expect of pupils coming from a middle school. One year's experience in woodwork and one in metalwork was his desideratum, the same standard in fact that his own pupils attained in their first two years, for how otherwise, he asked, could the examination demands be met. Among the first-year woodwork projects was the making of model racing cars with an imaginative final display on an improvised track. First-year metalwork included tinplate mobiles which showed considerable variety of design, simple enamelled jewellery and a simple steam turbine made in tin plate.

Both first- and second-year pupils were given projects to work at out of school time, on the school premises and at home. There was a hundred percent response to these. The first year requirement was to construct from a sheet of imperial cartridge paper a tower which should combine a pleasing appearance with maximum load-bearing capacity. The work was well, and enthusiastically, done. The second-year project was to make a model of an elevated means of transport which moved under its own weight over a specified distance, falling through a specified height; there was free choice of materials. Again the standard of workmanship and ingenuity was very high. The evident success of the exercises described above must be seen as in large part due to the appeal they made to the pupils' imaginations.

### A craft club

The next stage in this investigation was initiated when the head of a junior school, at which staff and parents ran a variety of clubs on a Friday afternoon, was looking for someone to start a woodwork club. The clubs were open to children of the upper two years and since no woodwork was done at any other time in the school's curriculum members could in the main be expected to be complete novices. A parent was approached to do the job who had taught juniors but had no more experience of woodwork than the average householder. He sought help from an ex-Naval man who had come into teaching after twenty-five years in the service on the technical side. The project went forward as a joint venture – a secondary specialist/junior non-specialist collaboration.

The first problem was the purchase of tools for which £20 was provided (pre-VAT). Several factors apart from the cost governed the choice. Firstly, the number of members in the club was to be limited to twelve. Secondly, all materials were to be

planned to acceptable working sizes, thus reducing preparation to a minimum. All curved shaping was to be done with Surform tools. The majority of the tools, although being adult in efficiency, should be small in dimension, especially with regard to the handle. A further factor was the quantity of holding tools to be purchased. These took a major share of the budget in the conviction that if the material to be worked upon with cutting tools is held firmly and rigidly then the temptation to put a hand in front of the cutting edge is removed, and the risk of injury much reduced. The range of tools used was widened by bringing in some which were beyond the schools financial resources so as to investigate their use.

The members of the club were drawn from three classes, one of them a remedial class. Although the club was open to girls none opted to join it, but there was constant pressure from other boys who wished to come. The boys were all aged nine or ten, but in every respect other than age there was a wide range. Some were well-built, strong boys while others were undersized and physically weak. Teachers' reports indicated a wide spectrum of intelligence, academic ability, artistic inclination and ability to concentrate: one or two were cited as discipline problems.

At the first session a classroom was provided where the only working surfaces were tip-up desk lids. These were most unsatisfactory and reinforced the impression that there was no conception among those responsible for organising the club afternoon of heavy craft requirements. The lifting of a desk lid led to a boy suffering a cut finger. It might be remarked that in three terms of running the club, changing the personnel each term, only two other injuries occurred, a leg scraped with a saw and a rather nasty splinter in a finger. After this session three benches were unearthed and were subsequently set out in a corridor which, although not wide, was well lit. A small

storeroom with a sink and draining board at one end and light slat shelving was also made available. Vices could be clamped to the draining board but only delicate work — eg, with fret-saws — could be clamped to the shelving.

The initial talk to the boys emphasized safety, pointing out the injury that a chisel could do to its user or to someone near. A similar warning was solemnly given at the beginning of the first few sessions. Following a brief talk on wood and the part played by the grain everyone began by making a totem pole out of a piece of scrap softwood. The material was held in clamps or vices and most boys began by cutting a housing, making parallel saw cuts and chiselling out the waste material. It was envisaged that this project would lead to the use of a wide variety of tools and this proved to be the case as the boys sought to realise their designs. Holes were bored using a hand brace. Round, half-round and flat surforms were employed. One boy showed some flair for carving, but when the head was approached as to the possibility of buying carving tools he was worried that the boys might cut themselves. Some boys completed their totem poles in a couple of sessions and moved on to new projects. Paint and brushes were brought from their homes to finish the totem poles. A small propane torch was introduced (another safety talk) which the boys learned to operate, to explore the effect of lightly burning the wood and using a wire brush on it. A number of boys moved on to the construction of a box to hold the tools. The housing joints followed naturally from the totem pole exercise. Most of the pieces were pre-cut to size. The boys worked in pairs and the joints they cut fitted together very well.

Examples of model boats, racing cars, toast racks and cheese boards were brought as examples of what the boys might work at next. Some followed these suggestions while others had their own plans for making

models or household articles. The holes to take the axles of the racing car models were not satisfactorily made using the hand brace so the opportunity was taken to introduce a powered pedestal drill. The work to be drilled was held in a small vice so that the operator's hands were kept well away from the cutting edge. It was demonstrated at the outset how sharp the drill was and how hot it became after use. Safety precautions were emphasized, then each boy did some trial drilling under supervision. The drill was used in several of the projects and later in joining pieces of wood together.

