A Paper

ON

THE INDICATIONS FOR THE INDUCTION
OF ABORTION *

BY

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By "abortion" is meant expulsion of the developing ovum from the uterus before the foetus, by ordinary standards, is generally considered to be viable—that is, before the end of the seventh month of gestation. The induction of abortion, therefore, implies the sacrifice of a potential individual—an individual, be it remembered, with legal rights—in the interests presumably of the mother; or perhaps, as some to-day would have it, in the interests of the community or State.

My first observation in opening this important discussion upon the indications for such procedure is that to-day we are not by any means considering a new problem. The same matter has exercised scientific and lay minds as long as records are available. We have only to turn to the Hippocratic oath, and to the accounts of medicine and social life in Rome and Athens, to appreciate the fact that the problems we are to consider exercised very deeply the minds of responsible people in earlier, but not necessarily less enlightened, civilizations. Is it perhaps such a strange coincidence that during the luxurious conditions of life which preceded the fall, not only of the Roman, but of other great empires, abortion-mongering occupied a not insignificant place in the sexual licence of the time? Abortion was approved, and the same argument advanced that has again recently been heard—that the unborn foetus is not a separate being, but to be disposed of as the mother thinks fit! Professor Sydney Smith has observed that during the latter years of Roman civilization abortion was often performed for sheer vanity, "so that the breasts should not have their shape spoilt by lactation, nor the bellies by the scars of pregnancy."

ABORTION AND MODERN SOCIAL FACTORS :

To-day the civilized nations of the world are again faced with national crises. Standards of life, we are told, are changed. In plain language this implies not necessarily an improved, but an altered, outlook on life. The motor car, the wireless set, and a "place in the sun" are regarded as greater assets than a family. The birth rate is still falling, owing to a lower marriage rate, the widespread promulgation of contraceptive practices, and the combined economic factors of unemployment and high taxation. We must also remember that to-day no nation stands alone. Owing to the ease of communication through the agency of the Press, broadcasting, and the interchange of ideas at conferences, and so forth, there is a very great tendency for peoples of different nationality to act in concert. Particularly is this so in matters of social policy: I might even use the word "fashion." What is approved by one people to-day is likely to influence very largely the policy of another nation to-morrow.

Now I think you will agree that in sexual matters the general public in Great Britain is to-day being greatly influenced by current practices in Europe. The "man in the street" knows perfectly well that on the Continent he can arrange for an undesired pregnancy to be terminated, and I have heard it stated that "if he knows his

way about he need not trouble to leave this country; the necessary medical indication will be found." Such a remark as this implies a slander upon the mass of our profession, but it emphasizes the necessity for a careful revision of *approved* indications for performing abortion. For this reason we should welcome the opportunity we have to-day of discussing our position as a profession in relation to the altered conditions of life and the urgent problems which are continually being thrust upon us by various sections and individuals of the lay public. In this matter of abortion we have a great responsibility. We are, of course, the servants of the public, but at the same time we are the preservers of the national health. It is therefore our duty not necessarily to acquiesce in any policy actuated by the social life of the times, if we honestly believe that by so doing it is detrimental to the nation's well-being. With the economic and moral aspects of the problem we are not concerned. These are matters which can be relegated to others better qualified to express a considered opinion.

DANGERS OF INDUCED ABORTION

Our duty it is, however, and our sole duty, to inform the non-medical mind of the possible risks entailed in procuring an abortion, not only to life, but also to the subsequent health. Let there be no mistake about it, in spite of all that has been said and written to the contrary during recent months there is an appreciable risk involved in emptying a uterus of the products of conception. We know the recent facts that have emanated from Russia and the statements that thousands of abortions are there procured annually without an anaesthetic and without so-called complications. We know also of the abortions that have been procured nearer home, in Germany, during the past year by injections into the uterus of "interruptin," "provo-col," and other "Heiser" pastes and ointments of an abortifacient nature. Let us remember, however, that Engelmann¹ recorded five deaths in Germany last year from abortion induced by this method, and many observers have noted various risks and post-operative complications which have attended the use of intrauterine abortifacient pastes. It is necessary to emphasize this matter owing to the views held by some individuals that abortion can be safely procured, and that it does not necessarily entail any risks to the mother. The procuring of abortion is not always safe even in experienced hands. With all the care possible, and with all the surgical precautions of hospital practice, I have lost a patient from sepsis whose uterus I had evacuated of its contents for therapeutic reasons. On another occasion I had to perform an immediate hysterectomy on a patient whose uterus I perforated in spite of every care, as I thought. What would have been my position, I should like to know, if these surgical accidents, which I venture to say may happen to any of us, had not been performed without a proper and approved indication?

