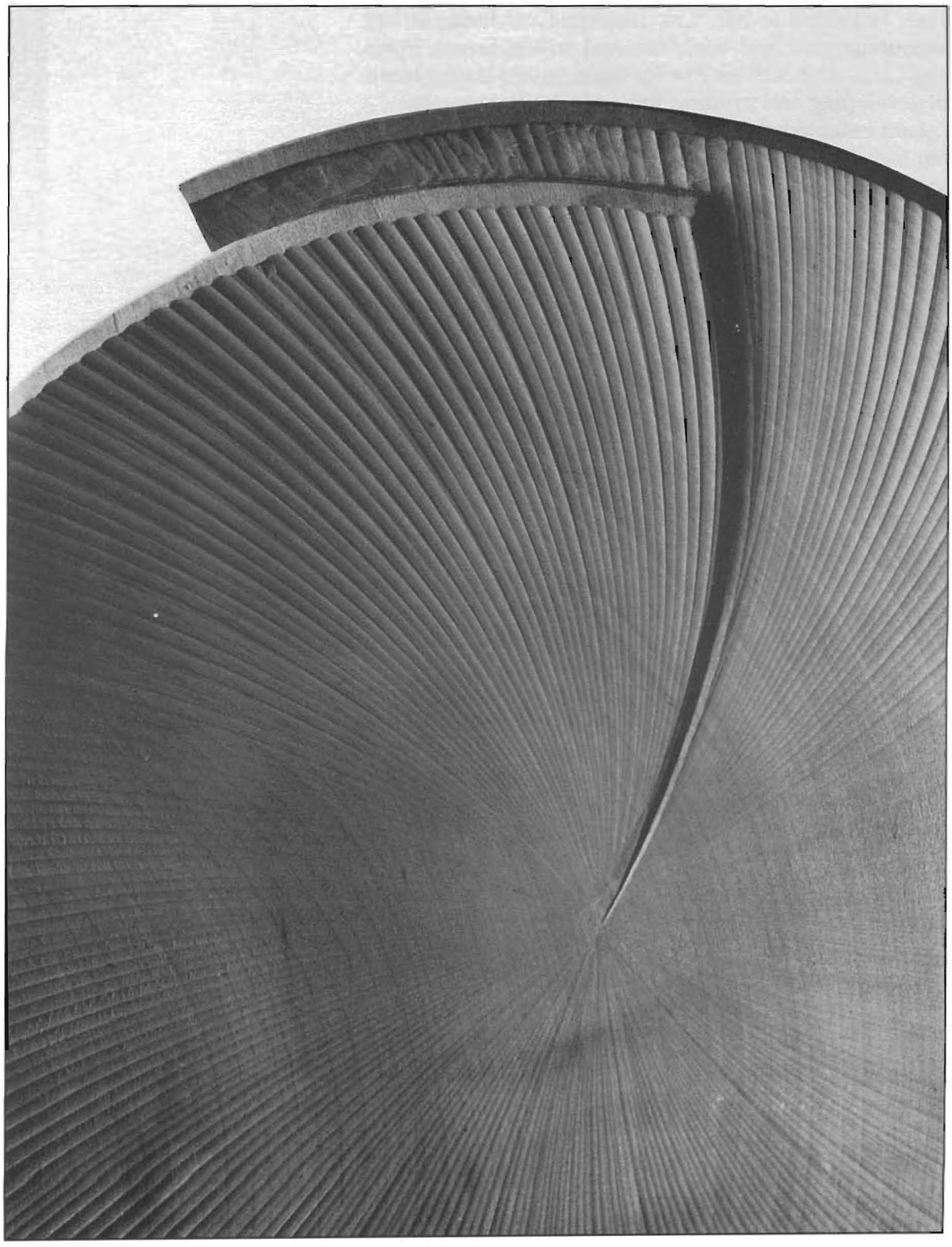


Foreword: Apostle of workmanship

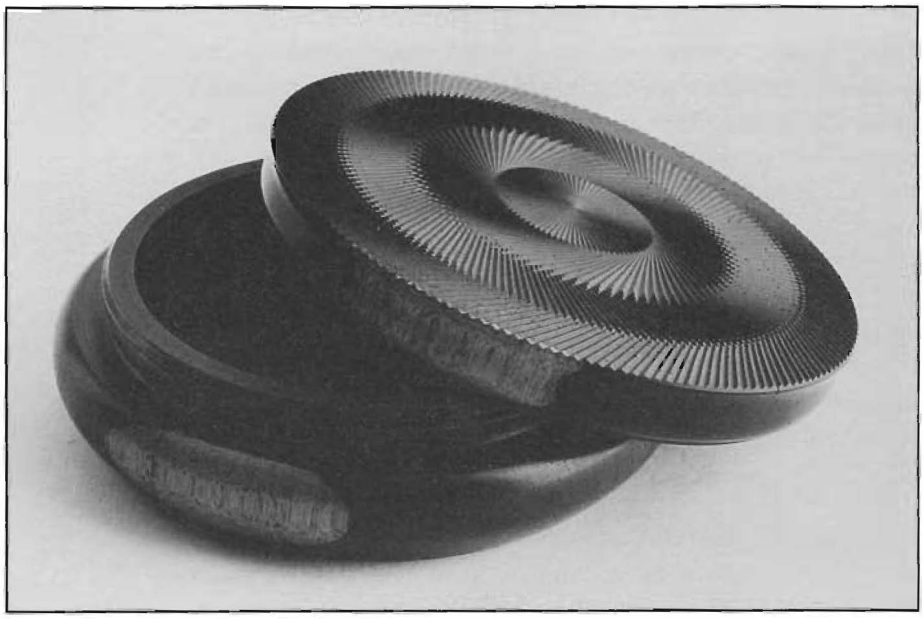
The phrase "workmanship of risk" means that at any moment, whether through inattention, or inexperience, or accident, the workman is liable to ruin the job. It is in opposition to the "workmanship of certainty," in which the quality of the result is predetermined and beyond the control of the operative. These are incisive concepts that cut through much of the confusion generated by such multivalent terms as craftsmanship, quantity-production, hand-made, and