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On the importance of being creative

Innovative thinkers should be allowed to come to the fore, says Howard Firth

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Godley has quantified what various signs have been pointing to for too long. British industry had for much of the 1960s and 1970s a comfortably fat home market, with plenty of defence contracts, local government and quango bonanzas, and general directives to buy British whatever the quality and cost. The money it made was ploughed back not into R&D for new products, but for automating the production of existing lines—or else for buying up profitable competitors.

Meanwhile, in the shops we started buying Japanese or German or Dutch, because British firms either fell out of markets (such as those for motor cars) or never got into them in the first place (such as those for video recorders).

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places they are not wanted, as they unsettle those in more established positions.

The problem is that the result of all the training in the dominant disciplines of finance, personnel and marketing is not to encourage new ways of thinking, but to keep people thinking along established lines. The skills we are recruiting for are those of the fast talker and the forceful personality, the utilisers of the here and now, rather than the creative minds that constantly question the given order of things.

And, of course, each new layer of conventional-thinking, establishment-minded people has to protect itself by appointing more conventional-thinking and establishment-minded people below, thereby building up every year an even stronger wall against the creative thinkers who find that, as time goes on, even their most positive attitudes crumble into bitterness. Every year, some new government initiative comes along—and successive governments deserve credit for at least trying. The trouble with enterprise and training initiatives is that the people who are put in charge of them are often the type of people who have got there because of their ability in conventional ways of doing things.

Creative thinkers are by their nature often isolated, their ideas either ignored or rejected, or sometimes simply taken up without any acknowledgment. But what if they could make contact with each other? That was the idea of Ivor Catt, an innovative thinker whose own immense ability in electronics has all too often been too far ahead of conventional ideas to be appreciated: significantly, Catt is beginning to get some high-level backing from companies who see the possibility of major breakthroughs from his work ("Wafers herald new era for computing", *New Scientist*, 25 February 1989).

Catt argues that as bodies of knowledge grow, they become stronger in keeping out any new items of knowledge that appear to question the fundamental base of the established knowledge and its practitioners. To assist the propagation of new ideas, he proposes the creation of an electronic information-sharing network. I believe we have to take the concept one step further, to open up not only the various bodies of knowledge, but the whole of industry and society to the new ideas that successive governments recognise are desperately needed.

FORUM

Gone fishing

In Sweden, it's not so simple as it sounds, as Richard Gould reports

Ingemar Alenas

ABOUT 25 years ago I had my first lesson in fishing. The idea was to stick a bent pin through a maggot, or teach a plastic fly the fundamentals of aerodynamics, and then spend ages holding a wooden stick over a body of water and wondering why nothing happened. Things haven't changed—I still don't manage to catch anything—but I remember my first lesson well.

If I had been born 25 years later, and first saw daylight in the town of Kungsbacka, in west Sweden, my first taste of fishing would have been a little different. For some children from this town, the first lesson begins with a bit of analytical chemistry. The problem with most of the rivers and streams in west Sweden, such as the River Kungsbacka, is that their fish have enjoyed better times. Acid rain, which some Swedes regard as Britain's major export, has killed most of the trout and salmon. So fishing in Kungsbacka begins with a simple test to work out the *p*H of the water, after which follow some practical lessons in ecology, liming and fish breeding. Once the water has been limed, and streams and rivers are no longer so acidic, the next stage is to restock the waters with fish. After several years of continual liming and some careful monitoring, then, and only then, can the serious business of fishing begin.

Fortunately, the River Kungsbacka is a success story. In the late 1970s, the *p*H of the water had fallen to such a degree that it had lost nearly all of its sea trout and salmon. Over the years, the local fishing club watched the situation worsen while governments bickered. By 1984, it was obvious that emissions of acidic gases were not going to fall sufficiently to remedy the situation, so the folk of Kungsbacka decided to take some action. They had among them an aquatic ecologist, Ingemar Alenas. As well as being nuts about fishing, Alenas has spent most of his career developing strategies to lime acidified waters, and then restock them with fish. In 1984, Alenas and some of his colleagues applied their professional expertise to the River Kungsbacka. Now the river has improved so much that the fish are reproducing in it again. In April this year Alenas's five-year-old son had his first lesson in adding trout and salmon fry to the river.

Combating the effects of acidification involves more than simply bunging a few tonnes of lime into the water. Each lake, river or stream is different. For example, some lakes have large areas around them which deposit a great deal of acidified run-off water into the lake, which means that larger amounts of lime must be added. Other lakes may be low in nutrients, and too much lime could have undesirable consequences, such as rampant algal growth. It means that individual strategies must be worked out for each body of water. Only when the water has reached a stable *p*H can restocking with fish begin. Fishing enthusiasts in Sweden have always added fish to the rivers, but acidification has intensified this effort.

Liming is an expensive business. In the past five years, the Swedish government has given more than $20 million to projects such as that at Kungsbacka, and so long as emissions of acid gases are high, the liming must continue. There are other political problems. The European Community has been very critical of the liming projects, on the grounds that adding lime to the lakes and streams will alter the ecosystem. "This is true," says Alenas, "but at the moment liming is the only way to save genetically important fish stocks from extinction while awaiting reductions in emissions." The new ecosystem (with lime and fish) may differ from the original one, but it is not as different as one which is acidified and depleted of fish. Many aquatic ecologists in Sweden feel that the European Community is missing this point.