Maternal Mortality

Facts such as these should be known, because there is no doubt that the procuring of abortion is regarded by many respected members of the lay public in the light of being a "small operation." They seem to be under the impression that the removal of a gestation from the uterus is as easy and simple a matter as lifting an egg out of a box. I could wish that they might be present sometimes in the operating theatre, and see for themselves what actually takes place. According to Pust² 8,000 women die every year in Germany from the consequences of abortion, and 25,000 become permanent invalids. Sellheim, quoted by Pust,² has observed that between 10,000 and 20,000 women in Germany are seriously ill of puerperal fever every year, and 3,000 die annually of this disease; the

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Centenary Meeting of the British Medical Association, London, 1932.

same author notes that it is "exceedingly probable that the majority of these cases of illness and death are due to abortive practices." Puerperal sepsis following abortion is commonly of a most virulent nature, and considerably swells the statistics of the fatal cases of infection admitted to institutions.

Munro Kerr and MacLennan,³ in calling attention to the factor of negligence of the patient or her friends as a prominent cause of maternal mortality, have recently noted that this operates particularly in cases of abortion. Twenty-six fatalities occurred in a series of 3,453 cases of abortion admitted on a five-year basis to the Glasgow Royal Maternity and Women's Hospital. Eighteen of these twenty-six patients are grouped as dying from septicaemia. As Munro Kerr rightly observes, social, economic, and occasional criminal reasons probably account for the notorious neglect of women to notify the onset of abortion.

In the statistical report of the League of Nations on maternal mortality it is stated that "as a cause of maternal deaths abortion has become more important than delivery at term." Another aspect of the risks incidental to procuring an abortion is seen when the after-histories of a series of women who have had several abortions are examined. Many of these patients subsequently suffer from irregular, and at times prolonged and profuse, uterine bleeding. This has been variously attributed to local pathological states in the uterus, infection of the endometrium, chronic subinvolution, and so forth. I am inclined to think that the cause of these symptoms may be more deep-seated and related to ovarian and possibly anterior pituitary dysfunction. Wiesner⁴ has drawn attention to the biological considerations involved in the sudden disruption between the products of conception and the maternal organism. In his words, "it is completely untrue and one of the most radical errors ever made" to think that such a shock can be administered to the endocrine system without interfering with the health and biological conditions of the mother. The ovum, and particularly the placenta, represents a very active endocrine gland, and the sudden withdrawal of its secretion may have serious repercussions upon the other elements of the endocrine system. What happens to the corpus luteum when a healthy active pregnancy is suddenly terminated? Does it suddenly atrophy?—and what is the influence upon succeeding ovulation? From a short series of observations I am inclined to think that there is a connexion between abortion and some fibrocystic conditions of the ovary, and that post-abortion haemorrhage may be not unconnected with these induced states in the ovary.

ABORTION AND NOTIFICATION

In Great Britain abortion is not notifiable, and it is an exceedingly difficult matter to obtain reliable information upon the incidence of spontaneous abortion, and almost impossible in the case of criminal abortion. In view of the importance that septic abortion occupies in relation to fatal puerperal septicaemia, it would seem that the time is opportune for the profession again to consider the necessity for a system of notification and registration of abortions. Even allowing for a wide margin of error, I cannot help feeling that notification could not be other than beneficial. It would emphasize the importance that the medical profession attaches to the termination of pregnancy; it should also exert a favourable influence upon maternal mortality from abortion, and at least provide reliable information upon the medical indications for terminating pregnancy.

As matters stand to-day the only information available, so far as Great Britain is concerned, is contained in the

reports of the gynaecological and obstetrical departments of the various hospitals. It should be remembered that this information is not, in a sense, reliable in that it is based upon patients admitted to hospital, and not, therefore, healthy individuals.

