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UNITED STATES OF AMERICA



THE ABORTION PROBLEM

PROCEEDINGS OF THE CONFERENCE
HELD UNDER THE AUSPICES
OF THE
NATIONAL COMMITTEE ON MATERNAL HEALTH, INC.
AT THE
NEW YORK ACADEMY OF MEDICINE
June 19th and 20th, 1942



HOWARD C. TAYLOR, JR., M.D.
Conference Chairman

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1942

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INTRODUCTION

A few words need to be said in introduction about the purpose of a conference on Abortion. Some facts about the sponsoring organization must also be given so that the relation of this conference to the work which has gone before it may be understood.

The National Committee on Maternal Health is an organization with more than twenty years' experience. It was founded in 1923 in New York City by a group of progressive physicians who felt that medicine should play a larger part in studying the general field of sex and reproduction than it had been doing up to that date. In its early years the chief efforts of the Committee were directed to the collection and publication of what was then known about those aspects of human reproduction which had social as well as medical implications. During the next few years a number of books were published including "Control of Conception" by Robert L. Dickinson, works on marriage problems and on sterility, and recently a book on abortion by Frederick J. Taussig.

As the work of compilation proceeded it became more and more evident that the existing knowledge on these subjects was very incomplete and that the efforts of the Committee must be extended into the field of research. As a result research projects on the physiology of the reproductive process have been widely sponsored. Pioneer work, supported by the Committee, has been undertaken on the physiology of the ovary, with particular regard to ovulation and the time of this event in relation to other occurrences of the menstrual cycle. Studies have been made on sperm morphology and on the chemistry of the spermatid fluid. The Committee has also shared in the great advances of the last ten years in the knowledge of the sex hormones which control to such an extent the working of the reproductive process. The sponsorship of such purely physiologic subjects has been relatively simple, because their investigation fits well in the work of university departments of physiology, anatomy, gynecology and obstetrics.

Although not directly concerned with education in birth control, research has been undertaken on several aspects of contraception including a study of various technical procedures, the physiology of the safe period and the effects of birth control on individuals and communities.

The Committee has constantly held to the belief, however, that our work must not stop with these physiologic problems. Indeed it was felt that we had a special obligation to explore the neglected area which lies somewhere

between medicine and sociology. In this direction there has been a continuing interest in marriage problems, although the hopes of setting up a scientific marriage consultation clinic have not yet been realized.

Abortion is clearly a logical part of any program concerned with the social and medical aspects of reproduction. The problem of abortion separates itself naturally into two divisions which are quite dissimilar. The first concerns spontaneous abortion, in which the chief emphasis must be placed on physiological factors, where investigations can be fitted easily into established research programs of medical schools. The second aspect, that of induced abortion, is much more difficult. Here medicine certainly cannot carry on the work alone, but must have the support of people in many outside fields. In fact, it is possible that the brunt of the attack on induced abortion must be borne by workers other than physicians.

Attempts to solve the problem of illegally induced abortion present to date a record of failures. First of all, the medical profession has notably failed, for although the performing of abortions has been forbidden to physicians since the time of Hippocrates, nevertheless the abortionist is drawn principally from the ranks of this profession. The State has done little better for in spite of the fact that penalty has been piled upon penalty, abortion is a crime perhaps more frequently committed now than ever before. Finally, one may question whether the Church has had much more success in preventing this practice among its adherents. This conference has been called in the hope that suggestions may be made either for investigation of the problem or of actual measures for abortion control.

The program has been arranged to give a logical development of the subject. The first session is devoted to an evaluation of the problem in respect to the number of abortions, the loss of fetal life, the deaths of mothers and the damage to the individual which results from abortion. The second session is largely concerned with the physiological aspects of spontaneous abortion.

The third session is devoted to a consideration of the social and psychological factors which lead to abortion, and by implication, the factors which need to be regulated to control it. The final session, perhaps the most practical, is directed toward the possibilities of the prevention of abortion by legal measures, by public health efforts or by the economic support of the woman who finds herself in the position of weighing an induced abortion for financial reasons.

HOWARD C. TAYLOR, JR., M.D.

The Proceedings of the Conference on Abortion Problems sponsored by the National Committee on Maternal Health are presented in this volume. The Conference was held in New York City on June 19 and 20, 1942.

Three papers which were delivered at the Conference are not included in this publication. Contributions by Dr. F. Bayard Carter, Professor of Obstetrics and Gynecology, Duke University, and by Dr. John Cooper, Department of Sociology, Catholic University of America are omitted by the request of the authors.

The report of Dr. A. A. Brill, New York City, was withdrawn to obtain earlier publication. (Medical Record, vol. 156, July, 1943.)

The passage of over two years between the conference and the publication of its proceedings can in no small part be attributed to the war and the extra responsibilities laid upon many of the participants. The final editorial work was accomplished during the summer of 1944 through the special efforts of Dr. Earl T. Engle.

Howard C. Taylor, Jr.

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THE MAGNITUDE OF THE ABORTION PROBLEM

FIRST SESSION: FRIDAY MORNING

June 19, 1942

The Conference on Abortion Problems sponsored by the National Committee on Maternal Health, Inc., held at the New York Academy of Medicine, New York City, on June 19, 1942, convened at 9:50 A.M., Howard C. Taylor, Jr., Chairman, presiding.

CHAPTER I

FREQUENCY OF ABORTION

ITS EFFECT ON MATERNAL MORTALITY RATES*

HALBERT L. DUNN, M.D.

Chief Statistician for Vital Statistics, Bureau of the Census

For obvious reasons, completely reliable national figures on the frequency of abortion or the frequency of deaths from abortion have not been available. All of the studies relating to the frequency of abortion are extremely limited in scope, usually analyses of data obtained in hospitals or clinics located in large cities.

A few attempts have been made to estimate the number of abortions occurring each year in the United States. Notable among these is the estimate made by Taussig (1) of 600,000–700,000 abortions per annum. Rongy's (2) estimate of 1,250,000 abortions per year is considerably higher, but no details are given as to how this figure was obtained.

