

conducted, which means that labour is allowed to progress for some 8 to 12 hours before a decision is made as to doing a caesarean section or allowing labour to proceed and achieve vaginal delivery. If on the one hand the patient is told in the last few weeks of her pregnancy that she is to have a trial labour and that a section may be necessary she will be in some uncertainty and will not enter labour with full confidence that labour will progress in the normal way in which she has been instructed. On the other hand if she is not told of the possibility beforehand and is then told after some hours of labour that she now requires a section she is apt to imagine that some serious complication has suddenly arisen and however much she is reassured she will be apprehensive about the outcome for her baby. The emotional state of labour is not conducive to her being able at that stage to accept a rational explanation of what is happening.

A rewarding aspect of antenatal instruction is that the patient with a definitely contracted pelvis for whom vaginal delivery is not safe and who is told at 38 weeks that a caesarean section is definitely necessary will sometimes ask that she be allowed to have some hours of labour first. Through the medium of her instruction she has come to look forward to the experience of labour and the opportunity of proving herself and although she realises that section is inevitable does not want to be deprived completely of the labour.

In some centres in the United States and Canada there has in recent years been a strong swing towards natural childbirth, so much so that obstetricians have complained that where caesarean section becomes necessary they can have the utmost difficulty in persuading the patient to accept this.

The answer to the problem must lie in instructing patients at prenatal classes that caesarean section is not undertaken as a last desperate measure but rather as a means of forestalling complications and avoiding trauma to mother and baby. They should also be made aware that their prenatal training was not wasted should they not be able to deliver vaginally but that labour and delivery form but one part of the prenatal course and they will still have the advantages of posture, properly toned up muscles, correct breathing in the later months of pregnancy and an understanding of many aspects of childbearing. They should also not lose sight of the fact that postnatal exercises are as important after section as after vaginal delivery.

If the patient has this knowledge and has confidence that her doctor will choose the right course for her, little difficulty should be encountered in persuading her that caesarean section is the right course for her.

THE SEXUAL ASPECT

There are many aspects of pre- and postnatal instruction which are better imparted to a group than to an individual as the patient will then feel that the remarks are not being addressed to her personally and so she is able to assimilate the knowledge without embarrassment. This is particularly true of matters relating to sexual adjustment.

The delivery of a head of some 4 inches diameter through the urogenital hiatus which normally is of $1\frac{1}{2}$ inch diameter will inevitably result in stretching of the vagina and of the muscles and ligaments surrounding it. The levator muscle will not spontaneously return to its former state but provided that it has not been overstretched or torn it can be restored to normal by means of assiduously-practised postnatal exercises. During delivery of the first infant episiotomy is frequently carried out as a means of avoiding overstretching of the muscle, but this leaves a scar which displays residual tenderness for some weeks or even months after delivery.

As sexual satisfaction and orgasm in the female are largely dependent on the integrity of the levator muscle it is hardly surprising that the patient with a stretched and relatively atonic levator and a tender scar to boot will not find much joy from the resumption of sexual relations when her baby is a month or 6 weeks old. Added to these

difficulties are the fact that her interest has become very largely centred on the baby and that she is somewhat exhausted by the demands he makes on her.

It is therefore not very surprising that even the patient who has enjoyed good sexual responsiveness before her delivery will often complain of loss of interest, pain and absence of orgasm afterwards. Frequently she will be shy even to mention these difficulties to her doctor and may then never recover the normality she knew before in this regard. For the patient who was having difficulties before her pregnancy the problem is apt to be magnified tenfold.

There are also subtle hormonal changes that take place during pregnancy which may result in loss of sexual responsiveness at that time and there is frequently fear in the untutored that intercourse may be harmful to the baby. The enforced abstinence during the last month of pregnancy and for the first month after delivery can also cause a disruption in marital relations which is difficult to overcome. Added to these factors there may be the fear that another pregnancy may ensue sooner than is desired. For these various reasons loss of libido (normal sexual desire) is one of the commonest and most trying of postnatal complications.