Snow complicates the problem: while it is not too difficult to balance the input of acid rain with continuous liming, it is almost impossible to combat the problem of acid snow. The problem is that, when the snow melts, the surge of acidity into the water can undo years of work. "One problem," says Alenas, "is that the acid surges can kill most of the fish, and there is no way of predicting where and when all the surges may occur."

For Alenas, the work continues, but from December he will be able to devote more time to the ecology of the Kungsbacka district. He will be leaving his current job with the Swedish Environmental Research Institute in Gothenburg, having spent 13 years working on liming projects, and will become Kungsbacka's first full-time ecologist. Who knows? If he's lucky, his new job might give him a little more time to educate his son in the now complicated art of fishing. □

Richard Gould works at IVL, the Swedish Environmental Research Institute, in Gothenburg.

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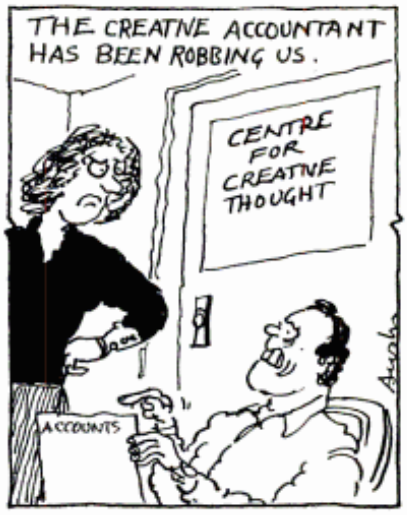
It's quite simple: a Centre for Creative Thought. But a centre run by creative thinkers, not by the endless figureheads and administrators and committees of the great and the good who have successfully presided over all the other numerous initiatives that have bogged themselves down in inertia.

The new centre would start not with feasibility studies, high-priced management consultant surveys or development discussions; it would begin by bringing together the talents of a few creative thinkers who would then define the problem and formulate the pattern of the centre. After that, the financial and administrative and marketing experts would be brought in, to apply their skills to putting the concept into practice.

The importance of having those financial and administrative and marketing skills to hand is that the centre would help creative thinkers to ensure that their ideas were packaged to the highest professional standard for feeding into the appropriate channels of the system. They would be taught the various tricks of the trade that the marketing and PR and management experts use. The standard skills of the establishment would thereby be used to the advantage of the new thinkers, rather than be deployed against them.

I don't think it would be long before such a centre could support itself financially, by solving problems to order. And I don't think it would be too long before it started to assist other groups of isolated creative people, such as gifted children. Anyone doubting the ability of creative people to learn rapidly the tricks of PR should watch how quickly they learn to disguise and suppress their ability at school, to protect themselves from the contingent pressures of their classmates. It's an important learning skill in a society where they are going to find themselves always on the edges.

So, before it is too late—and time is running out fast—there is one simple step that could be taken to open up the congestion of British industry and society to the freshness of new ideas. Will it happen? And indeed is there anywhere in Britain that is conducive to such a development? I can't say I'm particularly optimistic. □



Howard Firth is an independent science consultant, and was director of the first Edinburgh Science Festival.

Of embryos, dioxins and finer flour

More comment from Westminster

THISTLE DIARY

Tam Dalyell MP

I REMAIN concerned about the kinds of restrictions which parliament could place on research involving human embryos. I have received a letter from a group of doctors in Dundee which, to my mind, exemplifies the problem. The doctors write: "In order to understand the factors which regulate the ability of the early embryo to undergo further development and therefore in order to improve the efficiency of IVF [in-vitro fertilisation] treatment, we have carried out, in common with other groups, work using early mouse embryos which has been published in the scientific literature. It is now clear that the application of this knowledge to human IVF will require research to be carried out using the early human embryo which has a number of distinctive features."

My correspondents also make the very practical point that, like many units in the National Health Service, they do not have the increased financial resources and will not be able to take on more staff to handle the paperwork likely to be involved in the legislation.

* * *

WHAT standards exist for controlling emissions of dioxins from incinerators? Jim Cousins, the Labour MP for Newcastle upon Tyne Central, wanted to know.

David Heathcoat-Amory, recently appointed as a junior minister in the Department of the Environment, told him that it was impractical at present to set specific limits on emissions of dioxins, as the monitoring and analysis of these compounds is "complex, slow and expensive". He added that in Britain, as in the rest of Europe, emissions of dioxins are therefore controlled through effective control of combustion conditions, and the fitting and use of suitable "abatement equipment".

I am not convinced that the government is really doing all it could. Cousins is right. There could be standards. And if the demand for standards became Europe-wide, then the expense of the analysis would diminish. If I were Heathcoat-Amory, I would go back to my Civil Service advisers and quiz them hard. He might find that something could be done, and it is up to young junior ministers to undertake this sort of task.

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LOOK OUT for the draft regulations on potassium bromate. This compound is currently approved for use in improving flour. However, the approval was given on that basis that, when the flour was used in bread, the baking process ensured that there were no residues left. Recently, improved analytical techniques have indicated that this is not necessarily the case, and that there may be some very small residues.

David Maclean, parliamentary secretary at the Ministry of Agriculture, Fisheries and Food, told James Cran, the Conservative MP for Beverley in Yorkshire, that the Food Advisory Committee has recommended that approval for potassium bromate as a flour improver should be withdrawn. Maclean says that he has accepted that advice, and he has therefore circulated draft regulations.

Bakeries will be affected significantly by the change, but breweries will not. ►