skill. And as David Pye points out, "...all the works of men which have been most admired since the beginning of our history have been made by the workmanship of risk, the last three or four generations only excepted."

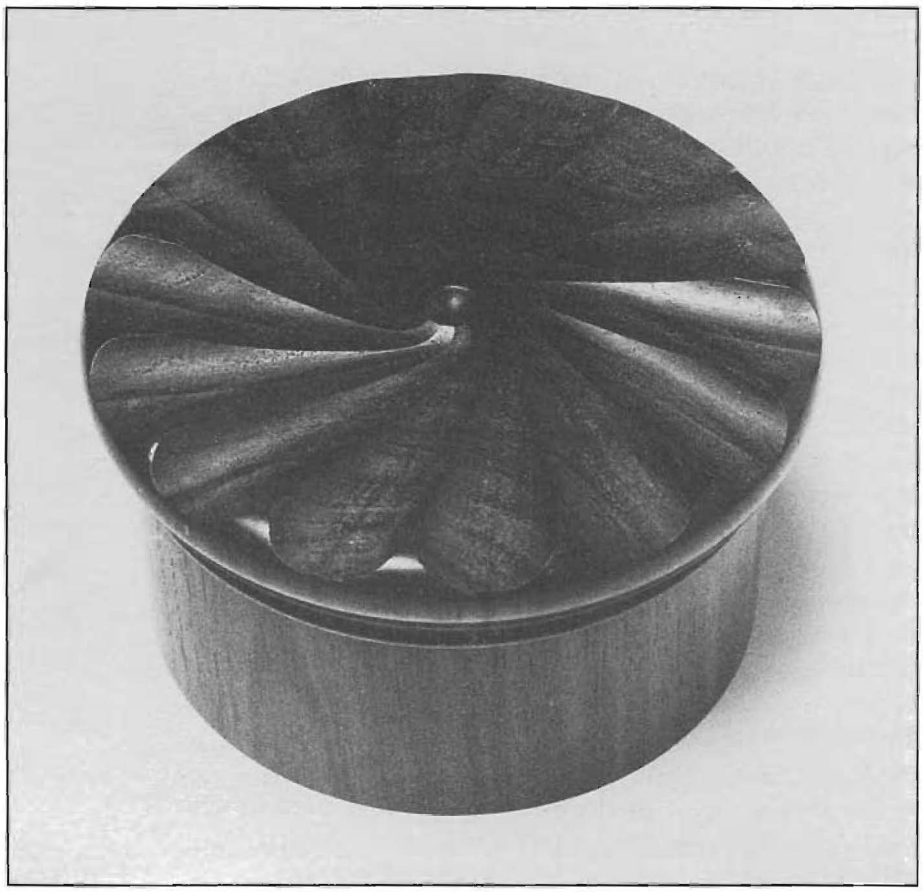
The examples of Pye's own work shown with this introduction describe his concerns and illustrate his arguments. They were all made by the workmanship of risk, but they each reside at different places along the spectrum from rough or free workmanship to highly regulated workmanship.