Part of the answer lies in proper prenatal instruction as to the harmlessness of intercourse during pregnancy, emphasis on pelvic floor exercises pre- and postnatally, a healthy division of interest between husband and baby after confinement and proper contraceptive advice. The responsibility for these measures lies jointly with the doctor and the physiotherapist. These measures alone may be inadequate and then more detailed help must be given and perhaps the help of a psychologist sought.

Psychological Principles Applied to Antenatal Training

By ALMA E. HANNON, (M.A.) Psychology

Divergence of opinion exists amongst the proponents of antenatal training as to what constitutes a completely satisfactory programme for the preparation of childbirth. Successful performance during labour is considered the criterion for "satisfactoriness". Until a controlled investigation is undertaken where the results demonstrate a definitive relationship between method of training and performance during labour no claims for the superiority of one method over another can be made. Research in the efficacy of these different procedures would prove extremely laborious and almost since control of all the variables related to successful parturition would be difficult. How then can we assess the intrinsic value of any one of the training procedures? We may be prepared to assert that if it works, then it is successful. This is pure empiricism. Such an approach is permitted in a scientific discipline but it can prove sterile where the generation of new concepts, hypothesis or a theoretical model are concerned. The question should be "what makes it work?" This becomes a quest for the antecedents of the observed behaviour. "How does it work?" on the other hand implies a quest for laws governing behaviour. If such an approach is adopted, we need explore no further, as the principles governing behaviour are already known to us. What we need to determine is how adequately they are applied to the area of antenatal care or training.

Antenatal training can be divided into three categories: Physical training through exercise and breathing; relaxation; and education in the physiology and mechanics of childbirth and labour. All three categories should be covered in the preparation for childbirth. The rationale for any antenatal procedure should be to equip the woman with responses

which she will be able to use during her confinement to control and facilitate birth of the child. Let us now examine each of these categories in turn.

PHYSICAL TRAINING THROUGH EXERCISES AND BREATHING

Awareness of the body in space depends on constant input from the somatic nervous system. Our perception of an arm extended above the head depends on the co-ordination of tactile and visual sensations; accuracy of movements is the result of associating differential muscular tensions with different visual sensations as the arm is moved through space. Sensory deprivation or the reduction of sensory input results in disorientation of the body in space. Hallucinations were experienced by student volunteers in a sensory deprivation experiment carried out at McGill University by Bexton *et al*¹. Impairment of intellectual performance was shown after only short periods of isolation. The constancy of our psychological behaviour is determined, then, by the continuous interaction of the body with its environment. If we wish to establish a perception or awareness, we must first invoke behaviour. To quote Sperry: "The layman naturally assumes the major work of the brain to be the manufacture of ideas, sensations, images, and feelings, the storage of memories, and the like, and often expects the correlates of these to be some kind of aural end-product phosphorescing within the cortex or emanating from its convolutions. These subjective phenomena may, however, be regarded as phases of brain function itself, not products of it. Scientific analysis has failed to disclose any output at the cerebral level other than the miscellaneous by-products mentioned above. Excepting these, the entire activity of the brain so far as science can determine, yields nothing but motor adjustment."¹⁰

Ewert, when trying to replicate Stratton's research on the inversion and reversal of the visual field produced by prismatic lenses worn in spectacle frames, found that his visual field remained upside down and reversed whilst Stratton had reported the spontaneous correction of the visual field after prolonged and continuous wearing of the inverting spectacles. The difference in their findings is explained by the extent of their motor behaviour. Ewert³ sat at his laboratory desk writing reports whilst Stratton¹¹ moved about manipulating his physical environment during the course of his daily routine. As the responses to his environment would remain the same since his position in space was unaltered, the new pattern of visual sensations evoked by the inverting and reversing spectacles would become functionally equivalent to the former one, and he would perceive the world the right way up and around whilst wearing the lenses, which is what happened.