INCIDENCE OF ABORTION

A year or two ago I analysed the incidence of abortions amongst 3,000 hospital and private patients, and found that the ratio of abortions to births was 1 to 4.7. In a total of 11,430 pregnancies the percentage of abortions was 17.2, and amongst the total 3,000 cases the percentage of women who had aborted at some time or other during their sexual life was 35.3. Grouping the cases into pre- and post-war years, it was interesting to find that the proportion was almost the same. Personally, I do not think that the practice of illegal abortion is increasing in this country to the extent that some people believe. Contraceptive measures are undoubtedly one factor in lowering the incidence of the demand for abortion, and within recent years I have been rather impressed with the attitude of mind of the woman who has practised contraception and who has failed to attain her object. Such a woman instinctively seems to feel that she has the right to demand the termination of an unwanted pregnancy. The criminal aspect of the matter does not appear to enter her mind in the least. Another factor, and one with which we are intimately concerned, is what I may refer to as the more broadminded attitude of the medical profession to-day towards the problem of therapeutic abortion. There is not the least doubt that pregnancy is being terminated nowadays for so-called indications which, twenty-five years ago or even less, would have condemned anyone who ministered to such demands to the obstetric underworld!

It was not many years ago that Dr. Eden⁵ foreshadowed, at the British Medical Association Meeting in Nottingham, a change of medical policy in relation to therapeutic abortion, and advocated the necessity for a more humane approach to the problem. Recent years have certainly witnessed a very considerable swing of the pendulum in the direction of what is termed "scientific humanism," stimulated by the recognition that much human misery can be prevented by an intelligent regulation of genetic processes. This is all to the good if by such a policy women who find themselves in an unhappy predicament are induced to turn first to the medical profession rather than to the illegal abortion-monger with his nefarious stock-in-trade.

On February 29th, 1932, a weaver and a wool-teaser at the Leeds assizes were indicted before Mr. Justice Humphreys for killing by means of an illegal operation a widow with seven children who had remarried and was again pregnant. In the defence the "ethics of abortion" was raised by counsel—certainly a strange term to use in connexion with an offence which, as Mr. Justice Humphreys observed, is a crime under the law of the country. Such a case as this would serve to emphasize the seriousness with which we must approach the problem. I cannot help feeling that, had that 8-para consulted her own doctor, the pregnancy might very rightly, properly, and safely have been terminated, not illegally, but after full consideration of the medical indications involved.

THERAPEUTIC ABORTION AS A LEGALIZED PROCEDURE

In a recent discussion at the Royal Society of Medicine on the medical indications for the premature termination of pregnancy, I pointed out that our difficulties are not so much concerned with the major as with the minor indications.⁶ Medical policy is fairly well standardized

as to the "major" reasons for intervention. When, however, we consider the minor indications, the word "standard" certainly has no place. The termination of pregnancy is being practised to-day for reasons which have no relation to preserving the life of the mother, but are justified on the grounds that her health would subsequently be impaired had the gestation continued. Here there can be little doubt that in the present position of British law the medical profession is flirting with illegal practices. The operation of procuring abortion in Great Britain is legal only under certain well-defined circumstances—namely, that it is done to save the life of the mother, and that the seventh month of pregnancy has been reached. In the amending Act of May 10th, 1929, there is *no reference to the legality of therapeutic abortion carried out solely in the interests of preserving the health of the mother*, and the medical profession has at present no legal mandate to perform such operations. The inclusion in this Act of the words "seventh month of pregnancy," and the omission of all reference to the health of the mother, as distinct from her life, have left the matter in a most unsatisfactory position, and have imposed unnecessary hardships upon the medical profession acting *bona fide* in the interests of the mother.

MAJOR INDICATIONS FOR THE INDUCTION OF ABORTION

Parry⁷ has recently summarized as follows the conditions which may be regarded as indications for the production of artificial abortion: (1) the toxæmias of pregnancy which do not yield to treatment (eclampsia and uncontrollable vomiting); (2) chronic diseases aggravated by pregnancy (diabetes, nephritis, tuberculosis, heart disease, malnutrition, and sometimes mental and nervous states); and (3) obstruction of the passages owing to a contracted or deformed pelvis, or contraction of the vagina due to scar tissue.