Despite the fact that mortality data have been available on a national scale since 1933, accurate national figures relating to the frequency of deaths from abortion are lacking. Bolt (3) estimates that 5 to 10 per cent of the puerperal causes are reported as some other nonpuerperal cause of death. A Committee (4) of the New York Academy of Medicine found in their study of maternal deaths in New York City in 1930–32 that in 15.9 per cent of their cases there was either careless or deliberate omission of any mention of the

* The presentation by Dr. Halbert L. Dunn has been published separately in *Vital Statistics—Special Reports*, Vol. 15, No. 39, page 431 (July 30, 1942) and reprints are available from the Bureau of the Census, Washington, D.C.

actual cause of death. In these cases, terms such as "cardiac failure," "shock," "ileus," "bronchopneumonia," were frequently mentioned as the cause of death, where puerperal septicemia was in fact the true cause. It is apparent that the illegal nature of nontherapeutic induced abortions makes it virtually impossible to secure accurate reporting.

Another source of error was pointed out by the study of the Committee of the New York Academy of Medicine. Of the 357 deaths from abortions, in 33, or 9.2 per cent, there was a failure to record the period of gestation, which caused the deaths to be registered as of "over 28 weeks" of gestation. Further investigation showed these cases to be of shorter duration. This type of error is probably common in mortality statistics because of the state-to-state differences in the definition of abortion. Unfortunately, the whole question of definition appears to be rather vague. This is not wholly the fault of the states, since it was not until 1938 that abortion was specifically defined in The International List of Causes of Death. The definition now reads, "... abortion (miscarriage) is . . . the termination of a uterine pregnancy prior to 7 lunar months (28 weeks) of gestation (whether the child was born dead or alive)."

In a survey made in 1937 of definitions adopted by the states, it was found that some states do not specify whether the period of gestation is to be on a lunar or calendar month basis. In some of the others, there appears to be one period of gestation for miscarriage and another for abortion. Of the 21 states that gave a definite period of gestation (see fig. 1), only 6 stated a period of 7 months. Most of the others gave a shorter duration, usually 5 months. Two states defined miscarriage as being for a period of gestation between 4 and 6 months and one state defined it as between $2\frac{1}{2}$ and $5\frac{1}{2}$ months.

This situation, depending upon the reporting habits of the physicians, makes it exceedingly difficult to obtain comparable or complete figures. According to the legal definition of many states, it would be perfectly permissible for the physician to register deaths from abortions (based on the 28 week provision) as having resulted from premature labor, or possibly from delivery of a dead foetus (stillbirth).

One other factor contributing to the "lowness" of the number of deaths from abortions in mortality statistics is the method of assigning the primary cause of death when more than one cause of death is specified on the death certificate. Before the 1938 revision of The International List, death from abortion did not appear as the primary cause in a significant proportion of cases, because of the arbitrary rules for determining the cause of death. However, because of the revision in 1938, abortion is now preferred over most

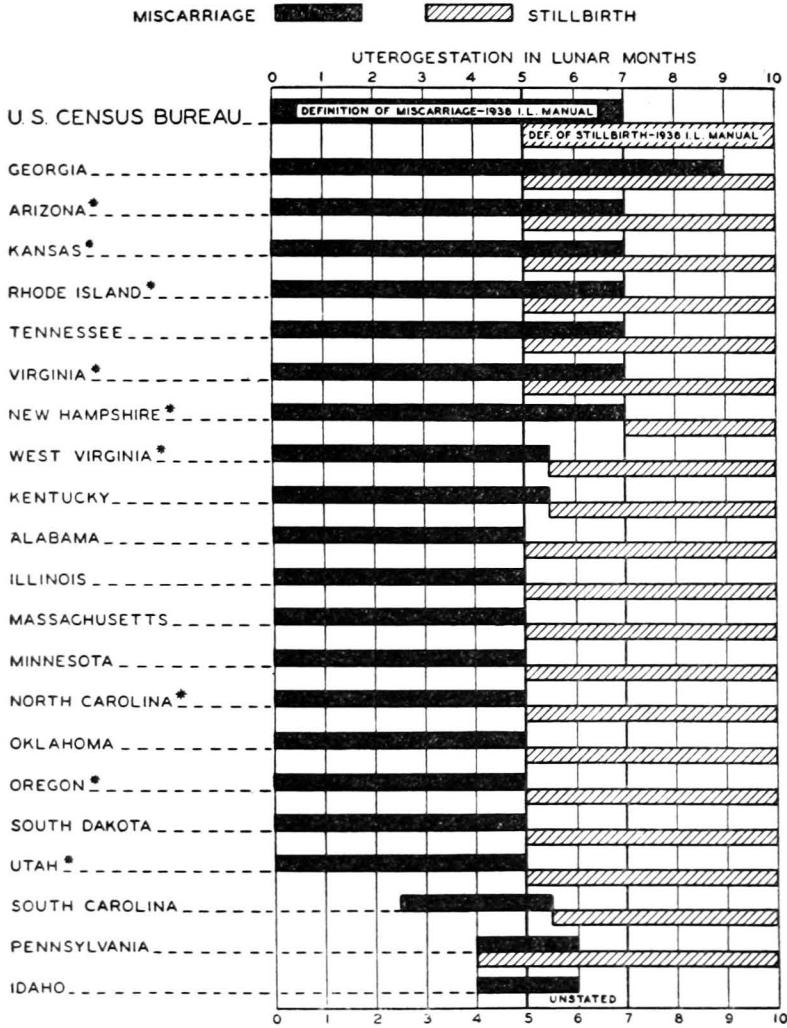


FIG. 1. COMPARISON OF STATE AND CENSUS DEFINITIONS OF MISCARRIAGE AND STILLBIRTH IN TERMS OF UTEROGESTATION

Based upon data in questionnaire replies from 34 state registrars and from annual reports of 3 other states

Replies tabulated in 1937 by L. V. Phelps, State Registrar of Alabama

*Period of uterogestation in stillbirth not stated in 1937 questionnaire. Source: Children's Bureau Publication, "Instructions for editing, coding, and tabulating certain data on stillbirths," August 1941.

of the other terms as the primary cause, and a relatively small number of cases (133 in 1940) are lost from the tabulations.

Mortality data are admittedly incomplete for the study of deaths from abortions; but since 1938, vital statistics for this cause of death give a better approximation of the problem than in former years. According to the mortality statistics for 1940, there were 1,682 deaths in the United States to which abortion was assigned as the primary cause. Also, there were 133 deaths reported with abortion as a secondary cause. The causes of death classified as primary, with abortion secondary, are given in tables 1 A and 1 B for 1940 and 1936. In other words, there were 1,815 deaths assignable to abortion in 1940, and this constituted about 20 per cent of the deaths from all puerperal causes. This latter figure may be compared with the results of the Children's Bureau study (5) of maternal mortality in 15 states. This survey, which involved interviews with the attendant at the death of all registered as dying for puerperal causes in the 15 states, showed that 25 per cent of all deaths from puerperal causes were due to abortion. (Criminal abortions specified as such were not counted as "maternal mortality," but induced abortions that were possibly criminal abortion cases were included.)

