

chemistry, with lists of technical surface-active agents. It should not only be read, but also repeatedly studied, by all interested in the modern theory and applications of surface activity.

Dr. S. J. Gregg's book, "The Surface Chemistry of Solids", is disappointing. It has fifteen chapters, including one on surface films at liquid surfaces; but the arrangement is not systematic, nor is the theory coherently or fully developed. A good deal of the information can be found, often more thoroughly treated, in other books; this is particularly the case in the sections on adsorption, films on liquids, and friction and lubrication. Nevertheless, the author does discuss a number of topics generally neglected by writers on surface chemistry; among these are Bangham's theory of the structure of films adsorbed on charcoal, Hüttig's work on sintering, and some recent work on contact catalysis; there is also interesting information on dusts in a chapter bearing the curious title of "The External Surface of a Solid". Mathematical theory is generally omitted, though some few unproved formulæ are quoted. The book is nowhere really thorough and contributes little substantial to existing theory; but it should direct attention to some, though far from all, of the recent work not yet incorporated in other books.

In the short space of the seventy small pages of his book "Surface Chemistry", Prof. A. E. Alexander succeeds in giving an introduction to surface chemistry for the general scientific reader which is not only readable but manages to impart a very large amount of information. No previous knowledge of the subject is assumed; yet the essentials of such topics as the structure of surface films on liquids and solids, the nature and measurement of surface tension, foaming, emulsification, spreading, electrocapillarity and electrokinetic phenomena are all very clearly explained. Even the historical development is adequately indicated, and there are many well-chosen references to technical and some to biological applications. The illustrations are numerous, and very clear. This booklet can be warmly recommended to biologists and all who desire a thoroughly sound, comprehensive, yet easy introduction to surface chemistry.

N. K. ADAM

PURITAN DIABOLISM

The Devil in Massachusetts

A Modern Enquiry into the Salem Witch Trials. By Marion L. Starkey. Pp. 269+9 plates. (London: Robert Hale, Ltd., 1952.) 18s. net.

THIS volume, which was first published in New York in 1949, is another contribution to the literature concerning the Salem witchcraft delusion of 1692-93. Written in an easy, popular style, it tells the story of the extraordinary events in Massachusetts, in words which have been largely taken from the original documents, and attempts to sum up the facts from both the contemporary angle and from that of more modern times.

The narrative begins with an account of the hysterical attacks of some of the girls in the village, and shows how their point of origin may perhaps be seen in the intimacy between the afflicted and old Tituba, the Rev. Samuel Parris's Negro slave, who told the girls of magical ceremonies and possibly taught them a few simple tricks and charms. The first hysterical outbreak occurred with little Betty Parris, then nine years old, and with her cousin,

the eleven-year old Abigail Williams, both youthful members of Parris's household in Salem Village.

The attacks began in the usual way. At first the girls seemed absent-minded or broke into uncontrollable fits of weeping. Gradually their behaviour became more unrestrained. They would make babbling or barking noises, crawl about on all fours, rolling their eyes and twisting their limbs while writhing on the floor. Such phenomena were not new. They were as old as witchcraft itself and were believed to be clearly the marks of diabolic interference, which, as every Christian knew, was as certain and sure as the sacred character of Holy Writ which proclaimed it. Thus, when the girls, soon to be joined by others in genuine or simulated attacks, began to "cry out" on those who were supposed to afflict them, declaring that their persecutors were witches, their statements, instead of being treated as symptoms of hysteria, were regarded with the utmost seriousness, and their tales of persecution by the apparitions or "shapes" of those denounced were regarded as good evidence for the truth of their assertions generally.

In developing her story, Miss Starkey is commendably judicial in her approach, and it is somewhat to be regretted that she has not seen fit to expand her theme in greater detail. She points out that the epidemic and the subsequent hangings were part of the social and economic conditions of the times. Although the theocracy was already cracking, orthodox belief in hell and the devil was still sufficiently strong to support the theories of witchcraft. However, even then some dissentient voices dared to make themselves heard and some muttered about giving the girls a good whipping; others went so far as to say that what some of the older wenches needed was a man, a suggestion which was shown to have some substance in view of the later activities of the afflicted damsels.

The fact was that, with the gradual decline of the earlier religious fervour and the slow growth of prosperity, the young women were beginning to suffer that frustration and sense of guilt inseparable from the kind of lives they lived. The temptation was irresistible. From being nobodies they suddenly became leading members of their community with actual powers of life and death over prominent citizens of hitherto irreproachable character. Life, from being a humdrum round of domestic chores, became exciting. As one of the girls bluntly confessed, when accused of lying by some sepiotics: "It was for sport. I must have some sport".

Compared with the history of other witchcraft epidemics, that at Salem Village can be regarded in a light very favourable to many of the participants, although the author of this book does not hesitate to condemn where condemnation is due. What is clear is that, with the end of the delusion and the realization of the errors committed in hanging the innocent, came also another step towards the weakening of belief in the supernatural and thus a further breach in the theocratic structure.

As a simple and well-arranged account of the Salem calamity, this book can be recommended, although Miss Starkey, had she been better prepared, might have considerably amplified the psychological discussion. With an excellent bibliography and index the book is a notable contribution to writings on witchcraft, and throws a vivid light on one of the most interesting events in the early history of Massachusetts.

E. J. DINGWALL