The bowl with two handles that appears on the front cover at first glance may appear so circular that it must have been turned on a lathe. But wait, it has four protruding handles, so it can't possibly be a lathe's product, and indeed, it is not. It was made almost entirely by carving, with partially jigged hand tools. Working freehand, with the deftness that's characteristic of the practiced workman, Pye bandsawed the disk, then whittled the shape of the bowl's exterior with a stock knife—a guillotine-like chopper affixed to the cutting block by a loose pivot, an arrangement offering great leverage under reasonably close control. He roughed out the inside with a heavy gouge-shaped adze, before mounting the blank on the fluting engine he designed and made solely for this purpose.

Pye's fluting engine, itself a marvelous example of design in the service of workmanship, permitted him to define and gradually to deepen the pattern of carved flutes that characterize his bowls. He spaced the flutes by eye and drove each cut by strength and dexterity. The surface that results is entirely good, in that every cut is clean and sharp, and regulated, in that the pattern seems totally uniform. However, as you approach the piece, pick it up and turn it in your hands, irregularities and variations reveal themselves. The object displays a

Wild service tree dish
(David Pye/Crafts Council)





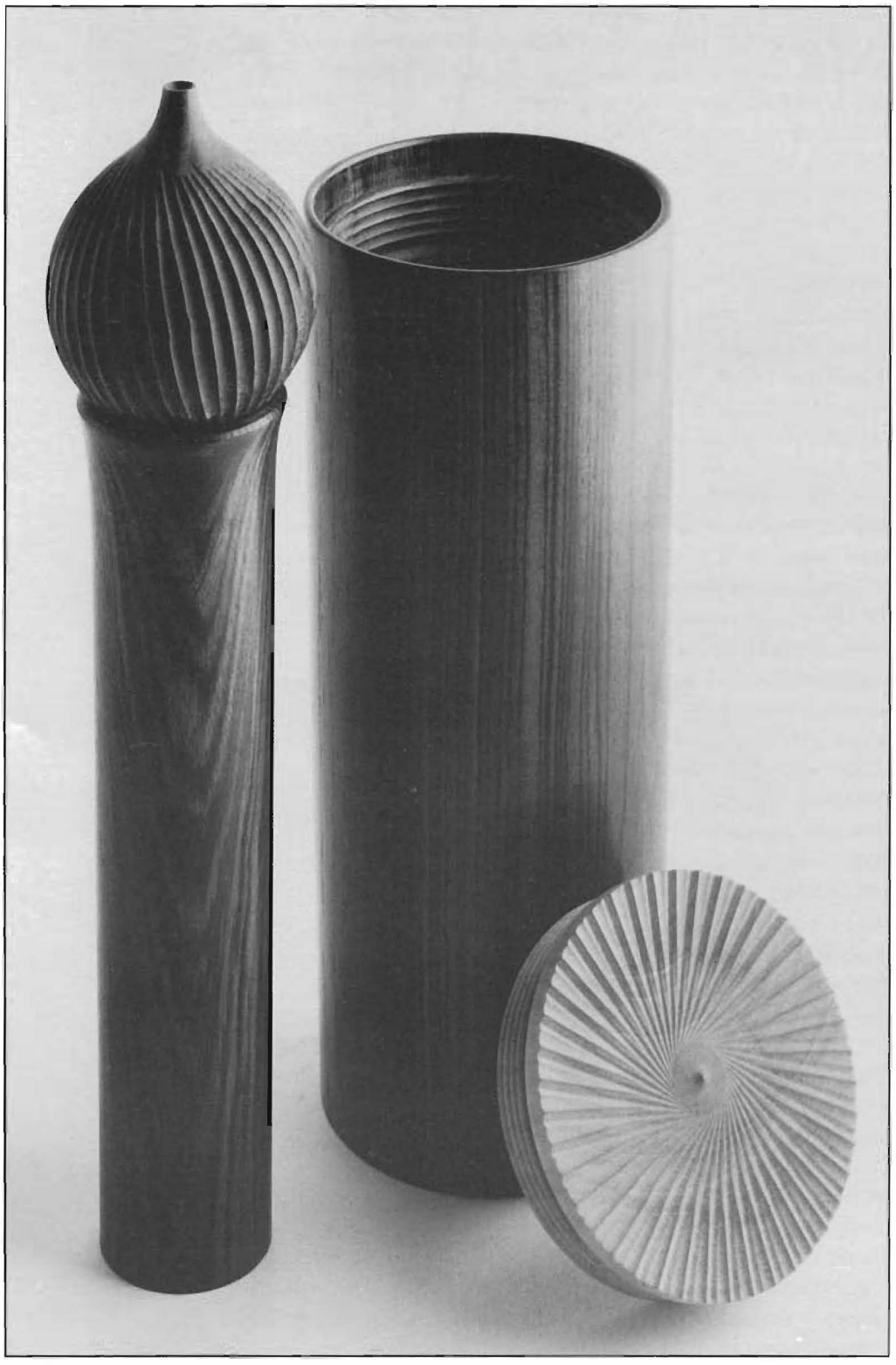
East African blackwood box
Screw lid
3.75 in/9.5 cm diameter
(David Pye/Crafts Council)

Kingwood box
Screw lid
2 in/5 cm diameter
(David Pye/Crafts Council)

delightful diversity, as new aspects and new levels of detail shimmer into view. Of course this is the didactic point of the exercise, for Pye believed passionately that diversity in the made environment is the tonic our weary souls require. And one of the main ways we can get it is by valuing and encouraging free workmanship of this very sort.