A flat statement to the effect that there were 1,815 deaths attributable to abortions in 1940 in the United States and that these deaths constituted about 20 per cent of all maternal deaths is probably not justified. However, as the first approach to a more accurate determination of the number of deaths from abortions occurring in the United States, these figures might be compared with the estimates obtained by other methods.

Taussig (6) has proposed the use of three constants obtained from other studies for the estimation of the number of abortion deaths. These are: (a) 1 abortion to every 2.5 confinements in the urban areas, (b) 1 abortion to every 5 confinements in the rural areas, and (c) 1.2 per cent of all abortions result in maternal death. Employing these constants, the frequency of abortions in 1940 may be calculated to be 734,000, of which 8,800 terminated in death. This estimate of the number of deaths from abortions is considerably higher than the 1,815 deaths obtained from mortality data. As a matter of fact, the estimated number of abortion deaths approximates the number of reported deaths from all puerperal causes, which was 8,876 in 1940.

The large discrepancy between the estimated and registered number of abortion deaths indicates that the constants used are too high or the registration very incomplete, or both. Yerushalmy's (7) study of maternal deaths in New York State suggests the former. It therefore seems desirable to make a review of the constants used in the estimate.

As representing conditions in the urban areas of the United States, Taussig selected the results of Kopp's experience with 10,000 patients visiting the clinic for contraceptive advice in New York. It seems fairly apparent that the ratio of abortions to confinements found in such a selected population would be higher than would be the case for the general urban population of the entire United States.

Other surveys and studies of pregnancy histories of hospital patients, and patients visiting clinics for contraceptive advice, generally show much lower proportions of abortions to confinements than that for Kopp's series. Table 2 presents a summary of the results of some of these studies expressed in equivalent terms of total confinements. In only one instance have the results of the various studies indicated a proportion as high as Kopp's "1 abortion to 2.5 confinements." It may be seen that the average ratio for the large cities is more in the order of 1 abortion to every 6 confinements. Incidentally, it is important to note that most of these studies refer to the white population visiting hospitals or clinics in the larger cities of the United States. Also, data from birth control clinics are apt to be biased, since the patients are interested in family-size limitations.

As an index of rural experience, Taussig used the results of Plass, who obtained estimates from 81 physicians practicing in the rural districts of Iowa. This canvass of opinion showed an average estimate of about 1 abortion to every 5 confinements. The results of this type of study are probably not so reliable as those made by more systematic methods, but there appears to be a dearth of material relating to the frequency of abortions in the rural regions. The few studies available in the literature pertaining to rural abortions show a ratio of 1 abortion to about 9 confinements.

The final constant, the fatality rate for abortions, appears to be an equally elusive figure. This is only natural, since the fatality rate must be based upon a figure that is known to be only a very rough approximation of the actual. Taussig has used a fatality rate of 1.2 per cent in his computations. This value was accepted after an examination of data from various sources. Most of the fatality rates ranged from 2 to 4 per cent, according to the hospital, type of patient, and the country. The average fatality rate (excluding data for Russia) was found to be 2.1 per cent, but this figure was considered by Taussig to be too high. The fatality rate of 1.2 per cent based on Freudenberg's review of abortion deaths in Germany was, therefore, selected for the estimate as a more reasonable value.

Abortion fatality rates obtained from hospital sources are likely to be too high, since the tendency is to hospitalize the more serious cases. However, hospital data represent the only available source of information relating to

TABLE 1A
Abortion as Secondary Cause of Death: 1940

Primary cause of death	Total	Septic (I.L. 140)	Nonseptic (I.L. 141)
All causes* with contributory abortion.....	133	21	112
Typhoid fever (1).....	2	1	1
Tuberculosis of respiratory system (13).....	13	—	13
Tuberculosis of intestines and peritoneum (15).....	2	—	2
Tuberculosis of genito-urinary system (20).....	1	—	1
Disseminated tuberculosis (22).....	5	—	5
Malaria (28).....	1	—	1
Syphilis (30).....	14	8	6
Mycoses (43).....	1	—	1
Other infectious and parasitic (communicable) diseases (44).....	2	—	2
Cancer of digestive organs and peritoneum (46).....	4	2	2
Cancer of the uterus (48).....	3	3	—
Cancer of urinary organs (52).....	1	—	1
Cancer of other and unspecified organs (55).....	1	—	1
Nonmalignant tumors (56).....	5	—	5
Diabetes mellitus (61).....	3	—	3
Diseases of thyroid and parathyroid glands (63).....	1†	—	1†
Pellagra (except alcoholic) (69).....	2	—	2
Leukemias and aleukemias (74).....	1	—	1
Chronic affections of valves and endocardium (92).....	8	—	8
Diseases of the myocardium (93).....	1	—	1
Lobar pneumonia (108).....	7	—	7
Pneumonia (unspecified) (109).....	2	—	2
Appendicitis (121).....	18	—	18
Hernia and intestinal obstruction (122).....	6	—	6
Chronic nephritis (131).....	11	1	10
Suicide by poisoning (163).....	1	—	1
Suicide by other means (164).....	3	2	1
Streetcar and other road-transport accidents (171)...	1	1	—
Acute accidental poisoning (179).....	3	—	3
Conflagration (180).....	1	—	1
Accidental burns (except conflagration) (181).....	4	—	4
Accidental injury by fall or crushing (186).....	4	3	1
Other accidents (195).....	1‡	—	1‡

* Except other puerperal causes.

† Exophthalmic goiter.

‡ Other accidents due to medical or surgical intervention.

