A British Medical Association Lecture

ON

THE MEDICAL PROFESSION AND BIRTH CONTROL*

BY

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It is generally recognized that intentional restriction of fertility has played a large part in producing the decline in the birth rate which constitutes one of the most significant of the population problems of Western civilized communities. Thus in England and Wales the birth rate has fallen between 1876 and 1930 from 36.3 to 16.3 and, in Scotland, from 35.6 to 19.5 per 1,000 of population.

The medical profession has been criticized on the ground that in its corporate capacity it has remained outside a movement which, in addition to changing the whole social fabric of the State, has a profound bearing on the health of the people. It may, however, be represented in fairness to our calling that the history of birth control demonstrates only too clearly how from the beginning the question has been beset with difficulties that have rendered impossible the formulation of clear policies. The taboo imposed on the discussion of sex, the belief that decisions of such a kind are individual and intimate, the attitude of the Churches and, more especially, the variance of view among sociologists and economists, have all naturally militated against organized medicine being in a position to make a pronouncement on some of the most important national and propagandist aspects of the movement. It cannot be denied, moreover, that from these standpoints the issues have been gravely prejudiced and the sympathies of large sections of the community estranged by the irresponsible manner in which this propaganda on each side has too often been carried out. On the one hand, it has been urged that birth control is a sin against both the spirit and the flesh, and that, unless strenuously opposed in every shape and form, it is calculated to destroy the foundations of our civilization. On the other hand, it has been claimed that the salvation of the race—moral, physical, and economic—is to be sought for in a universal extension of voluntary birth restriction.

To the moderate-minded person it must seem that the arguments advanced by the extremists on either side have often lacked the support of adequate evidence. On many of the most important aspects of the subject it is apparent that there is urgent need for concentrated research before any sound conclusions can be formulated. Professor Julian Huxley, himself a powerful advocate of the movement, says:

"Unless birth control itself be consciously studied and regulated it may well run away with the situation and lead to a state of affairs just as difficult in its way as the opposite condition from which it has rescued us. Birth control, in fact, must be envisaged as a major sociological factor, and must be studied in relation to the world's population trends and economic changes. It is no longer either possible or right, as it was in the early days of the movement, to envisage it in isolation and to press for its extension in any and every circumstance."

On the larger issues of a moral and sociological character the profession cannot pretend to speak with authority, and it must await the verdict of those in a position to guide the community to clearness of decisions. In its corporate capacity it dare not assume the livery of any party. Until the State has succeeded in formulating a policy which is generally acceptable it would be idle to

expect the doctor to engage in the polemics of the movement or to enlist in the ranks of the active propagandists. Whilst courted by each party for its own purposes, he must inevitably, in justice to himself and the great purpose and responsibility which he subserves, remain unfettered by any such allegiances.

At the same time it may be represented that a stage has been reached when it is becoming increasingly difficult for the medical profession to maintain its attitude of passive aloofness. Largely owing to the altered status of women and the stress of economic circumstance, recent years have witnessed a marked change in the attitude of the public mind towards matters of sex, which are now discussed in the press and on the platform in a way unknown to preceding generations. One consequence of this has been the extraordinary momentum assumed by the movement for birth control within the past decade. Further, on some of the questions which vexed the issues during its early days opinion is becoming more clearly informed. Thus the Lambeth Conference of Bishops has helped to lift the subject on to a plane where it can be discussed free from the frowning disapproval of the Churches.

To the medical profession the dominating consideration, however, is the manner in which the movement is raising in increasing measure questions of profound significance for the health both of the individual and of the nation. Indeed, it may be urged with some justice that in protesting our unwillingness to assume any allegiance that might savour of partisanship we have too long refused to concern ourselves with those matters that pertain to no party but that intimately involve us as servants of the community. It is somewhat paradoxical that, whilst remaining aloof from the overt concerns of birth control and the responsibilities that these imply, the profession at the same time has found the practice of intentional birth restriction necessary for its own economic welfare. It may be represented, with some show of reason, that the contradiction thus expressed between its public and its private practice may endanger those loyalties which it cherishes most.