In our sedentary lives our perceptions are being constantly "blunted" because of reduced peripheral input. The diminished awareness of our bodies accounts for our constantly bumping into objects, our inability to judge spaces through which the body can pass and the slumping postures that most of us adopt, in time. It seems a reasonable assumption to attribute the differences observed between peasant women and inactive women in childbirth to the differences in their customary motor activity. Grantly Dick-Read has observed: "There is greater discomfort in childbirth amongst women who have led sedentary lives than amongst those who live and work out-of-doors. . . . There are still many women who rarely exercise either their minds or their bodies and bear their children with greater difficulty and more frequent interference than the peasant woman at the plough. The office worker tends to have more trouble than the fisher-girl, the farmhand or the river-boat woman. In all forms of higher animal life reproduction takes place in the environment that ensures the female may be as fit as possible to give birth to, and nurture, her young. The survival of a species depends largely upon the bodily and mental state of its individuals—it is women of low grade health who profit most from a judicious use of physiotherapy." (p. 215²). In this passage, Grantly Dick-Read attributed the easier

labours of the peasant women to their physical fitness. Undoubtedly, physical fitness creates a state of well-being, but the important consideration for pregnancy and parturition is that exercises teach the isolation of and differentiation between groups of muscles. Training in the use of muscles involved in labour will enable a woman to use these effectively and adaptively during labour. Antenatal exercises should be designed to duplicate all the responses required during labour, the greater the simulation between exercises and behaviour during parturition the better will be the preparation. "The woman learns how to *hold* these muscles in a state of relaxation; and she endeavours to obtain the best possible *motor co-ordination*. She rehearses useful movements, favourable positions and postures that are an advantage at certain times. We try to impart to the woman during her pregnancy some form of discipline. This discipline amounts to the formation of centres of excitation and of new connections at brain level. *At the very moment* when the first contraction appears the woman gets the maximum functional efficiency out of her brain, and raises the threshold of painful perception by practising all the reflexes she acquired during her preparation." (p. 130⁸). This represents the psychoprophylactic approach to exercise, essentially a training in awareness. Perception of bodily sensations can be heightened during differential training in which contractions and relaxation in groups of muscles are performed alternately. Such a procedure enables a woman "first to differentiate, and next to dissociate, anything that has a positive effect from anything that has a negative one as far as the motor system is concerned. So much so that by the time labour is reached the woman can induce a muscle to work on *its own*, while the others which do not need to work are *maintained* in a state of relaxation. During delivery, for example, her apprenticeship will have taught her how to contract her abdominal muscles while she keeps the muscles of her pelvic floor relaxed. There will be no obstruction to overcome forcibly; hence the duration of delivery will be shortened accordingly." (p. 131⁸). Kitzinger⁵ makes the following comment on disassociation: "'Disassociation', a technique taught as part of the psychoprophylactic method, is very different, (that is from her method of simulated contractions) is not intended to simulate in any way true uterine contractions, and substitutes a deliberate, conscious act for an experience which essentially is one of smooth, co-ordinated activity of *involuntary* muscles—ones which the mother cannot will to function effectively and which no amount of *intellectual information* or *physical exercise* can help to control. (p. 17, italics mine). This latter statement is contradicted by a wealth of experimental evidence on conditioning of autonomic functioning. In summing up some of this evidence Franks⁴ states: "Under certain circumstances verbal stimuli can bring about or modify a wide variety of physiological reaction, some simple, other complex, some at the level of awareness, other of which the subject is normally quite unaware. It is claimed that in this way it is possible to influence metabolism, the secretions in the gastrointestinal tract, vaso-motor activity . . ." (p. 11⁴). Here involuntary or autonomic behaviour is brought under verbal control by the judicious pairing of a verbal stimulus with an unconditioned stimulus, that is one that produces the autonomic response, for a critical number of trials and in spatial and temporal contiguity. Again quoting from Franks: "Working with a variety of visceral responses Bykov has shown that these responses obey the same laws as does the CR (conditioned response) secretion of saliva. Especially important is his work with the kidneys in which the mechanism of the urinary CR was shown to involve both the pituitary gland and the nervous system. In a similar manner, Bykov and his associates have been able to establish and manipulate CR of bile, heat regulation of the body, blood sugar . . ." (p. 10⁴).