TABLE 1B

Abortion as Secondary Cause of Death: 1936

Primary cause of death	Total	Septic (I.L. 140)	Nonseptic (I.L. 141)
All causes* with contributory abortion**	470	234	236
Typhoid fever (1)	9	5	4
Scarlet fever (8)	16	9	7
Influenza (11)	3	—	3
Dysentery (13)	1	—	1
Erysipelas (15)	2	—	2
Lethargic or epidemic encephalitis (17)	2	2	—
Epidemic cerebrospinal meningitis (18)	3	1	2
Tuberculosis of respiratory system (23)	35	—	35
Tuberculosis of meninges and central nervous system (24)	1	—	1
Tuberculosis of intestines and peritoneum (25)	1	—	1
Disseminated tuberculosis (32)	1	—	1
Syphilis (34)	22	13	9
Purulent infection, septicemia (nonpuerperal) (36)	2	2	—
Malaria (38)	8	—	8
Cancer of digestive tract and peritoneum (46)	2	1	1
Cancer of the uterus (48)	1	—	1
Cancer of the breast (50)	2	—	2
Cancer of other or unspecified organs (53)	1	—	1
Nonmalignant tumors (54, 55)	1	—	1
Diabetes mellitus (59)	1	—	1
Pellagra (62)	1	1	—
Diseases of the adrenals (68)	1	—	1
Anemias (71)	1	—	1
Chronic endocarditis, valvular diseases (92)	24	—	24
Diseases of coronary arteries, angina pectoris (94)	1	—	1
Lobar pneumonia (108)	76	1	75
Pneumonia, unspecified (109)	2	—	2
Diarrhea and enteritis (2 years and over) (120)	4	—	4
Appendicitis (121)	14	1	13
Hernia, intestinal obstruction (122)	16	—	16
Cirrhosis of the liver (124)	2	—	2
Other diseases of the liver (125)	3	—	3
Acute nephritis (130)	1	—	1
All puerperal causes (140-150)	310	1	309
Suicide by poisoning (163, 164)	2	—	2
Homicide by other means (175) †	190 †	188	2
Other acute accidental poisonings (179)	3	—	3
Accidental burns (conflagration excepted) (181)	3	1	2
Accidental traumatism by fall, etc. (186)	8	8	—
Other accidents (194)	4	1	3

* Except other puerperal causes.

** This title includes criminal abortion (mother).

† Total does not include puerperal causes.

TABLE 2

Outcome of Pregnancies from Histories of Women in Various Areas of the United States

Source of data	Year of study	Number of pregnancies	Number of abortions per 100 pregnancies			Ratio: number of abortions to confinements		
			Total	Spon-taneous and thera-peutic	Illegal	Total	Spon-taneous and thera-peutic	Illegal
Pregnancies previous to one reported on survey or registered								
New York.....	1935-36	1,525	12.1	9.2	2.9	1:7.2	1:9.6	1:30.5
Baltimore (Native White)...	1915	14,542	8.5	—	—	1:10.8	—	—
Cattaraugus County (White)...	1936	605	10.7	—	—	1:8.3	—	—
Millar, William M.								
Cincinnati General Hospital..	1918-32	10,000	12.9	8.9	4.0	1:6.8	1:9.8	1:21.8
Pregnancy histories for clients of birth control clinics								
New York City (White).....	1932-33	3,106	29.3	7.2	22.1	1:2.4	1:9.8	1:3.2
Cincinnati (White).....	1935-37	7,289	16.8	8.9	8.0	1:5.0	1:9.3	1:10.4
Baltimore (18 per cent Negro)	1927-32	6,441	15.6	10.1	5.6	1:5.4	1:8.4	1:15.1
Cleveland.....	1928-34	16,150	17.3*	—	—	1:4.8†	—	—
Minneapolis.....	1931-35	8,875	16.2	10.7	5.5	1:5.2	1:7.8	1:15.2
Newark.....	1928-30	8,314	21.3	9.7	11.6	1:3.7	1:8.1	1:6.8
Philadelphia.....	1925-36	1,221	15.9	10.7	5.2	1:5.3	1:7.8	1:16.3
Morbidity reports on periodic canvasses—18 States (White)								
12 months.....	1928-31	910	14.7	—	—	1:5.8	—	—
Cities of 100,000 and over..		336	14.0	—	—	1:6.1	—	—
Cities of 5,000 to 100,000...		236	16.5	—	—	1:5.1	—	—
Rural (under 5,000).....		338	14.2	—	—	1:6.0	—	—
30 months								
Cattaraugus County (White).....	1930-32	278	7.2	—	—	1:12.9	—	—
Davis, Katharine B.								
Questionnaire study.....	1929	2,258	22.0*	—	—	1:3.5†	—	—
Previous pregnancies and current hospital births								
New York City (White multiparae).....	1931-32	7,686	15.0*	—	—	1:5.7†	—	—
Chicago (White multiparae)...	1931-32	5,840	13.3*	—	—	1:6.5†	—	—

TABLE 2—*Concluded*

Source of data	Year of study	Number of pregnancies	Number of abortions per 100 pregnancies			Ratio: number of abortions to confinements		
			Total	Spon-taneous and therapeutic	Illegal	Total	Spon-taneous and therapeutic	Illegal
Dickinson, R. L. and Lura Beam White (of higher social and economic status).....	1931	703	29.6*	—	—	1:2.4†	—	—
Pearl, Raymond White (highly fertile).....	1932	571	17.8*	—	—	1:4.6†	—	—
Negro (highly fertile).....	1932	145	13.1*	—	—	1:6.6†	—	—
Women who had experienced 1-9 pregnancies.....	1933	1,152	12.6	—	—	1:6.9	—	—
Women who had experienced 10-22 pregnancies.....			22.9	—	—	1:3.4	—	—
New York (White).....	1937	3,951	13.3*	—	—	1:6.5†	—	—
New York (Negro).....			13.1*	—	—	1:6.6†	—	—
Chicago (White).....	1937	3,589	10.9*	—	—	1:8.2†	—	—
Chicago (Negro).....			15.9*	—	—	1:5.3†	—	—

* Includes stillbirths.

† Ratio of reproductive wastage (abortion or stillbirth) to number of live births.

fatality rates for abortions. It may therefore be of interest to review some of these findings. The experience of Wilson (8) at the Kansas City General Hospital indicated a rate of 3.6 per cent in 1,200 abortion cases. In Simons' (8) series of 1,000 cases at the Minneapolis General Hospital, the rate was 1.9 per cent; Watkins (9) found the rate to be 0.9 per cent in 341 cases at the Multnomah County Hospital in Oregon; Millar's (10) 2,098 cases of abortion resulted in a fatality rate of 0.8 per cent; and Galloway (9) had a rate of 0.5 per cent out of 778 cases of abortion at the Evanston Hospital. It would seem from these results that the fatality rate for abortions in the general female population of the United States is probably in the neighborhood of 1 per cent.