There may be some among us to whom the discussion of sex and contraception is so repellent that they would resist to the utmost the pressure of circumstances that are increasingly drawing the profession into the public arena. There may be some who strenuously oppose the movement because in it they find principles subversive of those ideals which in their view should actuate the life both of the individual and of the State. On the other hand there is now a large and growing body of medical opinion that such an undeviating opposition to intentional birth restriction under every shape and form is in the interests neither of the profession nor of the State. At the outset it has to be admitted by all that it is natural that those large sections of the community which adopt practices that depend for their success and their safety upon principles founded in anatomy and physiology should look to the profession with expert knowledge on these matters to guide them aright. It is clear that on this issue the profession is called upon to declare itself, and it is a matter for earnest thought how far it is justified in withholding its service from an ever-increasing body of Christian people who seek these services in all sincerity. Further, in so far as it is frequently compelled to prohibit pregnancy in the interests of the life and health of women suffering from disease, the profession is called upon to identify itself in an active manner with the principles of birth control.

If we are to envisage the responsibilities of the medical profession in their true perspective we have at the outset to recognize that in birth control we are faced with a public health problem of considerable magnitude,

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embracing within its scope three circumstances gravely significant for the welfare of the State. There is, in the first place, the extent to which the community in its efforts at birth restriction, has adopted practices which are detrimental to the health of the nation. In the second place, there is the profoundly important question as to how far a solution to the increasing menace of abortion can be approached through the medium of an enlightened birth control. Thirdly, there falls to be considered the question as to how far by virtue of the selective propagation implied in a rational birth control the community can protect the health of its mothers and improve the physical condition of its members generally.

It has, in some quarters, been urged that, except in the presence of authentic medical indications, the practice of birth control cannot rightly be regarded as coming within the sphere of the doctor. Such an attitude obviously fails to recognize that all matters which involve the health of the individual or the community must necessarily be the doctor's concern. At the other extreme there are those who see, in the danger to health implied in many of the methods of birth control, one reason for urging on the profession an attitude of uncompromising opposition to the whole movement. It is natural that this argument should find favour among those who base their antagonism on general grounds, and that it should constitute part of the stock of their propaganda. Such a role as that herein prescribed for the profession can receive its sanction only after it is demonstrated that a determined effort to eradicate the system root and branch is the most effective way of dealing with the national menace which is implied in the practices of birth control.

To a profession the measure of whose service is determined largely by the degree in which it maintains its sense of realism it is imperative that this question should be faced freely and frankly. It is a matter of common knowledge that birth control is employed by all classes in an increasing degree; it has come to be assumed by the people as their inalienable right to add to their families by choice and not by chance when the circumstances so demand it; the sanction of the "Churches" is there to bless it in varying measure, and the profession of medicine itself has adopted it as an important element of its economic creed. It is true that no one of these circumstances is of itself a justification of the principles of birth control; nevertheless, by emphasizing the extent to which the practice has become corporate in the life of the people they demonstrate that the time has come for the profession to reflect carefully whether in its duty to the individual and its larger duty to the State it dare refuse to take an active part in guiding a movement which, in its extent and the rapidity of its growth, is exerting, and is destined in increasing measure to exert, a profound influence on the nation's health.

HYGIENE OF BIRTH CONTROL

Under this heading reference must be made to *abstinence* as a means of birth control where restriction of the family is desired or is found necessary. While there are exceptional instances in which the contracting parties may pursue this course with success and safety it is a method which cannot, in general, be commended as either practicable or harmless. As Lord Dawson¹ says:

"The attempts at abstinence, the struggle between physical needs and conscience, produce conflicts damaging to mind and body, and if the attempts fail, as they assuredly do, the mind is left distressed."

One of the most potent of the arguments for the active participation of the profession is the discovery on the threshold of the subject that in an effort to solve its own problem with inadequate guidance the community has had recourse to procedures which are of harm both

to body and to mind. This is more particularly true of *coitus interruptus*, the method most commonly employed by those who are uninstructed. The officer of a large clinic has assured me that this has been the previous practice in about 90 per cent. of the cases coming to seek advice. The reason prompting them to visit the clinic is often their discovery of its ineffectiveness. At another clinic it was computed that the reliability of coitus interruptus was no higher than 66 per cent. It is, of course, impossible to assess the extent of the psychical and physical damage induced throughout the community by such practices, but we may be certain that it is considerable. There can be no doubt that the imparting to such people of a knowledge of procedures which can be carried out with safety is a hygienic service of great value.