This grouping, I think, represents, as Parry says, a fair view of professional opinion as it now stands. It includes all the major indications, which indeed are perfectly legal, and which have the stamp of approval both of the medical and of the legal profession. It does not include, however, what I have elsewhere⁸ called the "minor" indications, which by some are regarded as sufficient justification for performing what in the present position of British law is really an illegal act. In any collective investigation the number of such minor indications does not figure largely, but I feel that there is a growing tendency to-day for this group to increase. On the legitimate stage abortion-mongering is not a popular pastime on this side of the Channel, and the number of therapeutic abortions carried out in hospitals is few. On looking through my own figures I find that in ten years I have emptied the uterus of its contents on sixty-three occasions, an average of 6.3 cases per annum.

In five recent years the total number of induced abortions in eight London and provincial hospitals was 267, an average of just over 50 per annum, or 6 per institution. Amongst a total of 16,592 private and hospital patients (the details kindly supplied by leading British obstetricians), the number of therapeutic abortions performed was 112, or 0.6 per cent. These figures, as I say, are based upon the work carried out in the large teaching hospitals, but I have an impression—I may, of course, be quite wrong—that similar operations are being performed by others which are not recorded, and about which no figures are obtainable. I base this assumption upon the personal knowledge of abortions that have been performed "for medical indications" whose *bona fides* seems to me a little suspicious. The reason that it is impossible to obtain correct information is naturally because the indica-

tions are not generally recognized as such by the bulk of the medical profession. It is very desirable, therefore, that the whole matter should be thrashed out, especially in the light of these "minor indications."

I therefore do not propose to waste time by consideration of all the major reasons for therapeutic abortion, which have been so fully and admirably discussed during the last year or two at the Royal Society of Medicine. The "pros" and "cons" for intervention in cases of pregnancy complicated by tuberculosis, morbus cordis, and the various manifestations of pregnancy toxæmia have all been debated at length. These indications constitute the great bulk of cases admitted to hospital for therapeutic abortion, as shown in the tables which I submit, based upon the collective figures obtained from a

TABLE I.—Indications for Therapeutic Abortion
(Collective Figures from British Hospitals on Five-year Basis.)
(Gross Analysis 690 Cases.)

(A) GENERAL DISEASES.	
Diseases of the heart	63
" " kidneys	60
" " lungs and pleura	52
Toxæmias	57
Diseases of nervous system	22
" " nutrition	21
Mental diseases	10
Infections	7
Malignant disease	7
Unclassified	10
Total	309
(B) OBSTETRICAL AND GYNAECOLOGICAL DISEASES	
Diseases of the uterus	11
" " ovaries	1
" " pelvic floor	5
" " pelvic peritoneum	1
" " ovum	363
Total	381

recent inquiry into the practice of British teaching hospitals. In connexion with heart disease Dr. T. F. Cotton's⁶ remarks should be remembered. Congestive failure is a contraindication to pregnancy, and when the auricles are fibrillating and the heart enlarged pregnancy should be terminated *so long as the gestation is in the early months of pregnancy*. When signs of failure develop in the later months of pregnancy the risk to life is *increased by terminating the pregnancy* rather than by allowing the woman to go to term. There is to-day a tendency to allow more women with heart disease to continue their pregnancy, a practice supported by the experience of Dame Louise McIlroy, Dr. Rendel, and Dr. Crichton Bramwell.⁶

In the second table an analysis has been made of all the indications put forward by British operators in a collective series of 690 abortions performed on therapeutic grounds. The first point that emerges from the consideration of this table is the length and diversity of the various indications cited. It fully justifies my division into major or accepted, and minor or debatable groups.