A point that seems worth mentioning here is that, although there are numerous sources of foreign statistics on abortion, it is questionable if these data are applicable to the United States. The social and economic conditions affecting abortion, as well as the legal aspects of the problem, are so

different from those of this country that the data cannot be considered comparable. Also, it is extremely hazardous to generalize from data for a few hospitals, even though they refer to a segment of the United States population. There is little justification for assuming that the data from these isolated studies are typical of the country as a whole; but in view of the paucity of data, there appears to be little choice in the matter.

Because of the importance of the subject, it seems desirable to obtain a closer approximation of the extent of abortion deaths, despite the limitations in the available basic data. An attempt might therefore be made to revise the existing estimates of abortion deaths on the basis of what appears to be a more reasonable set of constants.

In 1940, there were 2,336,604 cases of live births and 71,026 cases of stillbirths registered in the United States. The estimated distribution of these events (by place of residence) was urban, 1,055,000 confinements, and rural, 1,353,000 confinements. By applying the average ratios (from table 2) of 1 abortion to every 5.6 confinements for the urban areas and 1 abortion to every 9.4 confinements for the rural areas, the frequency of abortions may be calculated as follows:

Urban abortions	188,393
Rural abortions	143,936
Total estimated abortions.....	332,329

Assuming the fatality rate to be 1 per cent, the number of deaths resulting from abortions can be estimated to be about 3,300. (Using 1.2 per cent as the fatality ratio, the computed estimate becomes 4,000.) Actually there were 1,815 deaths (primary and secondary) registered, a difference of about 1,485 deaths. However, it is clear that larger or smaller differences can easily be obtained by the choice of constants. For example, it is possible to wipe out the above difference between the estimated and recorded deaths (1,485) merely by assuming a fatality rate of 0.6 per cent, which does not appear to be a too unreasonable value. Similarly, other assumptions concerned with the frequency of abortions will give varying results.

A check of these estimates might be made by employing the results of the survey made by Wiehl and Berry (11). They found a fairly constant proportion of abortions and stillbirths in the various hospitals and clinic studies. The pregnancy outcome was in the following proportions: 85 per cent live births, 2.6 per cent stillbirths, and 12.1 per cent abortions (spontaneous and induced). In utilizing these figures, it may be calculated that there were about 2,750,000 pregnancies in the United States in 1940. Of these cases, 333,000 resulted in abortions. Again applying the fatality rate of 1 per cent, the number of deaths from abortions can be computed to be 3,330.

The actual mortality from abortions in 1940 (or at the present time) is

anyone's guess. Perhaps a fair "guesstimate" is that there were about 3,000-4,000 deaths from abortions. The latter figure, 4,000 deaths, gives a death rate of 17 per 10,000 live births for abortion. It may be of interest to compare this rate with that found in the Children's Bureau maternal mortality study of 15 states, which was 15.5 per 10,000 live births.

There is no way of ascertaining the mortality trend for abortions, even from mortality statistics. As may be seen from figure 2, abortion was not classified as a separate title in The International List of Causes of Death until the 1929 revision. Even in the 1929 revision, abortion without sepsis included a large number of terms associated with hemorrhage of pregnancy. Abortion specified as criminal was not classified as a maternal death but as a homicide. The 1938 revision of The International List of Causes of Death saw for the first time a rational classification of abortions. The term abortion was specifically defined according to the period of gestation, and separate titles were set up for the classification of abortions. Also, criminal abortion was made a subdivision of puerperal causes.

In the 1938 revision of the Manual of Joint Causes of Death, abortions received greater weight in the assignment of the primary cause of death. Therefore, starting in 1939, the mortality tabulations show practically all of the deaths certified as due to abortion. However, it appears that about an equal number of deaths from abortion are concealed in other classifications because of carelessness, deliberate omission of information by the person certifying the cause of death, or because of other reasons such as difference in definitions. The quality of reporting needs to undergo considerable improvement before mortality statistics can be relied on to give an accurate picture of mortality trend for abortions. The trend for maternal mortality as a whole is shown in figure 3.

Despite the deficiencies in the data, it may be of interest to examine the mortality statistics by type of abortion. The per cent distribution of abortion deaths by type for 1939 and 1940 are presented below.

Per cent distribution of deaths from abortion, by type: United States, 1939 and 1940

Type of abortion	1940	1939
Total.....	100.0	100.0
Induced.....	20.5	21.1
With infection.....	18.8	19.7
Without infection.....	1.7	1.5
Spontaneous.....	79.5	78.9
With infection.....	60.5	58.3
Without infection.....	19.0	20.5

FULL TITLES OR FULL SUBDIVISIONS IN BOXES WITH SOLID-LINE BORDERS

	ABORTION WITH SEPTIC CONDITIONS	ABORTION WITHOUT SEPTIC CONDITIONS	HEMORRHAGE OF PREGNANCY
1900 REVISION		NOT SEPARATELY CLASSIFIED — PART OF "ACCIDENTS OF PREGNANCY"	
1909 REVISION	NOT SEPARATELY CLASSIFIED — PART OF "PUERPERAL SEPTICEMIA"	SAME AS ABOVE —	
1920 REVISION	SAME AS ABOVE —	ABORTION BECOMES SEPARATE SUBDIVISION OF "ACCIDENTS OF PREGNANCY"	
1929 REVISION	NEW TITLE —	ABORTION WITHOUT SEPTIC CONDITIONS IS MADE TO INCLUDE HEMORRHAGE OF PREGNANCY AND SYNONYMS	
1938 REVISION	THIS TITLE NOW DEFINED BY PERIOD OF GESTATION	ABORTION EXCLUDES HEMORRHAGE OF PREGNANCY	

FIG. 2. FREQUENCY OF ABORTION
Classification of abortion in the international list'

It is very likely that many induced abortions were reported as being spontaneous, so that the proportion of induced abortions would be too low and spontaneous abortions (probably those with sepsis) too high. In the Chil-

dren's Bureau study, 50 per cent of the abortion deaths were induced (non-therapeutic); including therapeutic abortions, the total induced abortions

