shown how to prevent denervation of the facial nerve by injections of corticotrophin (ACTH) for ten days soon after the onset of palsy.

Surgical decompression is painful and requires considerable experience for its safe performance. It still remains a controversial procedure.

Airborne Transmission of Smallpox

For nearly a hundred years the aerial spread of smallpox virus has been one of the great medical controversies. It is generally accepted that the person suffering from smallpox does not become infectious until just before the first macules of the exanthematus rash begin to appear. At this stage the lesions on the mucous membrane of the upper respiratory tract are breaking down and releasing large quantities of virus into the air. Epidemiologically it has been shown that the patient is most infectious in the early eruptive stage of the rash and that coughing increases the volume of virus expelled.

Extensive studies have shown that most patients with smallpox are infected either by “face-to-face” contact or by contact with infected fomites. As the person suffering from smallpox is likely to be ill when he becomes infectious, it has been thought that with adequate isolation there is little danger of the spread of the disease. Yet in the past during several outbreaks cases of smallpox have occurred where no possibility of contact could be established. Such cases were often in the neighbourhood of smallpox hospitals or in different parts of passenger liners. Although many experts accepted aerial convection as a possibility, it was considered that the hypothesis was probably incapable of direct proof. But now an outbreak in Meschede, Federal Republic of Germany, would appear to indicate fairly conclusively that aerial transmission of smallpox does occur under certain conditions. Although it is a rare event, it has a special importance to epidemiologists and hospital administrators.

A German electrician recently returned from Karachi was admitted to the isolation ward of a large general hospital with pyrexia and suspected to be suffering from typhoid fever. Four days after admission a rash appeared, and two days later, when the diagnosis of smallpox was confirmed, he was transferred to a smallpox hospital. In spite of fairly rigorous isolation of the patient, and immediate immunization of all the staff and patients in the general hospital, 20 cases of smallpox occurred, with four deaths. The patient never left his cubicle during the six days he was in the hospital and had no contact with the other patients who contracted the disease. One of the infected persons was a visitor who spent only 15 minutes in the entrance hall talking to a physician. Another case was one of the nursing sisters who had been ill for some time in the top floor of the hospital and had not left her sickroom during the whole sojourn of the original case. The distribution of the cases in the various parts of the hospital together with a smoke test of the air movement in the building under similar atmospheric conditions strongly suggested aerial convection.

The evidence in the Meschede outbreak is fairly conclusive, but whether it can be considered sufficient to give plausibility to airborne transmission over long distances must remain a matter of conjecture. Nevertheless, the outbreak shows that smallpox is an ever present risk to any general hospital, especially in these days of popular air travel. The safeguards must be, firstly, a well-immunized hospital staff, and, secondly, a sound isolation procedure for all cases of undiagnosed pyrexial illness. But probably the most important lesson of the Meschede outbreak is the need to consider carefully the siting of isolation accommodation if it is to be part of a main hospital building, and for some regard to be paid to the movement of air currents in hospitals. Although aerial convection of virus particles may be uncommon, the insistence of our predecessors in keeping isolation accommodation separate may merit some reconsideration by our hospital planners.

Depression and Oral Contraception

There is now a sufficient body of evidence to establish a relationship between the use of oral contraceptives and the occurrence of depression.1-7 The relationship is complex and depends on the physical and psychological predisposition of the woman as well as on the properties of the contraceptive itself.

Depression can have serious consequences for a patient and her family. Despite this the consensus of published opinion suggests that as many as 6–7% of women suffer depressive symptoms while taking an oral contraceptive compared to 1–2% of controls. Some attempt suicide, and in many the cause of the depression is not recognized.6 But since oral contraceptives are the most effective form of contraception for most women it is important to learn how to recognize those women who may be particularly at risk. Unfortunately most investigators of this problem have encountered methodological difficulties. Few studies have been prospective, and adequate controls have been hard to provide. There are also difficulties in defining and quantifying depression and in comparing the results of one study with another.

The controlled comparison reported by Dr. Brenda N. Herzberg and her colleagues in this issue of the B.M.J. (page 142) is of interest in showing by a reliable and valid subjective measure that 6–6% of women taking oral contraceptives were more severely depressed than any women in a group using physical methods of contraception. They also show that the point during the menstrual cycle at which this assessment is made is important. This has been overlooked in most studies. On the other hand they found little correlation between the type of oral contraceptive and incidence of depressive symptoms and therefore little correlation between progestogen activity and depressant effect. This finding differs from others,8,9 which have shown that the greater the progestogenic activity the more likely will depression be induced.