The little boxes, on the other hand, were lathe-turned, though with a foot-powered machine of Pye's own making, and emphatically not, as he once wrote, "because I have romantic ideas about doing it all 'by hand' (or by leg?) but because for small and very highly regulated work it is quicker." Small and highly regulated indeed! I have in my hand a little wooden box I bought from Pye in 1978, when I made a pilgrimage to his workshop in southeastern England. Like the examples photographed here, the box body is round and its lid fits nicely. It is turned of some tropical hardwood, now aged to a warm nut-brown. The top of the lid is where Pye illustrated his thesis on surface qualities. The figure of the wood crosses the little lid in semicircular arcs, a background pattern of color located within the material itself. A second pattern of shallow flutes spirals inward to a little point at the center of the lid. And a third pattern of grooves cuts the flutes at a shallow angle and at a constant depth, making relatively deep furrows through the ridges of the flutes, countered by shallow scratches across the valleys. Three overlaid patterns—in a disk two inches wide. All these marks Pye cut into the wood with exquisitely sharp gravers, guided by a small, lathe-mounted version of the large fluting engine. At the end he brushed the surface with flour-fine abrasive paper, and polished up the wood's color with a mere drop of oil.

As you examine one of Pye's boxes, and turn it in your hand, the light plays variously on the facets created by the carving. Aspects of first one pattern, then another, then another, come into view. The effect is subtle, complex and charming. But for all its diversity there is nothing equivocal about this little box. First it was designed, then the designer-who-is-also-the-workman made it, rigorously carrying out his intentions with clarity, experience and dexterity. Indeed, this is the thing rarely seen any more: highly regulated work, made by the workmanship of risk.



Kingwood needle case, Jamaica satin-wood lid
4.5 in/11.5 cm

Kingwood box, wild service tree lid
5.5 in/14.5 cm
(David Pye/David Cripps/Crafts Council)

* * *

David Pye was trained to be an architect of wooden buildings, but after a few years in the field the Second World War propelled him into the Navy, kindling a lifelong interest in ships and naval architecture. He then taught for twenty-six years at the Royal College of Art in London, the last eleven as Professor of Furniture Design. During that period Pye designed furniture for industrial production (workmanship of certainty), and wrote this book plus its companion, *The Nature and Aesthetics of Design*. In an autobiographical note to a 1986 Craft Council publication, he wrote: "But all the while from the end of the war to the present day I have been consistently a maker as well as a teacher and designer. I have worked nearly always in wood and have done work of several kinds, but ever since the war, and particularly since I retired (in 1974), I have fairly steadily done...sculpture, carved bowls and dishes, and turned boxes." David Pye died at the start of 1993, at the age of 84.

Though first published in 1968, Pye's analysis of workmanship remains the only useful framework we have. The reason is that Pye, unlike most other intellectuals who write about art, design and craft, was himself a maker of things. He not only made things, he always made things, he thought from the perspective of the workman, and he took great pleasure in the activity of making. This put him directly in touch with the problems of designing and making, with the issues that confound every thoughtful workman. Unlike so many of us, however, Pye was also highly educated, and gifted with a sharp and lively intelligence. Thus he not only had his hands immersed in the issues, he was able to formulate a set of definitions and truths that have eluded other intellectuals.

The confusion, in fact, begins with William Morris and John Ruskin, the great theoreticians of the Arts and Crafts movement, still a powerful tradition in crafts on both sides of the Atlantic. The ideas of Ruskin and Morris are resurgent in our culture, in the nostalgic yearning for a simpler time, and in the popular veneration of crudely made and even dysfunctional craftworks. Whether they realize it or not, people still echo Ruskin's rhetoric, and Pye's summary of it (chapter 10) will be familiar to every modern reader. Thus Pye's trenchant critique retains contemporary relevance, even