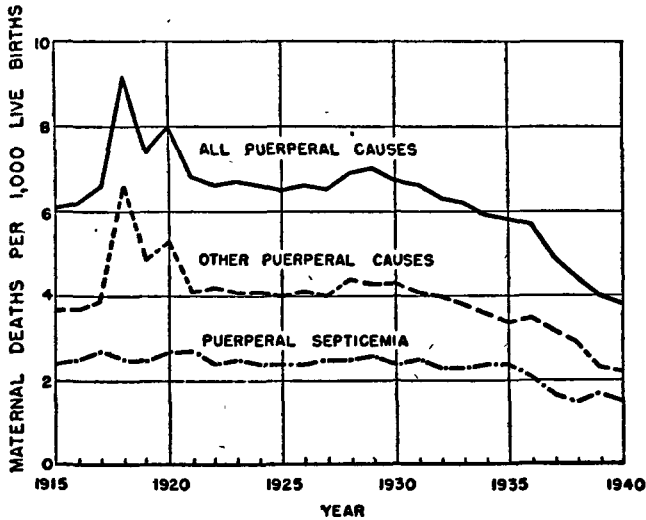


FIG. 3. MATERNAL MORTALITY RATES FOR BIRTH REGISTRATION STATES: 1915-1940

TABLE 3

Abortion Mortality Rates, by Race and Age: United States, 1939, 1940

(Rates are based on deaths per 10,000 live births)

Year and race	All ages	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years
1940:										
All races.....	7.1	27.6	7.1	5.4	6.1	8.1	11.6	15.1	20.4	0
White.....	6.1	8.9	5.4	4.6	5.2	7.3	11.0	13.9	13.1	0
All other races.....	14.3	37.6	12.8	11.2	15.5	16.9	16.8	24.6	63.9	0
1939:										
All races.....	7.9	14.9	6.9	5.8	6.5	10.3	12.4	19.2	18.7	100.5
White.....	6.8	0	5.4	4.9	5.5	9.1	11.3	17.5	17.7	67.6
All other races.....	15.4	23.3	11.9	12.0	15.5	22.9	21.4	34.1	24.9	196.1

amounted to 63 per cent, which may be compared with 21 per cent recorded in 1939 and 1940. This wide variation in results makes it apparent that

detailed tabulation of data by type of abortion cannot be justified on the basis of present-day reporting.

The mortality rates for abortion by race and by age of mother are given in table 3. These data emphasize the fact that the problem of abortion is focused at the beginning and at the end of the childbearing period.

To summarize briefly the subject of frequency of abortion as it affects maternal mortality rates, it might be said that the true scope of the problem cannot be determined without a very intensive, as well as extensive, study. Such a study does not appear to be feasible at present. However, rough approximations made here indicate that about one-half of the deaths from abortions are tabulated in the mortality statistics as such.

The number of deaths from abortion in the United States in 1940 has been estimated to be between 3,000 and 4,000, which probably constitutes about 30 to 35 per cent of maternal deaths from all causes. Although the general rate for puerperal causes has been decreasing, the death rate for abortions has probably not changed much. Abortion is evidently still one of the greatest problems to be met in lowering further the maternal mortality rate for the country.

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CHAPTER II
FREQUENCY OF ABORTION

ITS EFFECTS ON THE BIRTH RATES AND FUTURE
POPULATION OF AMERICA*

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My contribution to a discussion of abortion will be based largely on a study which a group of demographers and psychologists has been carrying on in Indianapolis, Indiana. Preliminary work began about five years ago, although the actual interviewing was carried on between April, 1941 and February, 1942. In the course of this study we obtained information on the frequency of abortion which may prove valuable.

The primary purpose of the study was to find out more about the social and psychological factors affecting fertility. Specifically, we hoped to secure information as to the number of children that each married couple wanted, the reasons why they wanted this number rather than more or fewer, whether they actually had more or fewer children than they wanted, and if so, why. In exploring these matters it seemed necessary to obtain, among other things, a complete record of contraceptive practices and pregnancies. It was this pregnancy record which supplied the following data on abortion.

The completeness and accuracy of survey data on items appertaining to sexual reproductive histories are always open to question. How freely and frankly will the women, who are being interviewed, respond to the interviewer? It is well known that birth rates or death rates for a township or a city ward obtained by the survey method are certain to be too low. Our figures may have similar errors.

The answer depends first, and to a large degree, on the interviewers and how they worked. Our interviewers were carefully chosen, not only for their knowledge of the subject matter dealt with, but also for their ability to establish *rapproch* with people. As a result, the proportion of couples contacted

* This paper is a revision of the talk given at the New York meeting, which was partly based on notes and partly extemporaneous. Preliminary data for the Indianapolis Study which were presented at that time have been revised to agree with data from machine tabulations made subsequently.

who refused to cooperate was less than 10 per cent. Secondly, our schedules were designed rather carefully to elicit accurate information by leading up gradually to questions which might prove troublesome. By the time the respondent realized what we were after, it was too late to avoid the answer or to lie easily. Thirdly, the amount of time an interviewer spent with each couple was considerable. There were three sessions with the wife, the first one lasting about half an hour; the second, two to three hours (part of it with the husband also); and, the third, one to two or three hours. By the time the pregnancy record was obtained, in the final interview, the interviewer and the interviewee were on friendly terms. Somewhat to our surprise we found that a majority of the wives enjoyed a chance to talk over their pregnancies, contraceptive histories, and other matters on the schedule, with an intelligent person who made these subjects appear to be proper topics of conversation. It permitted many wives the first chance they had had in a long time, if ever, to unburden themselves on those subjects.

Because of the detail of the pregnancy record on our schedules, one of our problems was not how many pregnancies we missed but how many were reported which actually were not pregnancies at all. For example, one wife told our interviewer that she had had 27 pregnancies, one of them ending in a live birth and 26 terminating in illegal "abortions." Fifteen of the "abortions" were induced by a physician, and eleven by taking ergot or quinine pills. Incidentally, before the contact was made with this wife, our interviewer was told by three or four cooperating wives in the neighborhood, "Say, you ought to see Mrs. So-and-So, she has paid enough for abortions to buy a house." It was not as much as that, however, for the abortionist charged only \$35 each for the fifteen "abortions".

This woman told us that for most of her "abortions" she had gone to the abortionist if she failed to menstruate on the anticipated monthly date, though a few times she had waited until she missed two periods. The question facing us was how to interpret this information. Did she have twenty-six pregnancies which were terminated by illegal abortion? From her standpoint, yes, for fifteen at least, since she paid out the money, and the physician performed presumably an abortion. From our standpoint, or that of a reputable physician, it was possible that she was not pregnant on any of these occasions. The truth undoubtedly lies between these two extremes, but we hesitate to guess as to just where. We felt safe in omitting the pregnancies which she claimed were terminated by self-induced abortion. There were no sequelae to these abortions. Our medical advisers believed that in the large majority of such cases the woman was not pregnant.