An association formed between two events, usually a stimulus event and a response event, is termed conditioning. It was Pavlov who discovered the conditioned reflex (as opposed to the innate or unconditional reflex) and used it

as an instrument for studying the processes and principles governing higher nervous activity. Conditioning applies not only to reflex behaviour, as was demonstrated by the Russians, but also to operant (what the layman refers to as voluntary behaviour itself produces consequences for the individual; the environment is "operated" upon. What manipulations or operations will be learned or conditioned in an individual depends on the contingencies present in the environment. If, for example, an organism is searching for food and finds it, the behaviour preceding the actual eating of the food, will be what is associated with food. On subsequent occasions the organism will attempt to find food by doing exactly the same thing. Such behaviour will become permanent if it is repeatedly successful. "Food always present" will be the contingency which will maintain the organism's response; food is the reinforcement of the behaviour; absence of food would be non-reinforcement. Reinforcement, then, is that event which increases the probability of the occurrence of a response. Irregular reinforcement slows down conditioning whilst the absence of reinforcement will weaken and finally extinguish an associative link. Differential responses occur to stimuli when differential reinforcement effects are present in the environment. Again, behaviour which is not reinforced will be weakened, and if similar, but not identical behaviour is reinforced, then the individual will learn to discriminate between the stimuli on the basis of the response effects. Generally, the definition of reinforcement is tautologous for it is described as "that state of affairs that maintains behaviour". In the laboratory reinforcement is determined by the experimenter, but in a free-response setting what will be reinforcing for behaviour is not necessarily known. Reinforcements of everyday life are social in origin rather than emanating from a biological condition. In our early training procedures for the young we reinforce any form of behaviour that approximates the required performance, but the reinforcement shifts in the direction of forms which approximate more closely normal cultural practices. The reinforcements that are manipulated in the social context include paying attention, showing affection, love, encouragement, approval; whilst non-reinforcement (or negative reinforcement as it is also called) includes disapproval, inattentiveness, impatience, rejection, criticism and derision. One can sharpen the stimulus control of behaviour by manipulating reinforcement, that is one strengthens the tendency for behaviour to occur when relevant aspects are present and weakens the disposition to respond when irrelevant aspects occur.

The woman attending antenatal classes is essentially in a social context and her behaviour can be brought under the control of specific stimuli. Her participation in exercises is constantly being reinforced by the teacher through praise and encouragement. Further, the knowledge that she is equipping herself adequately for an event will lessen any anxiety she may experience and this will reinforce her attendance and participation in the procedures. Her behaviour will evoke social approval from other sources as well, her husband through his interest would also be providing reinforcement; her doctor by sanctioning such behaviour is also reinforcing it; friends by showing willingness to discuss the antenatal programme also provide what is tantamount to approval. The sources of reinforcement in such a context are numerous and there should be no difficulty in maintaining the desired behaviour at an optimal level. The real problem is how to build up the behaviour. Descriptions of what is required are not wholly satisfactory, as the transition between verbalizing and enacting can only be achieved if the required behaviour is already part of an individual's repertoire. Audio-visual aids will merely consolidate existent behaviour and do not necessarily give rise to the stimuli or sensations which are the antecedents for responses. The sequence of behaviour necessary for parturition will have to be "shaped" by successive steps, each involving sets of muscles. The feed-back from each set of muscles provides the stimulus for the next response in the chain. It is only by the manipulation of both the stimulus

and response variables that conditioning can be established. A successful training programme for labour would be one that simulates as closely as possible the labour itself, thus generating and conditioning total participation on the part of the woman.