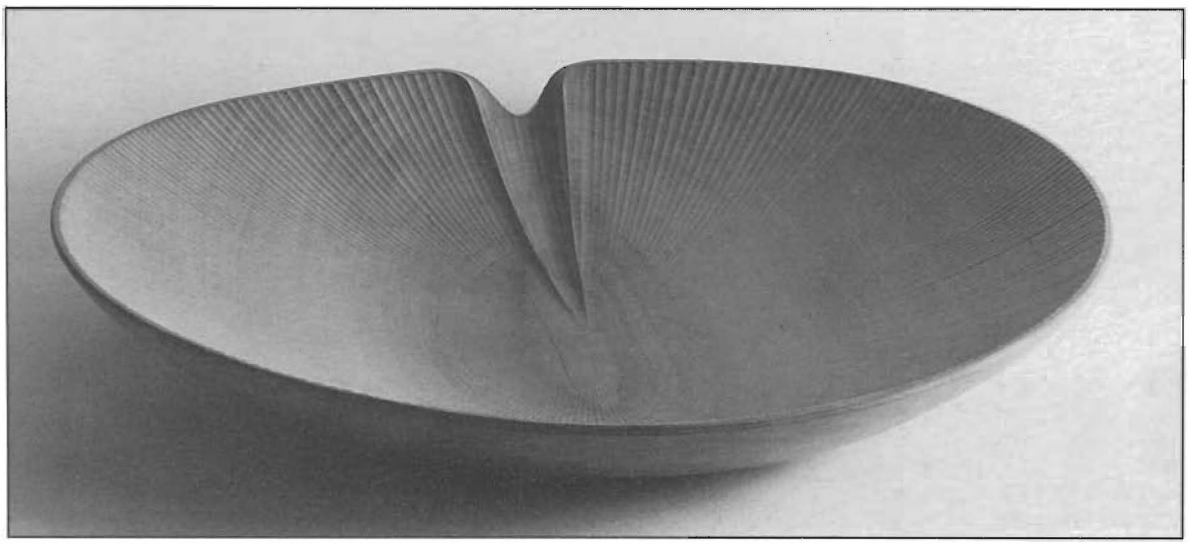
as we enter an era of automated production and cybernetic information.

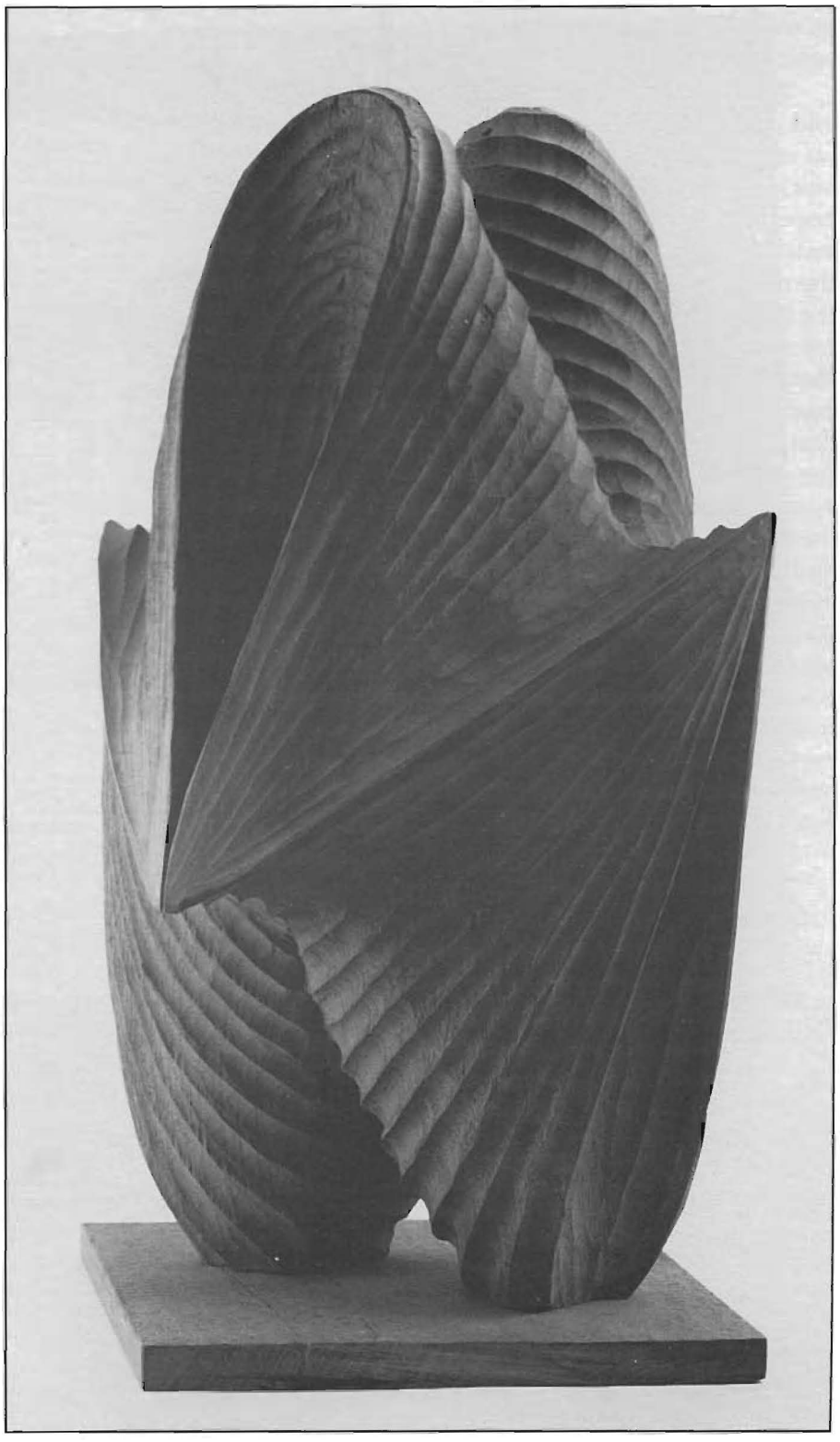
When I met Pye in 1978, the current woodworking and crafts revival had well begun. I asked him whether he still believed, as he writes in chapter 11, that fine workmanship was in danger of extinction. He said he hoped not, at least, he was encouraged by the new and broad interest in craftsmanship and workmanship. Over the next 15 years, the crafts movement matured despite the buffeting of international recession, and now we can see that the workmanship of risk probably will survive, though not, as Pye (along with James Krenov) imagined, only in hands of part-time amateurs. When Pye first made the case, during the mid-1960s, his reading of the auguries was entirely accurate. But within fifteen years, in both England and America, professional craftsmen of the first order began to find ways to carry on, and to make work as good as has ever been made, and even to prosper as businessmen. Though pleased, Pye was at a loss to explain this new phenomenon. In retrospect, it's clear to me that one reason (among a great many) is the light shone on the problems of design and workmanship by Prof. Pye himself. He not only explained how to think about designing and making, but by his example he taught us how to recognize really good workmanship, and what it could mean to us.