MINOR INDICATIONS FOR THE INDUCTION OF ABORTION

The second point is that the minor indications are undoubtedly only justifiable if the health of the mother is taken into consideration, as distinct from any menace to her life. They are, therefore, from the present standard of British law, illegal practices, and it will only be the weight of medical and lay opinion that can change this attitude. It is necessary to introduce the word "lay" because of the pressure which is constantly being made to-day upon the medical profession by members of the lay public. A husband will criticize very severely any practitioner who allows a pregnancy to continue if by so doing the subsequent health of his wife is endangered. Similarly, a wife who is already the mother of five or six children is not unlikely to bring very weighty arguments forward in support of her contention that another

TABLE II.—*Indications for Therapeutic Abortion*
(Collective Figures from British Hospitals on Five-year Basis.)
(Detailed Analysis 690 Cases.)

(A) GENERAL MEDICAL AND SURGICAL DISEASES.	
DISEASES OF THE HEART:	
Mitral stenosis	33
Mitral incompetence	5
Mitral and aortic lesions	3
Congenital pulmonary stenosis	2
Malignant endocarditis	1
Myocardial degeneration	9
Heart-block	1
Lesion not stated	9
DISEASES OF THE KIDNEYS:	
Chronic nephritis	26
Albuminuria (cause unstated)	17
Acute nephritis	2
Acute pyelitis	11
Tuberculosis	2
Cystic disease	1
Previous nephrectomy	1
DISEASES OF THE LUNGS AND PLEURÆ:	
Tuberculosis	45
Chronic bronchitis and asthma	4
Acute dyspnoea (cause unstated)	1
Chronic pleurisy	1
Chronic empyema with sinus	1
TOXAEMIAS:	
Hyperemesis	52
Pre-eclampsia	2
Jaundice	2
Toxic goitre	1
DISEASES OF THE NERVOUS SYSTEM:	
Epilepsy	8
Parkinson's disease	1
Chorea gravidarum	4
Post-encephalitic states	5
Tabes dorsalis	1
Disseminated sclerosis	1
Hemiplegia	1
Spinal tumour	1
(B) OBSTETRICAL AND GYNAECOLOGICAL DISEASES	
DISEASES OF THE UTERUS:	
Fibroids	5
Retroversion, impacted	3
Sacculatation of pregnant uterus	2
Carcinoma cervicis	1
DISEASES OF THE OVARIES:	
Cystoma	1
DISEASES OF THE PELVIC FLOOR:	
Prolapse (second degree)	1
" (third degree)	2
After plastic repair of pelvic floor	2
DISEASES OF THE PELVIC PERITONEUM:	
Chronic perimetritis with adhesions	1
DISEASES OF NUTRITION:	
Diabetes	11
Obesity	2
General asthenia:	
1. With rapid loss of weight	2
2. "Six months after Caesarean section"	1
3. "After very recent pregnancy"	1
4. "With severe varicose veins of vulva and legs"	1
5. "With severe anaemia"	3
MENTAL DISEASES:	
Insanity	3
"Suicidal tendencies"	3
Previous puerperal mania	3
"Bad mental family history"	1
INFECTIONS:	
"Recurrent puerperal fever"	3
Syphilis (with arsenical poisoning)	1
Syphilis ("with toxæmia")	1
Malaria	2
MALIGNANT DISEASE:	
Carcinoma mammae	3
Carcinoma of lungs	1
Malignant glands of neck (sarcoma)	1
Sarcoma of hip	1
Fibrosarcoma of rectus abdominis	1
UNCLASSIFIED:	
"Post-operative abdominal weakness"	1
Abdominal sinus following laparotomy	3
Rheumatoid arthritis with extensive ankylosis	1
Pott's disease of spine with kyphosis	1
Tuberculous glands of neck	1
"Endocrine deficiency"	2
"Lead poisoning"	1
DISEASES OF THE OVUM:	
Abortion, threatened or inevitable	338
Molar pregnancy (carneous)	4
" (hydatidiform)	7
Hydramnios (acute)	4
" (chronic)	2
Anencephalus	1
Placenta praevia	6
Prolapse of cord	1
Total	690
(Excluding abortion)	352

pregnancy is undesirable. We can refuse to intervene, as many of us do, and we have the support of the law at the back of us, but by so doing are we not in reality throwing the Christian to the lions—in other words, facing the probability that a woman will risk not only her health, but her life, by resort to illicit practices?