Imagery and verbalizations are both internalised mediators of behaviour, they cannot evoke the behaviour itself unless the behaviour has been experienced. Trying to imagine a contraction is impossible without having experienced some muscular tension; the injunction to contract a muscle is impossible in the abstract. Using generalized imagery has value only if there is some communality between experiences, for then generalizations of behaviour can occur. The danger in using such a procedure is that the stimulus or sensations one is trying to evoke become somewhat blurred and non-specific. For example, quoting from Kitzinger: "Uterine contractions are felt by many women to sweep towards them, rise in crescendo and then fade away like waves of the sea, so that wave imagery is very useful when describing the sensations of contraction. This wave imagery is closely associated with the idea of rhythm, which is all important in harmonious psychosomatic adaptation to labour. One can explain how a woman must swim over the wave and not allow it to envelop her, and to do this she must go forward to meet it with her breathing instead of waiting until it is already on her. So she must judge its size—analyze it—and keep on top of it with her breathing, adapting the rhythm and depth of her breathing to the curve of the wave. As it approaches its crest, her breathing is at its most light and rapid. Her breathing is always in relation, not to a chart on a wall or an illustration in a book, but to that particular contraction of her own uterus and to its rhythm and intensity." (p. 16⁵). This analogy elicits somewhat amorphous sensations and so fails in its purpose of identifying the antecedents of behaviour; for behaviour to come under stimulus control the stimulus must be unambiguous. Another difficulty can arise from the use of imagery in a training programme because differences in the ease with which people can handle imaginative situations are known to exist, so those able to elicit imagery would be better prepared than those who could not.

The type of instruction that would succeed admirably because of its specificity is also given by Kitzinger, here for breathing for bearing down. "To practise, breathe in, blow out; then take a deep breath in through the mouth, fixing the ribs and diaphragm, and, holding your breath, with your chin tucked in against your chest, and arms relaxed by your side and slightly flexed at the elbows, lean on the cushion of intra-abdominal pressure you can feel beneath the diaphragm and press down firmly and slightly outwards, feeling the muscles which will help you to squeeze your baby gently and evenly down the birth canal, at the same time deliberately *releasing the muscles of the pelvic floor.*" (p. 109⁶). Here is a highly structured sequence of responses where the feed-back from each segment of behaviour will become the stimulus for the next response, the whole sequence involves kinaesthetic sensations. The suggestion: "It may help you to think of a tube of toothpaste which you are rolling up from the end with steady pressure" (p. 110⁶) immediately breaks down the structured motor responses because it involves only visual sensations; there is no movement of the body akin to rolling up a tube of toothpaste. Instead of consolidating bearing down behaviour, such an instruction would interrupt and inhibit it as the sensory modalities of kinaesthesia and vision have not been functionally related in this example.

In summary, the value of exercises for labour lies in the development of control of voluntary muscles and the modification of autonomic responses together with a sharpened awareness of bodily sensations.

RELAXATION

The relaxation procedures used in antenatal training are all based on Jacobson's Progressive Relaxation. The essence of Jacobson's method is to provide prolonged and intensive

training in relaxation for the purpose of achieving differential relaxation, where all muscles not in use are relaxed and so neuromuscular tensions are diminished. To quote "... an excess of slight or incipient tensions or movements, some co-ordinated and with well marked function and some not, involving in many instances small but in others great caloric expenditure, seems from one standpoint to constitute the very essence of what is commonly called nervous disorder. From this standpoint, the effect of differential relaxation is to eliminate such elements of motor disorder." (pp. 99-100⁷). The effect of relaxation is to raise the threshold of anxiety-evoking or tension-evoking stimuli. Muscular relaxation is antagonistic to the expression of anxiety. Grantly Dick-Read asserts "... relaxation is employed as an antidote to abnormal tension and therefore an adjuvant to the physiological process.—I suggest, however, that for the purpose of its application in obstetrics, we consider relaxation to be a condition in which the muscle tone throughout the body is reduced to a minimum.—For it we are able to reduce the tone of our muscular system we know from experiment and clinical observation, that the reflexes of the body are diminished in power. We also know that the influence of the mechanism that records sensations arising within the body is much less pronounced in a state of muscular relaxation than in a state of muscular tension. Stimuli arising from the emotional system produce less violent reaction when there is an absence of tension in the muscular system. ... in applying this to obstetrics we can say that if the body is completely relaxed, it is impossible to entertain the emotion of fear." (pp. 199-200⁸).