—John Kelsey, Jan. 1, 1995

Opposite: Pye in his workshop (Philip Sayer/Crafts Council)

Wild service tree dish 15 in/38 cm diameter (David Pye/Crafts Council)





Owl
English walnut
17.5 X 12.5 X 11 in/45 X 32 X 28 cm
(David Pye/Crafts Council)

1. Design proposes. Workmanship disposes

In the last twenty years there has been an enormous intensification of interest in Design. The word is everywhere. But there has been no corresponding interest in workmanship. Indeed there has been a decrease of interest in it. Just as the achievements of modern invention have popularly been attributed to scientists instead of to the engineers who have so often been responsible for them, so the qualities and attractions which our environment gets from its workmanship are almost invariably attributed to design.

This has not happened because the distinction between workmanship and design is a mere matter of terminology or pedantry. The distinction both in the mind of the designer and of the workman is clear. Design is what, for practical purposes, can be conveyed in words and by drawing: workmanship is what, for practical purposes, can not. In practice the designer hopes the workmanship will be good, but the workman decides whether it shall be good or not. On the workman's decision depends a great part of the quality of our environment.

Gross defects of workmanship the designer can, of course, point out and have corrected, much as a conductor can at least insist on his orchestra playing the right notes in the right order. But no conductor can make a bad orchestra play well; or, rather, it would take him years to do it; and no designer can make bad workmen produce good workmanship. The analogy between workmanship and musical performance is in fact rather close. The quality of the concert does *not* depend wholly on the score, and the quality of our environment does *not* depend on its design. The score and the design are merely the first of the essentials, and they can be nullified by the performers or the workmen.

Our environment in its visible aspect owes far more to workmanship than we realize. There is in the man-made world a whole domain of quality which is not the result of design and owes little to the designer. On the contrary, indeed, the designer is deep in its debt, for every card in his hand was put there originally by the workman. No architect could specify ashlar until a mason had perfected it and shown him that it could be done. Designers have only been able to exist by exploiting what workmen have evolved or invented.

This domain of quality is usually talked of and

thought of in terms of material. We talk as though the material of itself conferred the quality. Only to name precious materials like marble, silver, ivory, ebony, is to evoke a picture of thrones and treasures. It does not evoke a picture of gray boulders on a dusty hill or logs of ebony as they really are—wet dirty lumps all shakes and splinters! Material in the raw is nothing much. Only worked material has quality, and pieces of worked material are made to show their quality by men, or put together so that together they show a quality which singly they had not. "Good material" is a myth. English walnut is not good material. Most of the tree is leaf-mold and firewood. It is only because of workmanlike felling and converting and drying and selection and machining and setting out and cutting and fitting and assembly and finishing—particularly finishing—that a very small proportion of the tree comes to be thought of as good material; not because a designer has specified English walnut. Many people seeing a hundred pounds worth of it in a London timber yard would mistake it for rubbish, and in fact a good half of it would be: would have to be.

