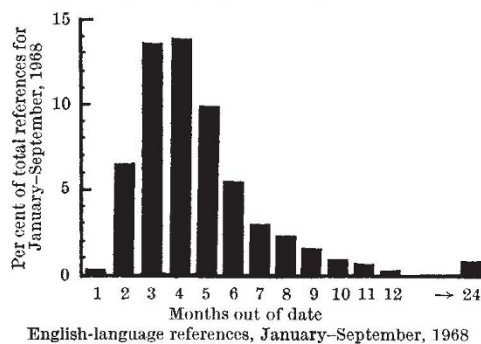
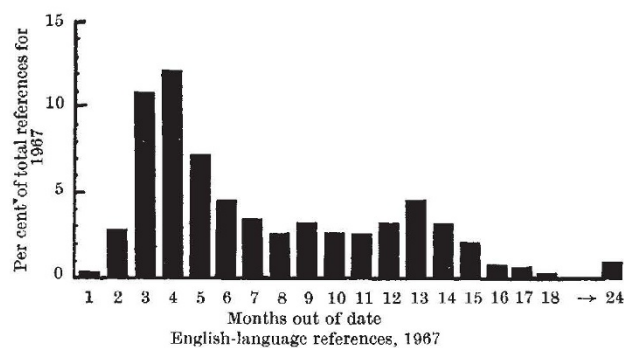


indexing is decentralized. Already, indexing for 50 out of 200 British medical journals—8–10 per cent of the total input to the Medlars system—is done at the National Lending Library at Boston Spa, the headquarters of the UK Medlars service. This in effect means that the indexing records for these journals arrive at the National Library of Medicine in Washington at about the same time as the journals themselves.

The situation was not, however, as cheerful in 1967—at least not according to two librarians in Oxford, L. S. Francis of the Department of Zoology and P. J. R. Warren of the Radcliffe Science Library who are critical of *Index Medicus* for 1967 in a recent issue of the *Bulletin, Medical Section of the Library Association, London* (No. 75, page 5, November 1968). They took random samples of references (about 1.25 per cent of the total) from the author sequence of the monthly issues of *Index Medicus* for 1961 and 1967, and tabulated the difference between the month of publication quoted in each reference and that of the issue in which it appeared. The results for 1967 are shown in the first histogram. Compared with 1961, the results for 1967 came out very badly—the 1961 *Index Medicus* had 100 per cent of its references listed within 12 months, whereas in 1967 only 98 per cent of the references had been listed in two years. To be sure, there were 25,000 more references listed in *Index Medicus* in 1967 than in 1961 (165,000 compared with 140,000—an increase of 18 per cent).

Since the publication of this article, Mr Francis and Mr Warren have updated their survey to September 1968 and find that the time lag for English-language material is decreasing (see the second histogram). This is not so for the foreign language publications indexed in *Index Medicus*, which were found to be very out of date in 1967. Dr Harley agreed this week that foreign language material is appearing late in *Index Medicus* and is consequently being retrieved late in a Medlars search. He said, however, that the situation was definitely improving for the most important



foreign language journals, particularly those in French, Russian and German, for which there is now only a few months' indexing delay.

INDUSTRY

Talking about Innovation

BRITAIN has a small group of highly articulate industrialists. Intelligent, literate and thoroughly cultivated men, they seem to spend a good deal of their time talking to each other at conferences like the one organized last week by Lord Jackson and the *Financial Times* on technological innovation. The past two weeks have seen a spate of conferences like these, and Dr F. E. Jones, managing director of Mullard, has been at them all. At last week's conference, his subject was the problem of managing a multi-national company, but he is equally good at national science policy or successful research management. Mr S. L. Bragg, chief scientist with Rolls-Royce, is another regular, and this time he spoke on the development of the RB 211 engine.

The conference, which lasted two days, covered the whole field with commendable thoroughness. Dr Ieuan Maddock, from the Ministry of Technology, described how the ministry was prepared to "go out and invade the industrialist's territory". Dr J. Leicester, of the British Launderers Research Association, put in a word for the RAs. A study made of 14 projects carried out by research associations had shown that for an investment of £395,000, returns of £4.8 million had been achieved in a single year. He also spoke kindly of the work Harwell is doing for industry, but wondered if there might not be a risk of confusing the industrialist by the plethora of sources of advice.

There was also talk on the first day of the "interface" between industry and the universities. Professor H. Ford of Imperial College said that old attitudes—which held that industry did not innovate, and that universities stifled innovation wherever they found it—should be thrown away, to be replaced by the concept of "involvement". Professor T. T. Paterson from the University of Strathclyde described how the university carries out research work on contract to industry, and Dr H. Rose of International Research and Development discussed sponsored research at IRD.