Passing to the consideration of *contraceptives* we have to note that harm to the genital canal can be produced by such methods, and we have seen infective lesions in which there was clear evidence of such a causal agent. Moreover, it cannot be gainsaid that many of the minor inflammatory diseases of indeterminate aetiology which are common, especially in married women, may be induced in this way. On this subject there is urgent room for further study before we can pretend to speak with authority. The widespread commercial enterprise subsidized by birth control and the innumerable methods and materials placed upon the market witness to the extent and potency for evil of much that parades under its guise. It is true that we cannot, in the absence of an adequate analysis, speak regarding the safety of any individual method. Indeed, we are in the position of having allowed a gigantic and wealthy system, possessing much of danger to the national health, to grow up before our eyes almost entirely unheeded.

Herein lies a responsibility which the medical profession cannot escape, for it is clear that no method can be adjudged to be safe until it has been subjected to the scrutiny of skilled observation. It is true that within recent years the work of the National Birth Control Association and the investigations of individual observers are beginning to throw light on these matters and to indicate lines for future study both in the laboratory and in the clinic. One consequence of these preliminary studies has been the demonstration of the extent of our ignorance regarding both the safety and the efficiency of methods that have been in common use. At the same time it has provided us with a considerable body of evidence which goes to prove that there exist at our hand procedures which, if employed with care and in accordance with definitely prescribed rules, can be recommended as safe and in a reasonable degree as effective.

Much of this information we owe to the activities of the birth control clinics which, since the war, have been established in various centres throughout the country, and which adopt as their more or less general routine the employment of the Mensinga pessary or so-called "Dutch cap" in conjunction with a lubricating ointment and vaginal douching. The evidence, now of an extensive character, which has been gathered by such clinics is in keeping with the view that, when carefully employed and supervised, contraceptive measures can be used over long periods without inducing physical harm. Further, we cannot ignore the fact, which is emphasized by all workers in birth control clinics, that the preliminary examination invariably carried out on the women by an experienced observer not infrequently reveals the existence of disease that would otherwise escape notice.

An objection which has been urged against such mechanical and chemical methods is that they tend to produce permanent damage of the genital organs with the destruction of fertility, a circumstance of considerable moment in the case of that large class who adopt control for the spacing of their family or for other reasons of a temporary character. In this connexion the Walworth Clinic reports that out of a series of ninety-seven women who deliberately ceased to practise contraception ninety-six became pregnant, and that a similar fate overtook 158 women who had, on one occasion only, neglected to use the appliances (Dutch cap mainly).²

BIRTH CONTROL AND ABORTION

A further argument of supreme importance in the possession of advocates of a wider diffusion of knowledge on birth control is that the prevention of unwanted pregnancies would necessarily reduce the number of criminal abortions. It is matter of common knowledge that the domestic measures—purgation, toxic pills, douching, etc.—by which women so often attempt to interrupt an undesired pregnancy frequently fail in their action, and that this is on many occasions followed by recourse to abortionists. Apart from the large sacrifice of foetal life involved, abortion is a considerable cause of maternal mortality. The monthly Epidemiological Report of the League of Nations (July, 1930) states that, for Europe generally, abortion causes more maternal deaths than full-time childbirth, the main cause of fatality being sepsis. It is true that the problem is much more acute in some Continental countries, for example, Germany, than in this country. The report of the Maternal Mortality Committee recently published gives abortion as the cause of 13.4 per cent. of the total deaths in England and Wales directly due to child-bearing, and the Registrar-General's figures show a rise of 21 per cent. in deaths from abortion during two years.