So it is with all other materials. In speaking of good material we are paying an unconscious tribute to the enormous strength of the traditions of workmanship still shaping the world even now (and still largely unwritten). We talk as though good material were found instead of being made. It is good only because workmanship has made it so. Good workmanship will make something better out of pinchbeck than bad will out of gold. *Corruptio optimi pessima*! Some materials promise far more than others but only the workman can bring out what they promise.

In this domain of quality our environment is deteriorating. What threatens it most is not bad workmanship. Much workmanship outside of mass-production is appallingly bad and getting worse, to be sure, and things are seen in new buildings which make one's hair rise. But at least it is easy to see what the remedies are, there, if difficult to apply them. Moreover, it is not the main danger, because it is outside the field of mass-production, and the greater part of all manufacture now is mass-production; in which, although there is some bad workmanship, much is excellent. Much of it has never been surpassed and some never equaled. The deteriora-

tion comes not because of bad workmanship in mass-production but because the range of qualities which mass-production is capable of just now is so dismally restricted; because each is so uniform and because nearly all lack depth, subtlety, overtones, variegation, diversity, or whatever you choose to call that which distinguishes the workmanship of a Stradivarius violin, or something much rougher like a modern ring-net boat. The workmanship of a motor-car is something to marvel at, but a street full of parked cars is jejune and depressing; as if the same short tune of clear unmodulated notes were being endlessly repeated. A harbor full of fishing-boats is another matter.

Why do we accept this as inevitable? We made it so and we can unmake it. Unless workmanship comes to be understood and appreciated for the art it, is our environment will lose much of the quality it still retains.

2. The workmanship of risk and the workmanship of certainty

Workmanship of the better sort is called, in an honorific way, craftsmanship. Nobody, however, is prepared to say where craftsmanship ends and ordinary manufacture begins. It is impossible to find a generally satisfactory definition for it in face of all the strange shibboleths and prejudices about it which are acrimoniously maintained. It is a word to start an argument with.

There are people who say they would like to see the last of craftsmanship because, as they conceive of it, it is essentially backward-looking and opposed to the new technology which the world must now depend on. For these people craftsmanship is at best an affair of hobbies in garden sheds; just as for them art is an affair of things in galleries. There are many people who see craftsmanship as the source of a valuable ingredient of civilization. There are also people who tend to believe that craftsmanship has a deep spiritual value of a somewhat mystical kind.

If I must ascribe a meaning to the word craftsmanship, I shall say as a first approximation that it means simply workmanship using any kind of technique or apparatus, in which the quality of the result is not predetermined, but depends on the judgment, dexterity and care which the maker exercises as he works. The essential idea is that the quality of the result is continually at risk during the process of making; and so I shall call this kind of workmanship 'The workmanship of risk': an uncouth phrase, but at least descriptive.

It may be mentioned in passing that in workmanship the care counts for more than the judgment and dexterity; though care may well become habitual and unconscious.

With the workmanship of risk we may contrast the workmanship of certainty, always to be found in quantity production, and found in its pure state in full automation. In workmanship of this sort the quality of the result is exactly predetermined before a single salable thing is made. In less developed forms of it the result of each operation done during production is predetermined.

The workmanship of certainty has been in occasional use in undeveloped and embryonic forms since the Middle Ages and I should suppose from much earlier times, but all the works of men which have been most admired since the beginning of history have been made

by the workmanship of risk, the last three or four generations only excepted. The techniques to which the workmanship of certainty can be economically applied are not nearly so diverse as those used by the workmanship of risk. It is certain that when the workmanship of certainty remakes our whole environment, as it is bound now to do, it will also change the visible quality of it. In some of the following chapters I shall discuss what may be lost and gained.

The most typical and familiar example of the workmanship of risk is writing with a pen, and of the workmanship of certainty, modern printing. The first thing to be observed about printing, or any other representative example of the workmanship of certainty, is that it originally involves more of judgment, dexterity, and care than writing does, not less: for the type had to be carved out of metal by hand in the first instance before any could be cast; and the compositor of all people has to work carefully, and so on. But all this judgment, dexterity and care has been concentrated and stored up before the actual printing starts. Once it does start, the stored-up capital is drawn on and the newspapers come pouring out in an absolutely predetermined form with no possibility of variation between them, by virtue of the exacting work put in beforehand in making and preparing the plant which does the work: and making not only the plant but the tools, patterns, prototypes and jigs which enabled the plant to be built, and all of which had to be made by the workmanship of risk.