Considering all phases of the problem, our staff believes that we have an

accurate record for our cooperating couples of the pregnancies which ended in live births. We would be greatly surprised if the total number of such pregnancies is in error by one per cent. On the other hand, we feel sure that some pregnancies ending in intentional or unintentional wastage were not reported, and also that some such pregnancies were reported which actually were not pregnancies at all. Probably there were more of the former than of the latter, but we think that our figures on pregnancy wastage represent at least 75 per cent of all which occurred.¹

A brief description of how we selected the cooperating couples is essential to the interpretation of our data. For reasons which I have not time to mention, we thought it best to limit our study to native white, Protestant couples, married 11 to 15 years, each spouse married but once, each having completed the 8th grade, and most of their married life spent in large cities. Through a city-wide survey involving five-minute interviews we ascertained the total number of couples in Indianapolis who met these requirements, and also the number of children of each couple. As expected, the number of such couples with three, four, or more children was much smaller than the number with none, one, or two children. For this reason we followed the sound statistical procedure of interviewing all of the former, but only a random sample of the latter. Actually, therefore, our data were collected from 1,080 couples who had approximately 2,450 pregnancies. When allowance was made for the sampling just described, our data represented the total number of couples in Indianapolis meeting our eligibility requirements and willing to cooperate in our study, namely 1980 couples with approximately 3780 pregnancies.

¹ We may be overoptimistic, for our data show only 12.3 stillbirths per 1000 live births, compared with 20.7 for all white births registered in Indianapolis in 1941, and higher figures for previous years. In comparing these series, however, the following matters need to be kept in mind: (1) Our study excluded a couple if one spouse (or both) had not completed the 8th grade. Because schooling is correlated directly with economic status, and because some studies have shown that the latter is correlated inversely with the ratio of stillbirths to live births, the ratio for our group should be below that for all white births to residents of Indianapolis. (2) It is probable that the ratio of stillbirths to live births is higher for all white births registered in Indianapolis than for those to residents of Indianapolis. This statement is based on the belief that the non-resident women who come to Indianapolis for delivery include an abnormally large proportion of women needing hospitalization because of anticipated complications of delivery, a condition which tends to increase the ratio of stillbirths to live births. Our group was limited to Indianapolis residents. (3) Some of the births registered in Indianapolis would be classified as illegitimate. The ratio of stillbirths to live births is much higher for illegitimate than for legitimate births. Although an important proportion of the first conceptions reported by our couples were pre-marital, all of the births occurred after marriage and would be classified as legitimate.

With these sketchy remarks about the way in which we gathered our information, and the type of couples we interviewed, I would like to present some of our figures. These are based in part on hand counts, hence are preliminary, but they should not differ greatly from the final figures. In the first series all claimed pregnancies have been included except those terminated by self administered drugs and without sequalee, and the abortions which the wives reported as spontaneous but which our interviewers had definite reason for suspecting to have been induced illegally have been classified as illegal. On this basis there were 3795 pregnancies, of which 89.2 per cent ended in live births, 0.9 per cent in stillbirths, 7.3 per cent in unintentional abortions, 0.7 per cent in therapeutic abortions, and 1.9 per cent in illegal abortions.² Altogether, 9.9 per cent ended in abortion. (See Table 1, Section A.) This series may understate the frequency of all types of abortions, but it probably exaggerates the frequency of illegal abortions. If we include the pregnancies which the women reported were terminated without sequalee by taking drugs, the total number is increased to 3831, the proportion ending in illegal abortions is increased to 2.8 per cent, and the proportion ending in abortions of all types is increased to 10.7 per cent. These figures probably overstate the incidence of all abortions, and almost certainly do so for illegal abortions.

In the third series all doubtful pregnancies have been excluded (like the 15 "terminated" by the abortionist for the woman described above) and abortions have been classified the way they were reported to our interviewers. On this basis the total number of pregnancies is decreased from 3795 to 3771, the number of illegal abortions from 73 to 39, and the total number of abortions from 375 to 351. Of the 3771 pregnancies, 89.8 per cent ended in live births, 0.9 per cent in stillbirths, 7.6 per cent in unintentional abortions, 0.7 per cent in therapeutic abortions, and 1.0 per cent in illegal abortions. The total per cent of the pregnancies ending in abortion is decreased to 9.3. (See Table 1 Section B). This series undoubtedly understates the frequency of illegal abortions, and may understate the frequency of all types of abortions.

Attention will now be given to certain significant variations of the abortion rate within the group which we studied. Other studies have shown that as the ordinal number of the pregnancy increases the abortion rate ascends as well. It has not been convenient as yet to get preliminary figures in that form but I do have them based on the total number of pregnancies per woman. As Table I shows, the proportion of pregnancies ending in uninten-

² If one twin was live born and the other stillborn, the pregnancy was classified as ending in a live birth.

tional abortion increased fairly steadily from 6.2 per cent among women with one pregnancy to 18.8 or 21.0 per cent among those pregnant seven times or more. This is a highly significant inter-relation. Illegal abortions showed a similar, though less striking trend. There were none among women preg-

TABLE 1
*Type of Termination of Pregnancy by Number of Pregnancies per Woman.
Indianapolis Study*

Section A*	All women†	Women pregnant					
		Once	Twice	3 times	4 times	5 or 6 times	7 or more times
Number of women.....	1,980	225	266	225	123	71	19
Number of pregnancies.....	3,795	225	532	675	492	377	154
% of pregnancies ending in:							
Live births.....	89.2	93.3	93.6	89.5	89.2	83.0	68.2
Stillbirths.....	0.9	—	0.8	1.6	0.8	1.3	0.6
Abortions.....	9.9	6.7	5.7	8.9	10.0	15.6	31.2
Unintentional.....	7.3	6.2	3.8	7.0	8.5	10.3	18.8
Therapeutic.....	0.7	0.5	1.3	0.4	0.6	0.5	—
Illegal.....	1.9	—	0.6	1.5	0.8	4.8	12.3
Section B*							
Number of women.....	1,980	226	266	225	123	71	18
Number of pregnancies.....	3,771	226	532	675	492	377	138
% of pregnancies ending in:							
Live births.....	89.8	93.4	93.6	89.5	89.2	83.0	75.4
Stillbirths.....	0.9	—	0.8	1.6	0.8	1.3	0.8
Abortions.....	9.3	6.6	5.7	8.9	10.0	15.6	23.9
Unintentional.....	7.6	6.2	4.0	7.3	8.9	10.8	21.0
Therapeutic.....	0.7	0.4	1.3	0.4	0.6	0.5	—
Illegal.....	1.0	—	0.4	1.2	0.4	4.2	2.9

* In Section A all claimed pregnancies are included except those ending in self-induced abortions without sequela. In Section B other doubtful pregnancies are also excluded.