It is thus evident that the problem of abortion is a very grave one in modern communities, and it must always be remembered that, in addition to the death rate, there is a large amount of chronic invalidity directly springing from it. In a consideration of the practical means of dealing with such a widespread menace we must at the outset recognize that punitive enactments are largely powerless to deal with women who in their time of trial are willing to take the comparatively small risk of discovery which is entailed, and who, moreover, often base their actions upon a deep conviction that in such personal and intimate decisions they are justified in following the dictates of their own conscience. The only two suggestions so far made to deal with the problem which exhibit a realistic grasp of the facts are, in the first place, legalization of abortion under controlled conditions for other than medical reasons, by which it is hoped that the dangers to life and health would be largely removed, and, in the second place, the diffusion of a knowledge of birth control. The former alternative has supporters in this and other countries, and its merits were the subject of an address recently delivered to the Edinburgh Obstetrical Society by Professor Sydney Smith.³ It is well known that it is now the State policy of Russia, where it is claimed that the regularization of the procedure and its entrustment to skilled persons has eliminated the associated risks. Without prejudice to a decision on the ultimate merits of such legalized abortion, there can, I think, be no doubt that, of the two alternative procedures, the prevention of unwanted pregnancies by means of a rational birth control is much to be preferred, alike on medical as on general grounds. At the same time it must be noted that in any community the measure in which birth control is adopted has no necessary bearing on the relative frequency of abortion. It is generally recognized that in Holland intentional birth restriction is practised more generally than in England and Wales, and yet a comparison of the records of the two countries demonstrates that, during the five-year period 1925-9, the average maternal mortality from abortion (excluding sepsis) in the former has been nearly twice as great as that in the latter country (22 against 12 per 100,000 live births).⁴

BIRTH CONTROL FOR SOCIAL AND ECONOMIC REASONS

We are here concerned with the whole movement of birth control as this is popularly understood—that is, the practice of married people who design to restrict or space their family on grounds which may have regard to the interests of the children themselves, such as economic stringency and limitation of the resources available for their housing, feeding, and education, or on grounds which refer more particularly to their own convenience or needs and in which the motives may be worthy or the reverse. It is true that in an assessment

of the total circumstances that determine recourse to family limitation there may often be implicit a desire to safeguard the health of its members, but as a rule this consideration does not come within the scope of the medical indications to which we have already referred and which will be more fully discussed in a subsequent section of this paper.

As we have seen, it has been represented in some quarters that the medical man in the performance of his legitimate functions can have no dealings with this aspect of birth control in so far as it draws its impulse from factors which are outside his sphere. Whilst it is true that the doctor cannot be an arbiter except on matters pertaining directly to his own special function, it is equally true that so soon as a married couple decide upon the adoption of family restriction they create a problem in personal and community hygiene.

In some measure the medical profession can help towards a solution of this problem by its emphatic condemnation of practices which are both dangerous to health and unreliable in their results, and by making available a knowledge on procedures which can be recommended. This responsibility of the profession we have already discussed. It has become such a heavy charge on our calling that we dare not refuse to shoulder it. It is true that we may be criticized in so far as we thereby lend our sanction to procedures that may be exploited for unworthy ends, but this is an argument which, as we know, can, both within and without the field of medicine, be applied to many scientific discoveries without robbing them of their value to the community as a whole. It is without question that the active participation of the profession would result in the elimination of much of the menace of existing practices.

The extent to which the doctor can be expected to exercise personal supervision in such cases has been the subject of much discussion. There are those who believe that the doctor should not be expected to give such personal advice where the reason for restriction is other than medical. There are others who contend that, whilst the doctor cannot be expected to engage himself in matters of family economy which are outside his sphere, once married people have satisfied themselves of the need or desirability of birth control the matter becomes a medical question involving medical responsibility.

It has sometimes been suggested that to escape the risk that the advice given may be utilized for unworthy purposes the doctor should offer his services only after a satisfactory analysis of the social and economic considerations has been made. It is obvious that the family doctor must often be consulted in regard to such decisions when the reasons for restriction, such as excessive size of the family, poverty, poor housing, and so forth, may be sufficiently clear. On the other hand, to insist on the principle that the doctor must invariably make a scrutiny of such factors before consenting to make his services available is neither practicable nor desirable, because it implies his attempting to assess circumstances which may not, and usually cannot, be fully within his knowledge, and it involves him in decisions which are no part of his function as a medical practitioner.