How should the prescriber try to prevent a depressive

reaction from occurring? It should first be recognized that some women are at greater risk than others and that they include those who have had previous attacks of depression, those with progestogen menstrual cycles, and those who normally suffer from premenstrual depression. Even despite the conclusions of Dr. Herzberg and her colleagues it may be wise to prescribe a weakly progestogen or sequential oral contraceptive and if more than one of these findings is present to advise some other method of contraception. Secondly, an assessment of mood should be part of the routine examination of all women taking oral contraceptives. Symptoms of depression should be looked for, as they may not be volunteered, and if necessary the doctor should advise changing or even abandoning the oral contraceptive.

Reaching the Top

The terms “stress” and “fitness” are imprecise and have been devilled sports medicine for years. So said Dr. Roger Bannister at the recent Eighteenth World Congress of Sports Medicine held in Oxford. By “fitness” we generally mean the ability of an organism to maintain its internal equilibria as closely as possible to the resting state during strenuous exertion and to restore them promptly after exercise. “Stress”, on the other hand, is the work programme imposed to increase a person’s performance. The athlete under training has to follow with enthusiasm and exactitude a detailed and planned regimen if he is to improve his prowess effectively.

The chief physiological responses to athletic training are in general understood, but little is known about the precise and most efficient manner in which the changes that accompany repeated exercise are brought about. C. T. M. Davies and A. V. Knibbs have attempted to extend the work of R. J. Shephard in this respect by investigating the influence of prescribed courses of exercise varying in duration, intensity, and frequency of effort on “maximum aerobic power.” This term is usually designated VO$_2$ max, and is alternatively called by some authors “aerobic work capacity.” It is the amount of oxygen a person consumes while working as hard as he can over a period of 15 to 30 minutes. It is usually expressed as so many ml. of oxygen consumed per kg. body weight per minute, and its magnitude is the most popular criterion of physical fitness. Many “normal” standards are available, and as aerobic power depends on the state of the heart the measurement of it has attracted interest as an indicator of health in relation to coronary artery disease.

Experiments by Davies and Knibbs on healthy males showed that intensity and duration were the two most important factors in training a person to achieve his maximum aerobic power and that these were interdependent. No one who exercised below 50% of his VO$_2$ max improved it. Even at the highest training intensities and the longest duration of effort improvements were small. It appears that to effect a change in the maximum aerobic power the athlete must be prepared to work hard for an appreciable time at or very near his VO$_2$ max and that even then improvement may be disappointingly small.

Investigations such as this show how difficult it is for the athlete after he has reached a high standard to improve his performance further. But in top-level athletics only a very small increase in attainment may make all the difference between success and failure.

One Grim Spectre

Acute dilatation of the stomach is rarely seen today, but early recognition of the condition is important, because untreated it may prove rapidly fatal.

Once acute dilatation becomes established enormous quantities of fluid accumulate within the stomach. Uncorrected, this rapid flux of body fluids leads to peripheral circulatory failure. Inhalation of vomit precipitating cardiac arrest is a common mode of death.

Early diagnosis demands a knowledge of the circumstances in which the condition may possibly develop. The early post-operative period is still the commonest, though the widespread use of prophylactic nasogastric suction after abdominal surgery has made this once feared complication a rarity. In 1933 a surgeon wrote: “Two grim spectres look over the shoulder of every operating surgeon; one is called pulmonary embolus and the other is called acute dilatation of the stomach.”

Acute dilatation of the stomach occasionally occurs after the application of a plaster jacket or hip spica. The association is frequent enough to be described as the “body cast syndrome.” Usually it develops within a day or two of the plaster being applied, but occasionally it may appear after weeks or months in plaster. Recently four such patients have been described, one of whom died after aspiration of vomit. Acute dilatation has also been recorded after many other minor operations such as dilatation and curettage and interval appendicectomy. Rarely it complicates acute infections such as pneumonia or typhoid.

Sudden overloading of the stomach is occasionally the precipitating factor. Four emaciated prisoners of war who were suddenly given increased amounts of food developed acute dilatation. Chronic gastric dilatation was regarded as the “occupational disease of prisoners of war” who received a high-residue low-caloric diet; it seems likely that overdistension of the chronically dilated stomach precipitated complete atony.

The pathology of acute gastric dilatation is not fully understood. There is no evidence of any mechanical obstruction, though the dilated viscus may virtually fill the abdominal cavity. Organic pyloric obstruction, both clinically and experimentally, produces a different effect. Reflex vagal inhibition causing gastric atony has been proposed to explain it, but it is curious that of all the viscera supplied by the vagus only the stomach is usually involved, and gastric secretion is not impaired—indeed sometimes it appears to be augmented. Another hypothesis is that it is a disorder of secretomotor (proximal) gut rather than absorption (distal) gut that results from pyloric stenosis.