It is, of course, impossible for me here and now to discuss in detail the long list of minor indications set out in the table which I have submitted for your consideration. I will therefore content myself with drawing attention to but a dozen of the various reasons which have been cited recently as being sufficient to justify emptying a pregnant uterus of its contents.

1. Very recent pregnancy.
2. General debility with loss of weight.
3. After operations upon the abdomen—for example, acute appendicitis with drainage, which has left wide-spread adhesions.
4. Because a previous pregnancy has terminated in Caesarean section, and the patient is unwilling again to submit to a major operation.
5. To prevent increasing prolapse of the pelvic viscera.
6. After plastic operation upon the pelvic floor for genital prolapse, in order to avoid repetition of the operation.
7. For eugenic reasons, because of a bad mental history in one or other of the parents, or because of the previous birth of a mentally defective child.
8. Because the potential mother has shown evidence of mental instability—for example, suicidal tendencies and so forth.
9. Because a previous pregnancy has been followed by local or general sepsis.
10. For economic reasons in women of very high fertility with families of ten or more.
11. For coexisting malignant disease.
12. Because the continuation of pregnancy might be fraught with danger to the mother, as in the case of a wife going abroad to join her husband where medical assistance was not easily obtainable.

Abortion has actually been produced by reputable members of our profession for all these indications, and I think you will agree that we must have advanced—or should I say retrogressed?—a very long way from the earlier standards. Are we right or wrong in our present attitude towards such and similar problems? It is, I fully realize, exceedingly difficult, indeed almost impossible, to lay down a set of indications for the termination of pregnancy which may become generally applicable. Even on such a matter as rapidly repeated pregnancy it is very hard to dogmatize. Some women are mentally and physically equipped to be the mothers of large families, and are never so happy and well as when so employed. To others each recurring pregnancy is one more milestone towards a possible breakdown of the vital processes, and in such cases abortion or abortion-sterilization seems on the face of it to be not only justified, but indicated.

THE ONUS OF RESPONSIBILITY

Personally I feel that it is very difficult to generalize, and probably the fit and proper person to decide in a concrete case when pregnancy should be terminated in the absence of gross organic disease is the family practitioner. He alone is in the position to assess with their true value all the arguments for and against intervention. This country is fortunate in its family practitioners, and when one is abroad and comes into contact with the state of affairs that sometimes exists one appreciates to the full what other nations miss. It will be a bad day for Britain when, if ever, we become a profession of specialists. Judging by other countries, we shall lose our sense of values, and the nation will have lost one of its most precious heritages.

One word more before I finish. Whenever abortion is to be induced I personally always insist upon the patient entering either a hospital or a reputable nursing home, and that the operation is conducted with the same publicity as any other surgical procedure. There must never be any "hole-and-corner" business about it. As I have said before, either it is right or it is wrong. Let us then, if we are agreed that it should be so, broaden our views and increase our standards; but above all let everything be "above board," and have nothing in common with the methods of the illegal abortion-monger and professional abortionist. Finally, in this as in any other medical problem, let us act upon our own convictions, and not be

"jockeyed" into a false position against our own knowledge of what is right by the purely personal views of some individuals, stimulated perhaps by the activities of a sensational Press.

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THE ROLE OF MANIPULATION IN THERAPEUTICS*

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To-day few members of the medical profession fail to appreciate the value of manipulative treatment and to realize that it can sometimes succeed where all else has proved of no avail. In spite of this recognition, many practitioners are still unaware of the occasions when the aid of manipulation should be invoked, of the conditions to which it should be applied, of the means that should be taken to discover the likelihood of benefit being derived from it, and even of what it actually involves. They will turn for authoritative guidance to the Physical Treatment Section of this Association, and in this discussion we must see that they receive it.

