

the pattern of smoking in Britain—since the mid-fifties, consumption has been within 10 per cent of 3.3 lbs per head.

The change in smoking habits seems more remarkable than the slow decline in the total amount of tobacco used in Britain. Among the public as a whole, the total consumption of cigarettes has been declining since the early sixties and is now 20 per cent less than the peak of 243 million lbs reached in 1961. Among men, the consumption of cigarettes has fallen from 8.7 lbs per head in 1960 to 7.1 lbs per head in 1968. There has, however, been a persistent tendency to smoke smaller cigarettes, and sales of cigarettes in Britain have actually increased in the past decade to 121,000 million, more than two-thirds of them tipped. Cigars have caught on even faster and consumption has multiplied fourfold in the decade.

Although the flight from tobacco has made its mark on the total consumption, the tendency for young people to start smoking early apparently continues. Among fourteen year olds, for example, average weekly consumption among boys has risen from 1.9 cigarettes to 2.4 in the past two years. The research paper shows quite clearly that among fifteen year olds, girls as well as boys, the incidence of the smoking habit is between four and five times as great among those who have started work than among those who remain at school. In short, although public opinion has begun to respond to propaganda about smoking and its medical consequences, there is obviously a long way to go before a radical change of habit is brought about.

#### ANTIBIOTICS

### Swann under Attack

VETERINARIANS gathered at the Royal Society of Medicine in London on January 19 expressed some strong criticism of the recent British Government report which proposes the restriction of certain antibiotics to therapeutic uses (see *Nature*, 224, 835; 1969). They are annoyed that Professor Michael Swann and his colleagues on the committee wish to prevent the use of certain antibiotics, including tetracyclines and penicillin, in animal feeds, because of the danger of the spread of resistant strains of bacteria from animals to man.

Professor T. H. Jukes (University of California) said that he knew of no evidence of any public health problem. For nearly eighteen years, he said, antibiotics have remained effective as promoters of animal growth, and to restrict tetracyclines and penicillin to a veterinary surgeon's prescription, so that they are only used for therapeutic purposes, would be unduly severe. Jukes was supported in this contention by Dr R. Braude (University of Reading), an expert in the husbandry of pigs, who called for more reliable information to challenge the value of antibiotics in feeds before any of them are banned by legislation.

The critics agreed with Swann that transfer of resistance between intestinal bacteria has been demonstrated *in vitro*, but disagreed that there is adequate evidence for any but very low transfer in the human alimentary tract. Jukes also pointed to recent findings that transfer of resistance from *E. coli* to *Salmonella* is a hundred times more frequent in rough non-virulent strains of the recipients than in smooth pathogenic strains. This they claimed as an indication of a sort of

genetic drift towards a predominance of rough non-virulent strains as more bacteria become resistant.

This idea, however, was dismissed as irrelevant by the only vociferous supporter of Swann present, Dr E. S. Anderson (Enteric Reference Laboratory, Colindale). He said that it is not the rough but the smooth virulent strains that we must worry about, and there are enough of these to make resistance a threat to health. Anderson also denied that there is any lack of evidence of the dangers of bacterial resistance and the spread of zoonoses to man. Ample evidence, he said, lies in the high proportion of strains of *Salmonella typhimurium* in human infections which belong to known bovine types.

The fears of agriculturalists who see themselves being deprived of a useful means of boosting productivity and controlling disease were clearly summarized by Dr R. H. White-Stevens (Rutgers University), who spoke on the topical subject of man in his environment. After a few words about expanding human populations, he went on to discuss the need to increase production of meat protein. This will necessitate large herds and flocks, in which risks of disease will increase, and for which therapeutic treatment will be impossible. The Swann Report, he said, gave the impression that diseases should be allowed to penetrate herds and flocks before any measures are taken against them. This he did not approve, and he expressed the hope that the British Government in implementing the recommendations would not make any blunders, by banning on insufficient evidence, such as the recent decisions on cyclamates.

#### HISTORY OF SCIENCE

### Work in Progress

Thomas Cheek Hewes, Robert Angus Smith and Johann Tobias Mayer are going to be somewhat better known in the near future. At the moment they can be found in the minds of some of the postgraduate students listed in a catalogue of work in progress just issued by the British Society for the History of Science. Compiled by Dr W. H. Brock, a lecturer at the University of Leicester, the catalogue is the first full-scale attempt to detail all the theses in the history of science currently being written in British universities. It can be obtained, free, from the society's assistant secretary at 393 Cowley Road, Oxford.

The list is surprisingly readable, for there seems to be a tradition that scientific historians should furnish their labours with evocative titles. Some are predictably solid and respectable (*The Role of Granite in Early Nineteenth-Century Geological Theory*); others hint at more esoteric realms of experience (*History of the Uses of Gutta Serena*). Now that the numbers of people studying the history of science are growing, the research topics are becoming correspondingly more specialized. At University College, London, for example, chosen fields include English dietary advice in the sixteenth century, the astronomers of Pulkovo from 1839 to 1918, and a comparison of how the librarian and medical professions have evolved. Darwinism and religion—everybody's favourite undergraduate essay subject—now has just one student, and even she is using Victorian periodicals as source material.

Dr Brock says that his catalogue is as complete as possible, and the absence of a few theses is caused only