The physiological usefulness of relaxation lies in the temporary ascendancy of the parasympathetic nervous system which will inhibit sympathetic functions whilst psychological benefit comes from the inhibition of fear. Relaxation would not eliminate anxiety or fear for these responses are under specific stimulus control, what it achieves, however, is the temporary inhibition of such responses. The elimination of anxiety or fear could only be effected through deconditioning, where the association between stimuli and responses is extinguished or weakened. Deconditioning or desensitization of anxiety-evoking stimuli has been used extensively by Wolpe and others in the treatment of neurotic behaviour. Essentially the deconditioning procedure breaks down the associative link between a stimulus and a response by establishing an alternative response to the same stimulus. A brief description of this procedure is given by Wolpe in the following passage, where eating was used as an alternative response rather than relaxation. "Some years ago, studies on the induction and elimination of experimental neuroses in animals showed that these conditions were persistent habits of unadaptive behaviour acquired by learning (conditioning); and that their therapy was a matter of unlearning. The central constituent of the neurotic behaviour was anxiety, and the most effective way of procuring unlearning was repeatedly to feed the animal while it was responding with a weak degree of anxiety to a "weak" conditioned stimulus. The effect of this was to diminish progressively the strength of the anxiety response to the particular stimulus so that it eventually declined to zero. Increasingly "strong" stimulus situations were successively dealt with in the same way; and finally, the animal showed no anxiety to any of the situations to which anxiety had been conditioned. The basis of the gradual elimination of the anxiety response habit appeared to be an example, at a more complex level, of the phenomenon of reciprocal inhibition described originally by Sherrington. Each time the animal fed, the anxiety response was to some extent inhibited; and each occasion of inhibition weakened somewhat the strength of the anxiety habit. The experiments suggested the general proposition that *if a response inhibitory to anxiety can be made to occur in the presence of anxiety-evoking stimuli so that it is accompanied by a complete or partial suppression of the anxiety response, the bond between these stimuli and the anxiety response will be weakened*"¹².

The behavioural response as an alternative to anxiety

most widely used is relaxation; relaxation is as much a part of behaviour as any more obviously "active" response. Deconditioning or desensitization to anxiety-evoking stimuli in therapeutic practice involves the presentation of stimuli in an ascending hierarchy of intensity whilst the patient is completely relaxed. The probability of these stimuli evoking anxiety is diminished because the stimuli are contiguous to a new response, and one that is anxiety inhibiting. By using differential relaxation in antenatal training it is quite possible for the effects of anxiety-evoking stimuli to be reciprocally inhibited by the adaptive verbalizations of the trainee. The repeated occurrence of such inhibitions would enable conditioned inhibition of the anxiety responses to develop. Effective deconditioning of anxiety, however, depends upon the systematic manipulation of those stimulus events which initiate and maintain the anxiety. What the critical stimulus constellations are depends upon the individual's life history. As they would vary from individual to individual it would not be possible to decondition anxiety in the group situation, unless the antecedents for behaviour were common to all members of the group. Lazarus⁹ has conducted a study in which his groups were homogeneously composed.

The more restricted use of relaxation for the control of muscular tension is the one that can be successfully exploited in antenatal training. Training in relaxation will enable a woman to identify tension in muscles and equip her with the responses for dealing with it. Some individuals are incapable of deep relaxation. In such instances, one can train them to perceive differences in tension by increasing and reducing the tension in any one set of muscles, until they can achieve complete relaxation. This usually applies in cases of hypertension where the individual has never experienced a state free from tension, even in sleep there are residual tensions. (In such cases the use of chlorpromazine, meprobamate or codein could be used to create the experience of relaxation, where indicated). Relaxation should not be a passive part of training where the woman merely flops into a state of oblivion, but rather a deliberate manipulation of muscles to heighten the awareness of feed-back from the muscles. By experiencing the differential muscular tensions a woman will then be able to evoke them on command and so control a whole sequence of behaviour. One cannot necessarily relax away pain but one can relax away resistance which induces pain.