Most of the boys were complete novices upon joining the club. One had a father who was a carpenter and he had some acquaintance with tools; several had never used a tool in their lives. Most took a while to learn the rhythmic, steady movement of a saw. One was seen putting with great care the point of a drill bit into the chuck of the hand brace. Their great keenness on their work, however, ensured that almost without exception they learned quickly and strove to overcome physical difficulties, for there was much physical exertion involved for these boys. Quite a small sawing job was taxing, especially sawing to a line, but no serious complaints were voiced. With the hand brace the less muscular of the boys were managing with great effort to produce a tapering, oval hole; they found the powered drill a boon. The need for prepared timber for such a group is clear. A carpenter's brace was brought in but none of the boys could handle it. Most in due course became able to handle chisel and surform, hammer and screwdriver and were proud of their mastery. According to their physical capacities they mastered various sizes of saw. In the case of the chisel some had to learn that great muscular effort was *not* required. Their finished work reached a commendable standard and drew admiring comments, especially from the growing numbers who craved admission to the club.

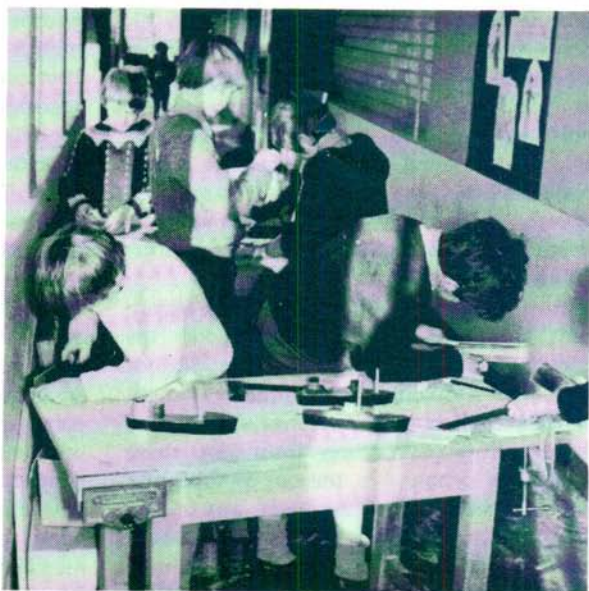
In the corridor  
model boats.

Benches in corridor.  
Toast racks and cheese  
boards.

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The grasp of which tool was appropriate for the job was something which came only slowly. Whether a rough area should be approached with a chisel, a surform or glasspaper was a problem which one or two never satisfactorily mastered. The care of tools had repeatedly to be brought to the attention of some of the boys; a common fault was to clamp the wood so that the tool struck the metal clamp. They did not shirk the clearing up at the end of the day; the floor had to be cleared and the benches stored. On the other hand it proved very difficult to instil the habit of clearing up their work space as they proceeded. At the beginning they all expected the piece of work to be finished in a single session and wanted to start something new next time, being rather reluctant to carry on with a part-finished piece. In time they overcame this, except for one who could sustain no interest for more than a very short time. The standard which satisfied him was very low; he seemed pleased with a very ragged totem pole. On the other hand a friend of his worked for a long time with glasspaper to achieve just the finish he wanted on his totem pole. Most were able to exhibit a self-critical attitude to their work. There was no lack of confidence in taking up the tools, in fact quite the reverse, which reinforces the need to communicate safety requirements. An exception was the powered drill which several took a while to accept; one was made nervous by the noise but came to terms with it in the end.

Most were ready, indeed eager, to experiment although one, curiously enough the school's prize pupil academically, could not be budged from copying the models brought in; teacher's example was always best. Despite conditions some way from ideal these boys made progress in the use of tools and produced satisfactory work. It was a pity that no girls came forward; the club continues to run and none have yet joined. Perhaps enamelling or jewellery work would

attract them. The boys continue to benefit, however, as the work presents a fresh challenge to the high flyers and an outlet for expression for the less able.

### Some ways forward

To the question whether heavy craft should be part of the middle school curriculum the Plowden report, by omission, answers in the negative. A decision to classify middle schools as part of primary education makes no implications for the curriculum. This must be decided on the needs and capacities of the age group, and it seems clear that across the whole spectrum of intellectual ability heavy craft has much to offer. Again, inflexible thinking on the integrated day will reject any field of experience which cannot be easily integrated. But this is the tail wagging the dog; organisation has taken over.

The junior school mentioned at the beginning of this paper adopted a reasonable compromise and treated craft as an exception to their integrated day routine. It is of interest that they felt it necessary to make another exception in the case of mathematics. In the school the problems of the best use of resources and space and that of supervision led to the decision to allocate a specific time and place to craft. Practical considerations loom large when planning for craft. The woodwork project recommended as ideal in *The Middle Years of Schooling*, Working Paper no.22, (p.70) has lost sight of these: 'A forestry plot where children can clear the ground, plant the seedlings, fell trees, bringing the wood back to the workshops where they can go through all the processes necessary to arrive at a finished piece of furniture. For many children the satisfaction of going through with a major project of this kind will not be equalled by any other activity.' Does the writer realise what period of time and processes are involved between seedlings and sideboard, or what physical effort is needed to convert

trunk to timber? Perhaps he sees a new meaning for raising the school-leaving age.

