

PHIMSY

A visit from Daedalus

My technological friend Daedalus stopped in to see me the other day. He has changed somewhat since his son Icarus was killed on their flight of defection from Crete to Greece on beeswax-and-feather wings. But still he is the student of technology—science in the service of man. At present he is, in fact, a British chemist best known through the inventions he suggests on Ariadne's page in that liveliest of science weeklies, *New Scientist*. I hope you know him too.

Fairly quickly we disposed of trivia like what luck he was having contributing to the brain drain. Then we turned to the more serious matter of Daedalus, inventor. His *New Scientist* pieces, all of them about 300 words long, have now reached 200 in number and with one exception have appeared every week since they started (once one got caught in the post and missed its deadline).

Impossible probabilities. "Just how do you choose the inventions you expound?" I asked him. He told me that they had to lie within a long, narrow volume in "technological space." The long axis represents subject matter: Daedalus is interested in the whole span of science and technology, and even ventures into sociology and economics. One short axis is complexity; schemes must neither be simply obvious nor so involved as to obscure the underlying principles. The third and crucial axis is feasibility; Daedalus's ideas cluster in that uneasy region where notions seem intuitively unworkable without possessing any too obvious flaw.

Thus he has come up with such suggestions as the canal whose fluid density varies from point to point so that barges can coast downhill, a variable-geometry aircraft made of bimetallic strip and constantly optimizing itself from the thermal effects of skin friction and engine output, a vacuum-filled balloon extended against atmospheric pressure by electrostatic repulsion, a boat without a bottom kept afloat by powerful bailing pumps and a time-dilating serum extracted from the blood of persons bored by long conferences to make happy experi-

ences seem to last much longer than they really do.

Failure to be bad. Daedalus tries to check all his surrealist schemes to make sure they won't in fact work. Despite this endeavour, some 15% of them succeed in making some contact with reality. About 5% of them turn out to have been suggested before, seriously or in science fiction. (Two schemes, a baby quieter that generates the antiphase signal of any noise to cancel it and a reversible electroencephalograph that plays back brain recordings to recreate the original state of mind, were found to have been suggested also in Arthur C. Clarke stories. "A worthy opponent," comments Daedalus.)

Another 5% are later seriously proposed in the literature, and a further 5% are actually made to work.

I asked Daedalus for examples. On 2 Dec. 1965 he suggested variable-focus spectacles—lenses of two plastic sheets between which liquid could be pumped. A pair were built and reported by the National Institute for Medical Research this year (though as yet without the autofocus electronics of Daedalus's model). On 9 Dec. 1965 he dreamed up a red-hot computer memory that fixed its data firmly by cooling below the Curie point. Last year, *New Scientist* reported that Honeywell had built such a memory.

After my "cephaloferric friend" Daedalus (famous for the adjectives by which he is described) had suggested an iron brain in which each magnetic domain can switch its neighbors so that magnetic conduction paths could "learn" their way through it, he received reprints from some brain physiologists who had seriously considered this model of brain action five years earlier. However, honor was satisfied when a later paper demonstrated the analogy invalid.

Daedalus's suggestion of a synchronous satellite connected to earth by a cable is under NASA scrutiny as Operation Skyhook, and another scheme of his for effortless slimming in a rotating centrifugal health clinic (15 Feb. 1968) was almost immediately followed by a NASA finding that centrifuged rats lost weight!

In fact Daedalus finds it distinctly

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worrying that so many of his schemes reach fruition despite the care he takes to check them. Since he can, at best, cover only 0.1% of the scientific and technical literature and yet finds 5% of his ideas in actual operation, he finds it statistically inescapable that all his fantasies have serious independent existence somewhere!

Why? We probed to find the motivation of this wildly imaginative creator. He said, "It may be because I find so much technology inherently ridiculous." He spoke of the internal-combustion engine, the gramophone and color television as clumsy contrivances beneath Daedalus's dignity. "They are," he said, "idiotic, inelegant and most implausible." On the other hand he praised the diffusion pump and inertial navigation as having true elegance.

Daedalus's own inventive efforts strive always to be aesthetically satisfying. To help him he has the resources of DREADCO (the Daedalus Research, Evaluation and Development Corporation, created in a *New Scientist* caption a year or so ago), an organization whose many departments—Geoptics, Physical Impossibilities, v.h.f. Finance, Psychometallurgy—just about manage to keep up with the stream of ideas from the founder. *New Scientist* has received quite serious inquiries about the research activities of DREADCO; and indeed the perpetual encroachment of reality upon the fantasy world of Daedalus and his mad inventions is a constant worry to him. "It's getting more and more difficult to keep ahead of the pack," he says ruefully. "I even find schemes I'm working on announced proudly by some manufacturer before I've got them plausible enough for the column!"

How do you get it across?

Since our principal job around here is peddling information, I never miss a chance to see how others do it. While we are primarily interested in disseminating ideas on a general or non-specialist level, we are certainly interested in how the technical societies go about their primary task of helping specialists in a given field communicate with each other.

I recently heard about an intriguing type of discussion session which the rheologists tried out at their last an-

nual meeting. Their regular sessions, like those of most societies, consist of formal presentations of contributed and invited papers, and again like most groups they have found that the sessions seldom lead to discussions in much detail or depth. They set out to devise a new format for discussions at their meetings that would systematize, just slightly, the traditional bull session, which is often the most useful method of exchanging ideas.

Each session started out with a moderator, a reviewer, and a topic. The reviewer posed the questions and summarized experimental facts and theoretical attempts to explain them. Then, while the moderator kept the discussion within some reasonable limits (quite a job at times!), the participants launched their trial balloons and confronted their critics.

The rheologists apparently like to argue, because each of the two separate sessions lasted from 8 p.m. until after midnight on the only free evening of a three-day meeting.

Like some other organizations, the Optical Society of America has been experimenting with the long abstract as an optional way to present a paper. In addition to the normal 200-word abstract, the author prepares a four-page summary that may include charts and any other type of explanatory material. This long abstract is distributed with the meeting program. Then the actual presentation of the paper can be devoted to discussion; increased effectiveness comes from having your audience well informed before they come to the meeting.

The society experimented with the long abstract at three meetings. Now the OSA Society Objectives and Policy Committee is evaluating the results.

Of course OSA imposes a rigid and limiting rule that you can't cite the long abstract in scientific literature. The 200-word abstracts are published in the *Journal of the Optical Society of America*; the society considers the long abstracts, however, to be in unrefereed, "throw-away" form. Just how you convince somebody not to say that he heard so and so here or there or read it in a long abstract, I have never really figured out. But if that is one of the rules of the game and people want to play by them, I suppose they know what they are doing. Anyway, if the players start to lose interest, the umpires can change the rules to bring excitement back to the game again. □

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