EDUCATION IN THE PHYSIOLOGY AND MECHANICS OF CHILDBIRTH AND LABOUR

Education is the preparation of the individual to meet demands made by the environment, both physical and social. It is through instruction that we provide the models for behaviour. Descriptions of the physiology and mechanics of labour will highlight and identify the appropriate behaviours involved and so establish the goals of response that each individual should strive to achieve.

Another aspect of formal training is that it provides opportunities for the counter-conditioning of undesirable attitudes towards or beliefs of pregnancy. Exposure to scientific information will initiate more constructive verbal behaviour and thought, superstitious beliefs and misconceptions will be extinguished as they are replaced by situation appropriate responses. The contingencies for initiating, maintaining and extinguishing behaviour are inherent in any social group. Questions and statements which approximate the scientific model or body of facts, will be positively reinforced by the teacher through approval, her willingness to listen and explain further, or merely by time spent in consideration. Conversely, questions or statements opposite to the scientific dictates will be discouraged or non-reinforced by comments such as "That is not quite what happens" or "You do not fully understand this" or, somewhat more forcibly, "That's wrong". These contingencies have acquired their potency through the evolution of cultural patterns. Subtle and complex properties of behaviour can be traced to subtle and complex features of the con-

tendencies of reinforcement which prevail in the environment. Communication and discussion are behaviours encouraged by the climate of a social group. Where the purpose is to instruct, participation by members of the group should be encouraged; their understanding or knowledge being shaped in approximate steps to complete behaviour. The realization that facts are being mastered and that meaningful participation in discussion is possible, will in itself be reinforcement for individual interaction. The acquired positive attitudes and constructive behaviour will engender an optimistic but informed approach to labour.

The group situation can also be used as a platform to disseminate facts on child-rearing practices which conform to the cultural norms. Again, the contingencies in group interactions could initiate, modify or extinguish individual attitudes. Since the acquisition of complex social behaviour is longterm, complete regularization or conformity of child-rearing behaviour could not be achieved in the short time devoted to antenatal training. The guide-lines, however, could be established. What develops later would be determined by the mother's social milieu.

REFERENCES

1. Bexton, W. H., Heron, W., and Scott, T. H. 1954. Effects of decreased variation in the sensory environment. *Canadian Journal of psychology*, **8**, 70-76.
2. Dick-Read, Grantly, 1958. *Childbirth without fear*. 3rd ed. London, Heinemann Medical Books.
3. Ewert, P. H., 1930. A study of the effect of inverted retinal stimulation upon spatially co-ordinated behaviour. *Genetic Psychol. Monogr.*, **8**.
4. Franks, C. M., 1965. *Conditioning techniques in clinical practice and research*. London, Tavistock Publications Limited.
5. Kitzinger, S. *An approach to antenatal teaching*. The National Childbirth Trust. N.C.T. T.A.2.
6. Kitzinger, S., 1967. *The experience of childbirth*. Rev. ed. Great Britain, Pelican Books.
7. Jacobson, E., 1938. *Progressive relaxation*. Chicago, University of Chicago Press.
8. Lamaze, F., 1958. *Painless childbirth*. London, Burke Publishing Company.
9. Lazarus, A. A., 1961. Group therapy of phobic disorders by systematic desensitization. *J. Abnorm. Soc. Psychol.*, **63**, 504-510.
10. Sperry, R. W., 1952. Neurology and the mind-brain problem. *American Scientist*, **40**, 291-312.
11. Stratton, G. M., 1897. Vision without inversion of the retinal image. *Psychol. Rev.*, **4**, 341-60, 463-81.
12. Wolpe, J., 1961. The systematic desensitization treatment of neuroses. *Jnl. of Nervous and Mental Disease*, **132**, 189-203.