GENERAL CONSIDERATIONS

The first point for discussion must surely be, "What is the meaning of manipulation?" A definition should be easy, but it is not. Hitherto the physical therapist—as distinct from the electrotherapist—has had at his disposal three things:

1. Massage.
2. Passive movement.
3. Active movement { assisted
 { resisted { eccentric.
 { concentric.

Manipulation can hardly come under any of these heads. Dangerous confusion already surrounds the interpretation of the term "passive movement." Surgeons have always spoken of any movement performed for the patient as "passive," even though force has been employed to break down adhesions. The physical therapist considers this interpretation a travesty, and holds that "passive movement" is essentially one in which force has no part, and that it can only be performed when the patient's muscles are in a state of complete voluntary relaxation. The patient must offer no assistance or resistance, and the movement must be performed painlessly, otherwise reflex muscular contraction will offer opposition. Should this occur, the impediment to movement offered by the patient's muscles cannot be overcome by "passive movement." The movement becomes at once a "forced movement." Manipulation finds no place among "active movements," because muscular relaxation is essential to it, just as it is to the "passive movement" just mentioned. Therefore, as a means of opening the discussion, I would submit that a definition of "manipulation" is the act of moving a joint so that an impediment to movement is overcome and mobility is restored.

The second point for discussion arises from the first. "Is it necessary to add a fourth method of treatment to the list of those at the disposal of the physical therapist?" In other words, "Is joint manipulation an art with a special technique, and, in order to obtain proficiency in the art, is there any call for special training and study?" The answer is found in the writings of Wharton Hood, who reports that Hutton, the most famous "bonesetter" of his time, gave as the secret of his successful treatment the slogan: "The twist is the thing." The essential nature of this "twist" was only appreciated by me after years of close study, experiment, and research. The main manoeuvre in this "twist" involves, with each joint, putting it through those movements which are not under voluntary control before attempting to perform those that are under control. As far as I know, the hip-joint is the only one at which all possible movements are under voluntary control.

ILLUSTRATION OF TECHNIQUE

To establish the point, the manipulative technique of one joint may be considered in detail—for example, that of a metacarpo-phalangeal joint of the hand.

The most valuable manipulative movement is tension, whereby the joint surfaces are pulled apart. The manipulator grips the finger with what is known as "the golf-club grip" with one hand, and exerts tension with the other. (The manipulative technique for all joints of the extremities is for one hand to stabilize while the other mobilizes.) Then, with the metacarpal fixed with one hand, the base of the phalanx is moved in an antero-posterior direction on the head of the metacarpal. (A slight degree of flexion is essential.) These two movements, being free from leverage, may be performed with all the strength of which the manipulator is capable. It must then be ascertained that the lateral ligaments are free to allow the movement of the phalanx, and so each is stretched to the full extent. This lateral movement is not one of adduction and abduction, any more than the antero-posterior movement is one of flexion and extension. The aim is to press one side of the phalanx down on the head of the metacarpal, while the other is pulled away from it. Rotation of the phalanx on the metacarpal must be freed, and this is achieved by flexing the distal joints so as to form a hook. The "hook" is then grasped and rotated, first in one direction, then in the other. The two movements of freeing the lateral ligaments and of securing rotation are performed with leverage, and therefore any undue exertion of force will do incalculable harm. This is the reverse of what held good for the two previous movements.

Finally, the movements under voluntary control are reached—namely, flexion and extension, adduction and abduction. It must be remembered that the metacarpo-phalangeal joint is a sliding joint rather than a hinge joint. The base of the phalanx slides round the head of the metacarpal, with the metacarpal origin of the lateral ligament acting as centre and the ligament to the phalangeal insertion acting as radius, to describe a circle. In order to perform flexion without causing damage to any other structure the manipulator must fix the metacarpal head with one thumb and press the base of the phalanx directly forward with the other. If the phalanx is free to move at all it will glide round the head of the metacarpal, and flexion will take place.

If, for some reason, the phalanx is not free to slide round, and movement is performed as if the joint were a hinge joint, then the lateral ligament and the posterior part of the capsule are severely strained, if not even actually ruptured; and the tendons of the interossei may be torn.

All this shows the definite and complicated technique needful for the mobilization of a finger-joint. Every joint in the body calls for similar consideration, and a special technique is essential. We are, therefore, as it seems to me, justified in claiming that the art of manipulation has a special technique, and that special study and training are necessary to practise it. Also a fourth method of treatment should be added to the list of those available to the physical therapist.

* Read in opening a discussion in the Section of Physical Medicine at the Centenary Meeting of the British Medical Association, London, 1932.