Thirdly, most consultants were worried about junior staffing. Though they welcomed the recent improvement in the hours juniors worked and the training schemes introduced for them, these, they pointed out, had been achieved only at the expense of the consultants themselves. The work was going up steadily, and a consultant might find himself on call for longer than his houseman. But even more serious was the possibility that the number of junior staff would be reduced—leading Dr. Cadwallader, the anaesthetist, to remark that consultants might even come to look on the present position in peripheral hospitals as a golden age. Admittedly something must be done to ensure that all junior jobs were true training posts, but why could not rotation between teaching and peripheral hospitals be the rule for all grades, rather than the exception?

Given that the total spent on the hospital service is unlikely to rise very rapidly—and that the paramount problems of these consultants are of delays and poor communication—can any improvements come from changes in management? In particular, how can the consultant at Casterbridge be made to feel that his views have been taken into account at the Elephant? In a not dissimilar situation in the United Oxford Hospitals a report by a team of management consultants was found to help.[2] There McKinsey & Co. were asked to examine the use and misuse of resources and to suggest how the management structure could be improved. Their main recommendation—which has since been put into effect—was to set up a small, tight-knit executive committee composed of members in the mainstream of hospital work. In practice this has meant that difficult decisions can be taken with speed and authority, "which would have been virtually impossible under the previous medical staff council structure."

Two obvious difficulties arising out of this Oxford scheme—communications and involving the ordinary board member in the work of the hospital—have been tackled by issuing a news bulletin every month and by asking board members to take a special interest in one aspect of the hospital's work. Interestingly enough, in the light of the peripheral consultants' complaints that money unspent could not be carried over from one year to the next, another recommendation by the McKinsey team was that each division should be given greater financial control through decentralization.

Clearly consultants at the periphery have many problems for which no solution is yet offered, and no single measure—such as an improved management structure—can act as a panacea. But running through every account in this series has been the complaint of poor communication. Disappointingly the suggestions in the second Green Paper seem certain, by increasing central direction of the Health Service, to increase these complaints. There is still time for another look.

[1] The last article in this series appears at p. 171 of this week's *B.M.J.*
[2] Sleight, P., Spencer, J. A., and Towler, E. W., *British Medical Journal*, 1970, **1** 682.

Diverticular Disease

Diverticula of the colon, once looked on as pathological curiosities, are now recognized as being common in Western communities, and they increase in incidence with advancing age.[1] [2]

Until recently clinicians, radiologists, and pathologists have talked about two diseases. The first, diverticulosis, signified a bowel studded with diverticula. These were not inflamed, did not obstruct the colon, and left the patient virtually unmindful of their presence. The second, diverticulitis, was further classified into acute and chronic. The features of an acute inflammation of a diverticulum, with peridiverticular abscess or free perforation, were easy to define both clinically and pathologically. Chronic or recurrent diverticulitis, considered to be due to long-standing inflammatory changes, showed itself clinically with pain, tenderness, constipation, or even subacute obstruction, while radiologically a narrowing and distortion of the affected segment of sigmoid colon could be seen. The important work of B. C. Morson[3] shook these ideas. He showed by detailed studies that specimens of colon resected as examples of so-called chronic diverticulitis often showed no evidence at all of inflammation. He pointed out that they did, however, have a typical thickening of the muscular wall which itself could be sufficient to cause symptoms of obstruction. To denote this state of affairs he used a term "diverticular disease." S.-C. Ming and F. G. Fleischner,[4] of Boston, studied 62 consecutive surgical specimens of sigmoid colon resected because of a diagnosis of "diverticulitis." Sixteen of these showed no inflammatory disease, and not one represented true chronic diverticulitis—that is, chronic inflammation limited to the diverticular lining. Where pathologically confirmed diverticulitis was present, it comprised acute inflammation of a diverticulum with its consequences—peridiverticulitis, pericolic abscess, formation of sinus or fistula, or free perforation with peritonitis. Acute inflammation of a diverticulum might also produce massive bleeding due to erosion of an adjacent vessel.