On the second day, several speakers gave examples of innovation in practice. Mr Bragg discussed the concepts underlying the Rolls-Royce advanced research laboratory. One of the crucial factors, he said, was that the people who have ideas should be allowed, or compelled, to follow them through to production and marketing. Dr A. A. L. Challis from the petrochemical and polymer laboratory of ICI described the discovery and development of bipyridyl weedkillers—non-persistent and extremely active herbicides which could be used to replace ploughing as a means of weed control. Used on mountainsides in Wales, he said, the weedkillers had enabled sheep to increase in weight by 90 lb, while control animals showed only a 9 lb gain. But the pace of work in proving a major development like this was, he confessed, "agonizingly slow". The danger was that by the time the herbicide was proved to everybody's satisfaction, the patent rights would have run out, so that those who had

developed it would not be the ones to reap the best profits.

One of the most compelling—and depressing—contributions was made by Mr John Chown, tax correspondent of the *Financial Times*. He demonstrated how very difficult it is to find gaps in the taxation system in Great Britain, and said that even if all the other obstacles to innovation disappeared, the tax system alone would be a positive disincentive. One who agreed wholeheartedly was Mr B. Newsam, managing director of Telecommunications Instruments Ltd, who appeared to prove by an economic model all his own that innovation was impossible—or at least unprofitable, which is the same thing for the small businessman. Happily there was some disagreement with this view, but most people agreed that the private inventor in Britain works in a climate which is extraordinarily hostile to innovation. This, it seems, is an area where tax incentives could make a real difference.

DEFENCE

Combat Aircraft for Europe ?

THE “mini-TSR-2”—otherwise the advanced combat aircraft (Britain’s name) or the MRCA, the name the Germans use—seems to have run into trouble. This is not likely to be relieved by the ascendancy of the Deutsch-mark and the aggressive explosion of the German aerospace industry that goes with it. “What it is I know not, but it shall be the terror of the Earth” seems to have been the message conveyed by British Defence Minister, Denis Healey, in his recent talks in Bonn. The plan seems to have been that it should provide the dream military aircraft to carry Western Europe through the mid-seventies. The British dream was expected to appeal to Germany, Italy, Holland, Belgium and possibly Canada and be worth “hundreds of millions of pounds” in Mr Healey’s estimation. Politically it would be valuable as cement for a joint

project on the lines outlined earlier this year in the so-called Harmel plan proposed by the Belgian Foreign Minister, said Mr Healey.

The first difficulty seems to have been that Britain wants a two-seater strike-interceptor to fulfil its needs in the seventies while the other countries in the deal have less ambitious requirements calling only for a single-seater machine. Actual numbers likely to be involved also put Britain at a disadvantage—the maximum British requirement is for 300–350 aircraft while Germany wants from 400 to 450. At the same time the British Aircraft Corporation is seen by Mr Healey as the best candidate firm for the main construction, not least because of its expertise in the development of swing-wing joints. Germany’s Bolkow-Messerschmitt company thinks otherwise, and the German Federal Government’s view appears to have hardened despite German Defence Minister Dr Schroeder’s expressed view that it would be inadvisable to give German industry too big a role in the plane’s system engineering and design. The official line was certainly influenced by the inept offer by British ministers to trade promises of support for a German-inspired airbus project for agreement that British industry should have the main slice of the advanced military aircraft contract. Despite all this, Mr Healey still expects agreement with Germany on the advanced aircraft and the distribution of contracts to be completed before the end of the year.

TURKEY DISEASE

No Shadow over Christmas

THE Ministry of Agriculture seems satisfied that Britain’s Christmas dinners are in no way threatened by the six cases of Arizona paracolon which have occurred since August on turkey farms in Yorkshire, Montgomeryshire, Cheshire and Norfolk. The cases are nevertheless the first ever recorded in Britain, and



Part of the new Saltfleetby-Theddlethorpe Dunes National Nature Reserve in Lincolnshire. The 293 acres of land, stretching along 4.5 miles of the Lincolnshire coast between Saltfleet Haven and Mablethorpe North End, have been purchased from the Ministry of Defence, as announced by the Nature Conservancy last week. A further 795 acres of foreshore have been leased from the Crown Estate Commissioners. The main dune ridge at Saltfleetby is thought to have been in existence for several centuries and its plant communities are more mature than those elsewhere on the Lincolnshire coast. Not only is the land valuable from the point of view of rare plants growing on the lime-rich sand, but because salt-marshes and dunes develop rapidly on this stretch of coast, it is particularly suitable for ecological and physiographic studies.