Considerations other than practical ones threaten to influence unduly middle school craft in the view expressed at the comprehensive school mentioned earlier. The 'O' level examination has here become the dominating factor. The work of the school shows clearly that its influence need not stifle imaginative and worthwhile projects, but if a true design approach in craft is to come, middle school curriculum planners must not be shackled. The problem-solving approach, as with the towers and the elevated transporter, will have a lot to offer.

Where open plan and free movement are at the present time ideals to be sought after, provision for craft introduces a clash of requirements. In many a modern school singers or percussion players can disturb the concentration of children at a considerable distance. Hammers and saws will create as much noise; powered tools much more. Dust is also a potential nuisance. Clearly it will be necessary to segregate the heavy craft area from those where quiet is needed. It will not be alone in this for some other of the practical subjects could with benefit have a base away from areas of quiet. After all, the idea that parts of an open plan set-up might be segregated is not new. In the Eveline Lowe school (*Building Bulletin no. 36*) the nursery department is separate from the rest of the school in order to give security to the youngest children. In the interests of the proper provision for craft it must be hoped that there is thorough consultation between the teacher and the architect, the user and the planner, of middle schools.

A lot more discussion is needed on the equipping of the middle school craft area. The limited experience with nine-and-ten-year-old boys described above lead to the following suggestions. Plenty and varied types of clamping equipment are needed. The 'Lervad' benches have an abundance of

clamping facilities beside other good features. They are rigid yet collapsible and adaptable for both metal and woodwork, and they have good storage space. The power drill that was used proved safe and within the capabilities of the slowest or smallest child in the group. It was an asset because it enabled the children to drill accurate holes which allows them to make structures using dowelling.

The surform tools enabled even the least co-ordinated child to shape wood without undue effort or too much help. Its counterpart, the spokeshave, is a difficult tool to master and although the finish left by the surform is less perfect it is quite acceptable at this level. The surform is also especially useful for free carving and modelling work. A type of scribing block as used in metalwork was substituted for the more difficult marking gauge. Used on a level formica-topped table as a marking-off table the processes of marking wood and metal are equated. An improved bench hook was designed to replace the old type when sawing across the grain of timber, which most of the boys found beyond their strength to control. The new hook holds the wood being sawn rigid, allowing the hands to be kept away from the cutting edge. A less muscular boy can use both hands on the saw. There seems no harm in this; it enables the child to cut the wood successfully and the child learns when making less demanding saw cuts that it is more efficient to use one hand. Other tools worth having would be a sanding disc, possibly a metalwork lathe and a brazing hearth for the use of the children, and a grindstone and a band saw for the use of the teacher.

The boys at nine seemed just old enough for this kind of craft work, but there should be opportunities also for girls. The lower age range of the middle school might well start with wood, as do middle schools in the West Riding. It is a material familiar to the child and pleasant for free expression work such

as carving and modelling, marquetry and laminating. Well within the capacity of the older group should be such metalwork as simple jewellery, pewter work, aluminium work, simple beaten metal, enamelling and tin plate work. Many junior school teachers would be daunted by a list such as this and conclude that middle school craft teaching must be left to the specialist. Specialists there must be in these schools, of course, but equally obviously they are not thick enough on the ground to do all the teaching. J B Willcock in *The Middle Years of Schooling*, Working Paper no. 22, observes (p. 20): 'To spend a little time in the company of a real expert, to catch something of his interest in his field is an important source of educational development and one of which we would not want the child deprived.'

In addition to inspiring the child, the specialist can inspire and guide his non-specialist fellow teacher who has an interest in this field of work. Overall organisation, the operation of a code of safety and all the other areas in which the hand of the expert is needed will come within the responsibility of specialists, but his experience with the age group and desire to take part in this work will enable the non-specialist, under the guidance of the specialist, to play an essential part. Short courses on how and why craft work is taught in schools could be of value to many teachers, not excluding headmasters most of whose teaching lives have been spent in non-practical disciplines. Short courses on specific aspects of craft work are at present run at a level to benefit existing specialists. Courses dealing more with the rudiments will be needed for the benefit of those non-specialists who will supplement the specialist force if heavy craft is to play a significant part in the middle school. While these would in the main be part-time, short full-time courses could make a particularly valuable contribution. There would be no shortage of applicants, for such work in the middle school presents an exciting challenge.

Here is a situation ideal for the working out of new ideas in design, free from the shackles of an examination course. Instead of concentrating on a traditional vocational approach the teacher could initiate a programme of enquiry based on problem solving using a multiplicity of materials. The course followed in the open unit at Kaskenmoor School, described in the Spring 1971 issue of this Journal, is based on individual exploration and free expression which gives opportunity for pupils to exercise creative abilities and benefit from a broad approach to design work. Its example gives a pointer to planners for middle school craft, due allowance being made for differences in staffing and resources. Given a creative and adventurous approach, alive to the needs and potentialities of the middle school child, the contribution of the craft course could be enormous.