One of the most significant developments of the birth control movement within recent years is to be found in the establishment of birth control clinics in the poorer quarters of our large towns. They owe their inception to a desire to extend to the lower social grades opportunities for family control which are enjoyed by those more fortunately situated and to whom such advantages are more readily accessible. The clinic embodies the hope that by such means a social instrument is created for the alleviation of the misery and ill-health and degradation that attend on the overcrowding and the poverty of the slum dwellers. The system constitutes a social experiment of much interest and value, and it comprises centres of great importance for a study of the problems inherent in birth control and for the instruction of students and doctors in its procedures. Already they have proved their great service in several of these directions.

The clinics are, for the most part, staffed by women doctors, who are considered to be more suitable than men for this class of work. Advice is restricted to married women, and before the treatment is begun an investigation of the pelvic organs is carried out for the purpose of detecting any disease which may require attention. When such is present the patient is referred to the proper quarter so that it can be dealt with. The women are expected to contribute a small charge for the appliances, but necessitous cases receive them free. After receiving instruction in the proper employment of the appliance the woman is directed to return to the clinic at intervals for purposes of supervision. The centres affiliated with the Society for the Provision of Birth Control Clinics have altogether given advice to over 30,000 women during a period of ten years (1921-31). There are sixteen such centres, and the majority have been established since 1925. The Walworth Clinic in the East End of London, founded in 1921, during ten years has alone given advice to 14,527 women.

There can be no doubt that this organization, through the clinics which it has established in the poor quarters of our large industrial towns, and which are steadily increasing in numbers, is exercising an influence that must be profound. There can, further, be no doubt that in individual cases the clinics perform a beneficent social service, and by leading to a limitation in families where the size is already in excess of the means of livelihood or of the accommodation available, they are contributing in a material way towards the amelioration of an acute social problem.

It is idle to deny that the diffusion of a knowledge of birth control throughout the community, and especially the making of it available to the lower social strata, is bound to exert an important influence on the physical state of the nation. There is, for example, convincing evidence that the larger average size of the families of the lower social orders is an important cause of the relatively high infantile mortality of this class, and hence it arises that the inculcation of birth control has been advised as a rational measure for dealing with this problem. Further, there is some evidence that the bearing of a large number of children is in general associated with increased risk to the life of the mother.⁵ There is, of course, overwhelming evidence that a woman suffering from certain classes of disease is exposed to a relatively high risk from frequent child-bearing.

It has been frequently represented that the large size of the families of the slum dwellers and the overcrowding and poverty and disease that spring from this cause are matters that can be dealt with adequately only by general measures of social reform directed to the improvement of the housing and the economic status of the people. It has, indeed, even been urged that birth control is undesirable, in that its tendency is to palliate and thus to obscure the gravity of the underlying causal factors.

It is no function of this communication to attempt to do more than present for the notice of the reader the problems in general hygiene involved in the principles and practice of birth control. On the ultimate economic and sociological implications of these principles and their practice it cannot pretend to judge; on such matters the decision must be left to the collective wisdom of the community. Meanwhile, as bearing on the problems under consideration, we may, however, direct attention to the experience of Holland, where, as is well known, birth control has for many years been widely practised by all social orders. The infantile mortality rate of that country is one of the lowest in Europe (51 per 1,000 as compared with 60 per 1,000 for England and Wales for 1930), whilst the high standards governing maternity as revealed in the low maternal death rate of that country received favourable notice in the recently published report of the Committee on Maternal Mortality and Morbidity of the Ministry of Health. Side by side with these figures it is instructive to note that the general death rate of Holland is the lowest (9.1 per 1,000 as compared with 11.4 per 1,000 for England and Wales for the year 1930), whilst the birth rate is one of the highest in Europe (23

for 1930 as compared with 16.3 for England and Wales). It has been stated that this relatively high birth rate is associated with, and is to some extent dependent upon, a greater uniformity in the size of families in different social grades than obtains in this country. As an evidence of the relatively sound environment in which the children of Holland are reared it is significant to find that the average stature of the army recruits coming up for measurement at the age of 18 has been matter for favourable comment.

How far these relatively advantageous experiences of Holland in regard to health are to be considered as in part deriving their source from the wide diffusion of the principles of birth control which is known to obtain in that country it is impossible to affirm with any degree of certainty. Meanwhile, however, they at least furnish for the medical sociologist reassuring evidence that the wide adoption of birth control in a community can coexist with a relatively high standard of racial vigour and health.

