drugs which are used to control epilepsy. A new programme has been launched to investigate how normal and neurologically paralysed people control movement and respond to sensations, as a step on the way to replacing damaged organs for hearing or sight, or compensating for disorders in the control of voluntary movement. The institute has also initiated a major research programme to study the viruses which have recently been implicated in brain diseases such as multiple sclerosis or Parkinson's disease.

One of the most rapidly growing programmes is eye research, and in 1968 the institute was supporting 12 clinical research centres and 8 outpatient clinical research units, as well as 350 individual research workers.

RESEARCH FOUNDATIONS

Worcester Foundation Marks Time

from our Special Correspondent, Shrewsbury, Massachusetts

AFTER twenty-five years of rapid growth, the Worcester Foundation for Experimental Biology seems now to have reached a turning point in its affairs. Since the foundation was established in 1944 by Dr Gregory Pincus and Dr Hudson Hoagland, the scale of operations has grown steadily, so that the annual income is now well over $4 million. The present hiatus has been brought about by the death two years ago of Dr Pincus, who gave the research programme at the foundation much of its characteristic flavour, and now the retirement of Dr Hudson Hoagland, who shared responsibility for the direction of the foundation with Dr Pincus and who will no doubt remain very much in evidence as president until the lines of future development are much clearer.

The immediate need is the appointment of somebody who will be responsible for the balance of the research programme, and it is more than likely that a man of distinction great enough to maintain the momentum of the past decades is likely also to bring about substantial changes in the pattern of work. Uncertainty about the future of Federal support for scientific research also makes the future harder to predict, although the Worcester Foundation seems to be a good deal more cheerful on this score than a great many university departments where federal research grants make a smaller contribution to the operating budget.

The Worcester Foundation has sprung from a programme of wartime research on the hormonal changes in aircraft pilots brought about by fatigue. The founders of the institution convinced themselves, and eventually others, that there is no reason why a city like Worcester, already distinguished among the country towns of Massachusetts for its liberal support of art museums and concerts, should not also act as a benefactor to a scientific institution. At that point, Drs Pincus and Hoagland were both members of the faculty at Clark University, another of the city's boasts. The outcome was a number of large benefactions and a scheme by means of which individuals can become fee-paying members of the foundation. In the financial year to March 31, 1968, more than 2,000 members contributed $109,000 in this way. Even so, the foundation is a long way from reaching the ideal that private money should pay for the administrative costs which cannot be recovered as overheads on the research budget.

In 1968, the foundation obtained $3·3 million in research grants, $2·1 million from Federal sources—chiefly the National Institutes of Health. It is only natural that the institution which took the lead in the development of contraceptive pills should still be able to devote $600,000 a year to reproductive physiology. The research programmes in general endocrinology, cancer and behaviour come next on the budget and also in the pattern of the work carried out.

A good part of the energy of the staff of nearly 100 is spent on three post-doctoral training programmes —in steroid chemistry, the physiology of reproduction and the foundation's biochemical blend of the behavioural sciences. The training course on steroid chemistry, now seventeen years old, reflects the traditional interest of the foundation but seems also to have been a precedent for the variety of these courses now being sponsored by the National Institutes of Health. The foundation also provides experience for a handful of graduate students from the two universities at Worcester and from Boston University, now forty minutes away by turnpike. The foundation is a little embarrassed that it has not yet exercised its right to award higher degrees for fear of being subjected to the spartan regulations on grant overheads which apply to academic institutions rather than to research institutes.

To outsiders, the foundation is every bit as remarkable as its supporters say. It is a striking embodiment of the old puritan virtues endemic in the hinterland of Boston. Equipment is simple and even austere, the laboratory buildings are almost indistinguishable from the outside from factory hutments and only the administration building and library, now known as the Pincus–Hoagland Center, is in any way grand. Senior members of the research staff emphasize the importance of insisting that the work carried out should be of the highest quality (which in turn emphasizes the need that somebody of distinction should quickly be appointed to take charge of the scientific programme). The question of whether all this can be accomplished without continued growth remains to be resolved and this, of course, is not an open question—much will depend on whether NIH really does have extra money to spend in the years ahead.

The geographical isolation of the foundation, in many ways an asset in the past twenty years, could also become a disadvantage if there were too rapid a turnover among the distinguished people who at present serve as magnets for recruits. It is thus more vulnerable than many universities, especially now that university salaries can be extremely tempting. It may yet, however, become an interesting demonstration of how it is possible to build from scratch a productive ivory tower in the wide open country.