Typewriting represents an intermediate form of workmanship, that of limited risk. You can spoil the page in innumerable ways, but the N's will never look like U's, and, however ugly the typing, it will almost necessarily be legible. All workmen using the workmanship of risk are constantly devising ways to limit the risk by using such things as jigs and templates. If you want to draw a straight line with your pen, you do not go at it freehand, but use a ruler, that is to say, a jig. There is still a risk of blots and kinks, but less risk. You could even do your writing with a stencil, a more exacting jig, but it would be slow.

Speed in production is usually the purpose of the workmanship of certainty but it is not always. Machine tools, which, once set up, perform one operation, such for instance as cutting a slot, in an absolutely predeter-

mined form, are often used simply for the sake of accuracy, and not at all to save time or labor. Thus in the course of doing a job by the workmanship of risk a workman will be working freehand with a hand tool at one moment and will resort to a machine tool a few minutes later.

In fact the workmanship of risk in most trades is hardly ever seen, and has hardly ever been known, in a pure form, considering the ancient use of templates, jigs, machines and other shape-determining systems [1], which reduce risk. Yet in principle the distinction between the two different kinds of workmanship is clear and turns on the question: 'Is the result predetermined and unalterable once production begins?'

Bolts can be made by an automatic machine which when fed with blanks repeatedly performs a set sequence of operations and turns out hundreds of finished bolts without anyone even having to look at it. In full automation much the same can be said of more complex products, substituting the words 'automated factory' for 'automatic machine'. But the workmanship of certainty is still often applied in a less developed form where the product is made by a planned sequence of operations, each of which has to be started and stopped by the operative, but with the result of each one predetermined and outside his control. There are also hybrid forms of production where some of the operations have predetermined results and some are performed by the workmanship of risk. The craft-based industries, so called, work like this.

Yet it is not difficult to decide which category any given piece of work falls into. An operative, applying the workmanship of certainty, cannot spoil the job. A workman using the workmanship of risk assisted by no matter what machine-tools and jigs, can do so at almost any minute. That is the essential difference. The risk is real.

But there is much more in workmanship than not spoiling the job, just as there is more in music than playing the right notes.

There is something about the workmanship of risk, or its results; or something associated with it; which has been long and widely valued. What is it, and how can it be continued? That is one of the principal questions

[1] Shape-determining systems are discussed in my book *The Nature of Design*, in which the chapters on Techniques and on 'Useless Work' are relevant to the present subject.

which I hope this book may answer: and answer factually rather than with a series of emotive noises such as protagonists of craftsmanship have too often made instead of answering it.

It is obvious that the workmanship of risk is not always or necessarily valuable. In many contexts it is an utter waste of time. It can produce things of the worst imaginable quality. It is often expensive. From time to time it had doubtless been practiced effectively by people of the utmost depravity.

It is equally obvious that not all of it is in jeopardy: for the whole range of modern technics is based on it. Nothing can be made in quantity unless tools, jigs, and prototypes, both of the product and the plant to produce it, have been made first and made singly.

It is fairly certain that the workmanship of risk will seldom or never again be used for producing things in quantity as distinct from making the apparatus for doing so; the apparatus which predetermines the quality of the product. But it is just as certain that a few things will continue to be specially made simply because people will continue to demand individuality in their possessions and will not be content with standardization everywhere. The danger is not that the workmanship of risk will die out altogether but rather that, from want of theory, and thence lack of standards, its possibilities will be neglected and inferior forms of it will be taken for granted and accepted.

There was once a time when the workmanship of certainty, in the form colloquially called 'mass-production', generally made things of worse quality than the best that could be done by the workmanship of risk—colloquially called 'hand-made'. That is far from true now. The workmanship of a standard bolt or nut, or a glass or polyethylene bottle, a tobacco-tin or an electric-light bulb, is as good as it could possibly be. The workmanship of risk has no exclusive prerogative of quality. What it has exclusively is an immensely various range of qualities, without which at its command the art of design becomes arid and impoverished.

A fair measure of the aesthetic richness, delicacy and subtlety of the workmanship of risk, as against that of certainty, is given by comparing the contents of, say, the British Museum with those of a good department store. Nearly everything in the Museum has been made

by the workmanship of risk, most things in the store by the workmanship of certainty. Yet if the two were compared in respect of the ingenuity and variety of the devices represented in them the Museum would seem infantile. At the present moment we are more fond of the ingenuity than the qualities. But without losing the ingenuity we could, in places, still have the qualities if we really wanted them.