MEDICAL INDICATIONS FOR BIRTH CONTROL

Under this heading we have to bring under review circumstances in which the duty of the medical profession can be defined with comparative ease, for it is recognized that where, on account of such conditions as heart or kidney disease, tuberculosis, etc., pregnancy would prejudice life, the medical attendant must represent to the patient the need for the avoidance of the pregnant state.

It is commonly stated in birth control literature that this class of case—that, namely, in which there is an urgent medical contraindication to pregnancy—presents the medical argument for contraception in its clearest form. Before subscribing to this view it is, however, important that we pause to consider one fact that is commonly neglected. This is that in many such medical cases it is fundamental that *the risk of future pregnancy must be completely guarded against*. Those of us who have the experience obtained in a large obstetric hospital know that there are many women in whom a subsequent pregnancy would spell disaster. The large majority of these patients consist of women with severe cardiac and renal disease. Now it is quite clearly established from the statistical studies of the birth control clinics that ordinary contraceptive methods, even when carried out according to the regime prescribed, are liable to failure in a ratio varying from 5 to 9 per cent.⁶ Further, it is found that a very large number of the women—varying in different clinics from 40 to 90 per cent.—cease to attend the clinics and thus discard the supervisory control necessary for securing the efficiency of the treatment. For these reasons it is obvious that even in organized birth control we do not yet possess the machinery which is capable of ensuring that complete protection which is absolutely necessary in urgent medical cases, and we may surmise that private birth control instruction given outside the aegis of the clinic is not calculated on the average to provide a sufficient margin of safety.

For these reasons it must be clearly recognized that for the class of case which we are at present considering birth control as ordinarily understood is unacceptable. Until we possess—and it is possible that through future research we may ultimately possess—a fool-proof contraceptive, *the only satisfactory means of dealing with this grave medical problem is by sterilization*. This is not the place for a full discussion of this subject. It is sufficient to state that in many such patients where the medical urgency demands delivery by Caesarean section or abdominal emptying of the uterus during the early months the sterilization is performed by resection of the Fallopian tubes. The advantage of such a procedure is that it maintains the ovarian and menstrual functions. In other cases it is our practice to refer the patient to the radiologist for the exposure of the ovaries to the sterilizing action of x rays.

There are, it is true, many cases in which the general condition of the patient is hardly of such gravity as to warrant the enforcement of sterilization but where, nevertheless, the avoidance of pregnancy is desirable. Into this category fall those numerous cases in which

frequent pregnancies have begun to undermine the system, the cases, namely, in which experience has taught us that any subsequent gestation may aggravate the danger to the woman's constitution and render her an ailing mother ill equipped for her manifold duties. For all such cases, as for those with grave medical disease in whom sterilization is refused or is unprocurable, birth control should be recommended on the understanding that in the event of pregnancy occurring it may require to be terminated prematurely if the health of the mother renders this necessary.

Within recent years the Ministry of Health has acknowledged its responsibility towards women in attendance at maternity and welfare clinics who require such advice, and in 1930 it empowered local authorities to make provision for contraceptive information being given to married women for whom future pregnancy would be detrimental to health. A large number of authorities have availed themselves of this power, and have arranged for the instruction to be given at special sessions held at the maternity and child welfare centres, by contract with a neighbouring voluntary clinic, or in some other way. There are obvious advantages in linking up the birth control service with the maternity and welfare centres. In that this service is essentially preventive it comes naturally within the functions of the centre, and it is convenient both for the woman and her advisers that she should receive this class of treatment at a place where she is known and where her medical state has already been under observation. At the same time it is important that the instruction should be given by an officer who is specially trained and who attends at the

centre at a session convened for the purpose. A further matter of considerable moment, and this applies to all classes of birth control clinic, is that there should be, as an integral part of the service, an arrangement by which women suffering from serious disease which renders pregnancy dangerous can be referred for sterilization to a neighbouring hospital or some other suitable agency.

CONCLUSIONS

1. The birth control movement is creating important problems in public health which demand the urgent participation and guidance of the medical profession.