Treatment Notes

Physiotherapy in Ante and Postnatal Field

By Mrs. P. UNIACKE

Physiotherapy in obstetrics has come very much to the fore in the past 20 years, especially in the antenatal field.

"Natural Childbirth". This is attained "when on the physical plane labour is physiological and unobstructed and on the mental plane the mother-to-be is unafraid".

This was the principal to be put into practice and, with the invaluable help of the late Helen Heardman's two books, *The Way to Natural Childbirth* and *Physiotherapy in Obstetrics and Gynaecology*, this has become quite simple.

The patients must naturally have their doctor's permission to attend classes and should start any time from 4½ to 5 months. The first time they attend they come 15 minutes early and we sit and have a quiet discussion about relaxation. It is important for them to realise why they are doing all the exercises. A small diagram of the contents of the pelvis

is shown to them and then an explanation of the muscular movements of the uterus during the first stage of labour.

During an uterine contraction the parasympathetic innervates the longitudinal fibres of the uterus, which shorten, causing the uterus to contract and retract; the circular fibres, meanwhile, relaxing. If the woman starts to tense through fear, the sympathetic is called into protective action causing spasm of the lower segment and the longitudinal fibres now have to overcome the resistance of the circular ones. There is now warfare between the two opposing forces and true pain results.

All this is explained to the patient in simplified terms to bring her to the realisation that fear causes tension, tension causes the neck of the cervix to tighten, which causes pain which leads to more fear thus establishing a vicious circle. The patient is now ready to join the class.

The following equipment is used:

- (a) Foam mats; three patients to a mat. These can be rolled up after use and easily stored.
- (b) Small pillows for the head covered by small towels which are easily laundered.
- (c) A gramophone. Patients perform the abdominal and leg exercises far better with music than without and it also adds interest for them.

Exercises are given in the following order:

- (a) Abdominal and chest breathing.
- (b) Pelvic rocking.
- (c) Pelvic floor contractions. The importance of these exercises being stressed for control of the bladder before and after birth.
- (d) Five abdominal exercises carried out to music.
- (e) Pelvic floor stretching exercises.
- (f) Breast exercises, importance being stressed that these exercises must be done by the patient after the birth of the child, from the first day. Apart from promoting the flow of milk it helps to control the swelling, lumps and discomfort as the breasts enlarge.
- (g) Relaxation with controlled slow breathing.

Patients are taught to relax on each side. During the first stage of labour one side is usually more comfortable but both sides should be practised at classes as it is too early to tell which side will be used.

Three types of breathing are taught:

- (a) Slow breathing. This is started low down in the diaphragm gradually coming up to intercostal with a count of 15 in and 15 out. Four to five counts of 15 last for 60 seconds which is roughly the length of one contraction. Some patients can probably breathe far slower but in a class it is better to take an average that can be managed by all. This must be practised at home every day.
- (b) When the contractions are too strong for the patient to manage 15 count they can count 10.
- (c) At the end of the first stage, deep breathing through the mouth to a count of 3.

This completes the first stage of labour.

If the patient wishes her husband to be present at the birth she is asked earlier on to teach her husband how to count. This has been found to be a great help.

SECOND STAGE OF LABOUR

Patients due in 6 to 7 weeks time come 20 minutes earlier than the rest of the class and start exercises for the second stage.

The bearing down sensation, i.e. the desire to empty the bowels, heralds the beginning of the second stage. The patient, on feeling this, is told to ring the bell and inform the midwife that she desires to push.

- (a) Crook lying. With each contraction raise the legs, holding them under the knee with the knees apart. Take a deep breath in, lower the shoulders in against the bed and push with the rectum from the waist down, lowering the legs at the end of each contraction.
- (b) As the head starts to descend the vagina the patient may experience a terrific splitting sensation. She must