T. G. Parks,[5] studying 521 patients with diverticular disease of the colon at the Royal Victoria Hospital, Belfast, has recently pointed out the difficulties of distinguishing clinically between diverticulosis and diverticulitis. On comparing the 95 patients with the former diagnosis with the 426 patients diagnosed as the latter, little difference could be found except, naturally enough, that those with abscess formation, fistulae, free perforation, or gross obstruction were labelled "diverticulitis."

In this issue of the *B.M.J.* Mr. Parks and his colleagues now report the limitations of barium enema examination in the differentiation between diverticulosis and diverticulitis of the colon in a study of 461 radiological examinations. By a rather happy statistical coincidence, 230 were reported as having diverticulosis and 231 diverticulitis. When 40 of the barium enemas were reassessed by two radiologists and the reports compared with the original report, all three agreed on only 15 occasions, and in the 12 cases in which a radiologist considered inflammation to be present the pathologist was unable to confirm this in any of the resected specimens. Comparison of the clinical features such as pain, vomiting, bladder symptoms, distension, the presence of a mass, bowel habits, and so on again disclosed little difference between the two groups. In the whole series of 461 examinations carcinoma was suspected in 23 but not confirmed, suspected and subsequently confirmed in 6, and not suspected but subsequently

[1] Manousos, O. N., Truelove, S. C., and Lumsden, K., *British Medical Journal*, 1967, **3**, 762.
[2] Hughes, L. E., *Gut*, 1969, **10**, 336.
[3] Morson, B. C., *British Journal of Radiology*, 1963, **36**, 385.
[4] Ming, S.-C., and Fleischner, F. G., *Surgery*, 1965, **58**, 627.
[5] Parks, T. G., *British Medical Journal*, 1969, **4**, 639.

established in a further 5 cases. These authors conclude that, though the barium enema examination is very useful in diagnosing diverticular disease of the colon, neither radiological examination nor traditional clinical criteria can accurately determine whether or not there is associated inflammation, and a co-existing carcinoma may well be undetected.

While the emergency of acute inflammation of a diverticulum usually presents a clear clinical picture, we cannot at present distinguish between "diverticulosis" and "chronic diverticulitis," and there is little to be gained from trying to do so. The term "diverticular disease" is a useful description at this stage. The unsolved question is why a patient whose colon is the site of diverticula should be completely free from symptoms (as it usually is) or should develop any of the protean manifestations of this disease.

Deafening Music

Despite growing public concern about noise in the environment few effective restrictions have yet been imposed on it. Not only cities, where noise is endemic, but country villages and quiet suburbs are being bombarded with the din of aircraft flying from airports some miles away or shaken by the passage of heavy lorries. To this assault on the ears the strains of rock and pop music are now adding their deafening impact.

The damage to hearing that noise may cause has long been known—for instance, from gunfire—and in the 19th century occupational deafness came to be recognized. More recently it has become apparent that environmental noise unconnected with a person's occupation can affect his hearing.[1] What level of noise may be harmful doubtless varies from one person to another, but it is generally accepted that a worker exposed to a noise level whose intensity exceeds 85 decibels in the frequencies 250 to 4,000 cycles per second for eight hours a day for a working life will develop a perceptive deafness unless he adopts modern methods of protecting his hearing. The level of noise in a busy high street will exceed this. For example, a diesel lorry about 25 ft. (8 m.) away has a sound level of 90 decibels,[2] and houses in close proximity to the flight path of jet aircraft are subject to an intensity of up to 100 decibels. The noise that is most dangerous to hearing is a continuous noise, and there is less certainty about the effects of loud intermittent or explosive noise.