2. Whilst the duty of the doctor is clear in regard to women suffering from disease which renders pregnancy dangerous, the profession cannot evade the important responsibilities in public health implied in birth control employed for social and economic reasons.

3. There is need for the teaching of medical students and doctors in the methods of birth control.

4. On the medical problems inherent in the movement there is urgent need for further research.

REFERENCES

- ¹ Dawson, Lord: *Ethics of Birth Control*, Macmillan and Co., London, 1925, p. 47.
- ² *Birth Control and Public Health*, Society for the Provision of Birth Control Clinics, London, 1932, p. 19.
- ³ Smith, Sydney: *Trans. Edin. Obstet. Soc.*, Session XCI, 1931-2, p. 109 (*Edin. Med. Journ.*, September, 1932).
- ⁴ Final Report of the Departmental Committee on Maternal Mortality and Morbidity, p. 63.
- ⁵ McKinlay, Peter L.: *Journ. of Hyg.*, 1929, xxix, No. 2, 161.
- ⁶ International Medical Group for Investigation of Contraception, 26, Eccleston Street, London, 1931.

PREVENTION OF MEASLES BY CONVALESCENT SERUM*

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During the winter of 1931-2, when there was an epidemic of measles in Glasgow, I undertook an investigation into the effect of administering convalescent serum to measles contacts in hospital wards and children's institutions. The prevention of measles by serum is an important subject, but one which presents considerable administrative difficulties in its general application. Though the reports of the results of serum injections are promising, the exact manner in which the limited amount of serum available should be used to obtain the maximum effect forms a distinct problem. What can be accomplished with convalescent serum? What are its keeping properties? What doses would be most useful during epidemic periods? These are the main points which should be determined.

For the purposes of this investigation the following material was available, obtained from adult convalescent patients:

Number of donors ...	54	
Amount of blood ...	5,108 c.cm.	Average 94.6 c.cm.
Amount of serum ...	2,960 c.cm.	Average 54.8 c.cm.
Number of doses (5 c.cm.)...	584	Average 10.8

Donors did not become available until November, when the epidemic was well advanced. The serum was collected under aseptic precautions on the seventh to tenth day of normal temperature, and, after the addition of a small amount of trikresol, was stored in an ice-chest. The dose adopted as a standard was 5 c.cm. injected intramuscularly. Temperatures were taken four-hourly from the eighth day of exposure, and the observation period extended till the twenty-third day of exposure, a length of time likely to exclude a normal attack, but in a few cases insufficient to allow for an attenuated attack. In

most of the cases, however, this time was quite sufficient to give returns of service. Most of the factors governing the result of injection, such as type of attack of donor, age of serum, day of exposure, etc., were noted, but the evaluation of each is difficult since, even when all other factors are exactly similar, varying results tend to occur. Despite these variations, however, there are some interesting facts to be noted.

DEFINITIONS

The results were classified into (a) complete protection, (b) attenuated attack, (c) mild, and (d) normal attacks. "Attenuated" attacks showed no Koplik's spots and no fever (except perhaps a transient rise of temperature on four-hourly readings, with little or no catarrhal symptoms). The rash was more like discrete pin-points, more papular than, and certainly never typical of, a measles exanthem. It appeared on the face, occasionally including the body, and seldom the limbs. A "mild" attack was a little more definite than an attenuated one, but less so than a normal attack, there being some cough generally and somewhat more fever, with eye suffusion, etc. The "normal" case had the classical signs and symptoms. These three types were further subdivided as regards the case from which the patient was presumably infected. "Primary" cases were those which developed infection after the original exposure; "secondary," those after one of these primaries or a coincident control; and "tertiary" cases, those which developed measles from a totally different source, perhaps weeks later.

THE INQUIRY REPORTED

The scope of this investigation comprises fifty instances of exposure, involving 345 patients. One group of eighty-nine in a mental home has been excluded owing to the possibility of error in the history of previous attack, but the other forty-nine groups can be considered, as far as possible, free of error in this respect, as great care was taken in extracting histories. For instance, there were only eleven that were given serum who had had a previous attack of measles—cases mostly about whom information was not available at the time of injection. Again, out

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