In 1958 A. Glorig[3] coined the term "sociacusis" to draw attention to the fact that industrial civilization produces a burden of noise that may accelerate the normal loss of hearing due to ageing, and it may prove to be a serious threat to hearing. It is only comparatively recently that the threat has been recognized as extending beyond the worker in a noisy industry to all who live in towns and cities. Excessive noise can now be regarded as comparable to air pollution.[4]

Lately several workers have reported that pop and rock music may be damaging the hearing both of the people who produce it and of those who listen to it in clubs, halls, discothèques, and the like.[5-8] Measuring the sound levels of 10 modern rock groups in a dance hall, J. M. Flugrath[5] found that levels of 95 to 100 decibels in the most damaging region of 1,000 to 2,000 cycles per second were common, and because of the direction of amplifiers and the shape of the hall the sound levels of the dancers' ears could have been 105 to 110 decibels or even higher. F. J. Dey[6] measured auditory fatigue in a group of young men exposed to music at a level of 100 to 110 decibels for periods of up to half an hour. It was not considered safe to prolong the experiment to two hours at 110 decibels, a condition commonly found in discothèques. He concluded that the temporary threshold shift of hearing, which is a measurement of auditory fatigue and the precursor of permanent threshold shift or perceptive loss of hearing, will be severe in 16% exposed to 110 decibels for two hours, but if the sound level was reduced to 100 decibels only 2% would be at risk.

R. R. Rupp and L. J. Koch[7] have drawn attention to the fact that adolescent children do not in general listen to music at home at very high intensities from loudspeakers because their parents object to it. But they may use earphones, and stereophonic earphones are now sold with many hi-fi sets. It is possible to listen to music in this way at such shattering volume that the inner ear is damaged. One girl asked if she felt any pain answered, "Of course." Pain indicates an intensity of sound of 120 decibels or more, a dangerous level to people sensitive to loud sounds. People who suffer from ringing in the ears and dulled hearing after visiting dance halls and discothèques are risking permanent damage to their hearing. Musicians and other people working in them are exposed to this sound daily and would be well advised to wear a modern hearing protector which can attenuate the sound by 20 decibels.

There would seem to be enough evidence to indicate that a warning should be given to the manufacturers of amplifying equipment that a level of 100 decibels should not be exceeded. Certainly it is a sad disability for people to have their hearing impaired in youth to the level they might be resigned to expect at 60.

Shortage of Teachers

Proposals for reorganization of the medical curriculum and raising the numbers of medical students depend on there being enough medical teachers. Unfortunately the medical profession has no say in deciding the pay of preclinical university staff, and the latest report[1] from the National Board for Prices and Incomes has again rejected arguments advanced on their behalf by the B.M.A.

Since its first report[2] on university teachers in 1968 the Board has commissioned a survey on their pay and recruitment from the Higher Education Research Unit of the London School of Economics. This survey is not yet complete, so the award by the Board is interim. Clinical teachers with honorary consultant contracts were given parity in pay with N.H.S. consultants in the 1968 award. The Board acknowledges that there was some injustice in the method of assimilation, and

1 Beales, P. H., *Noise, Hearing and Deafness*. London, M. Joseph, 1965.
2 Committee on the Problem of Noise, *Final Report*, Cmnd. 2056. London, H.M.S.O., 1963.
3 Glorig, A., jun., *Noise and your Ear*. New York, Grune and Stratton, 1958.
4 Fergusson, A., *The Times*, 19 March 1970, p. 11.
5 Flugrath, J. M., *Journal of the Acoustical Society of America*, 1969, **45**, 704.
6 Dey, F. J., *New England Journal of Medicine*, 1970, **282**, 467.
7 Rupp, R. R., and Koch, L. J., *Clinical Pediatrics*, 1969, **8**, 60.
8 Lipscomb, D. L., *Clinical Pediatrics*, 1969, **8**, 63.

1 National Board for Prices and Incomes. *Standing Reference on the Pay of University Teachers in Gt. Britain. Second Report*. London, H.M.S.O. 1970, price 6s.
2 National Board for Prices and Incomes. *Standing Reference on the Pay of University Teachers in Gt. Britain. First Report*. London, H.M.S.O. 1968.
3 *British Medical Journal Supplement*, 1970, **1**, 48.