In Section A pregnancies claimed by the wife as terminating in unintentional abortions but believed by the interviewer to have been terminated illegally are classified as illegal. In Section B they are classified as claimed.

† This column is derived from those to the right (and from the 151 women who had no pregnancies) by means of the sampling ratios used in interviewing.

nant only once, but among women with seven or more pregnancies 2.9 to 12.3 per cent of the pregnancies were terminated illegally. In the latter case the method of classifying questionable cases has a large effect on the results, as would be expected.

In contrast to other types of abortion, the number of therapeutic abortions was small, and did not appear to be related consistently to the number of pregnancies.

Another tabulation shows the type of pregnancy termination according to the average annual earnings of the couple during the 11 to 15 years since marriage. These data are not for as many cases as Table 1 since they exclude couples who were classified as sterile for purposes of our study. When these couples can be added, later in our analysis, I do not think they will change the percentages significantly.

TABLE 2
*Type of Termination of Pregnancy by Average Annual Earnings of Couple.
Indianapolis Study**

	Average annual earnings							
	Under \$1000	\$1000- \$1199	\$1200- \$1399	\$1400- \$1599	\$1600- \$1799	\$1800- \$2199	\$2200- \$2999	\$3000 and over
Number of women.....	72	117	161	193	195	274	271	163
Number of pregnancies.....	243	345	463	444	431	477	525	281
% of pregnancies ending in:								
Live births.....	92.6	90.7	93.3	91.5	92.1	93.1	87.2	88.3
Stillbirths.....	—	2.0	—	2.0	.7	.8	1.0	—
Abortions.....	7.4	7.3	6.7	6.5	7.2	6.1	11.8	11.7
Unintentional.....	6.6	5.2	5.0	5.4	7.2	5.5	8.2	7.8
Therapeutic.....	—	.9	.2	.9	—	—	.6	2.1
Illegal.....	.8	1.2	1.5	.2	—	.6	3.0	1.8

* This table is for couples classified as fecund. An allowance has been made for sampling. As in Table 1, Section B, doubtful pregnancies have been excluded and abortions have been classified as the wife reported them. If one twin was live born and the other stillborn, the pregnancy was classified as ending in a live birth.

As Table 2 shows, the proportion of pregnancies ending in abortions is fairly stable for the income groups under \$2,200, fluctuating irregularly between 6.1 per cent and 7.4 per cent. But in the two upper income groups \$2,200 to \$2,999, and \$3,000 and over, the proportion of abortions is definitely higher, 11.8 and 11.7 respectively. Unintentional abortions make up most of the total, and vary similarly between income groups. There is a decline in the rate from 6.6 per cent in the lowest income group to 5.0 per cent at \$1,200 to \$1,399, then a rise (with one irregularity) to a high of 8.2 per cent for \$2,200 to \$2,999.

The illegal abortion rate fluctuates like that for all abortions. Among groups with incomes below \$2,200, the lowest percentage is zero (at \$1,600 to \$1,799) and the highest is 1.5 per cent (at \$1,200 to \$1,399). But in the \$2,200 to \$2,999 group, 3.0 per cent of the pregnancies ended in illegal abortions; and in the \$3,000 and over group 1.8 per cent ended this way. Thirty per cent of the illegal abortions were reported as self-induced, and 70 per cent as performed by someone else, in most cases by a physician.

Concerning the "reason" for or "cause" of the unintentional abortions, some wives repeated to our interviewers what their physicians had said was the cause, but others had not consulted a physician and expressed merely their own opinions. Unfortunately, our schedules did not provide for distinguishing between these two types of replies. A summary of all replies is given in Table 3.

TABLE 3
*Unintentional Abortions, By "Cause." Indianapolis Study**

Cause	Number	Per cent
Total.....	198	100
Accidents (falls).....	28	14
Overwork, strain, too much exercise.....	65	33
Weakness, "run down".....	16	8
Illness.....	12	6
Nervousness and worry.....	11	6
Physical defect or deficiency.....	24	12
Unknown.....	42	21

* This table is for couples classified as fecund, but is not adjusted for sampling.

I have given so much attention to certain information regarding abortion among the women in our Indianapolis Study because it is not yet available elsewhere, and because so few of the limited number of groups for which similar information is available are typical samples of large portions of the nation's population. To discuss the topic assigned me—the effect of abortion on the birth rate and future population—it is necessary to secure the best information obtainable on the number of abortions which occur. Dr. Dunn has made an excellent compilation of the abortion rates shown by the detailed studies which have been conducted, and has estimated from them that there were approximately 332,000 abortions in the United States in 1940.³ If he had been able to include our Indianapolis rate, his estimate probably would have been 326,000, only slightly lower. While his pro-

³ Chapt. I, table 2, and p. 10.

cedure may be the best that can be devised, there are certain modifications which seem to me to merit consideration.

The first modification is a matter of statistical methodology, and consists in computing the arithmetic mean of the percentages of pregnancies ending in abortion rather than that of the ratios of abortions to pregnancies. Changing to the latter procedure, the estimated proportion of pregnancies ending in abortion is 13.2 per cent, and the estimated number of abortions is increased from 326,000 to 366,000.

The second modification is to allow for the incomplete registration of births. The best information on this matter comes from the Bureau of the Census, namely, that 7.5 per cent of the births during the period December 1, 1939 to March 31, 1940, were not registered. Making this adjustment does not change the estimated percentage of pregnancies ending in abortion, but raises the estimated number of abortions from 366,000 to 396,000.

The third suggestion relates to sampling and weighting. A simple average of the rates for all groups in Dr. Dunn's table gives far too much weight to certain groups, particularly to the seven composed of birth control clinic clients. These groups constitute about 25 per cent of all groups in the table, whereas such women constitute probably less than 1.0 per cent of all the women in the population who have been pregnant in recent years. Furthermore, the clients are properly sampled and represented in several of the other groups in the table, particularly those for New York, Baltimore, Chicago, Indianapolis and the areas covered by the Morbidity Survey of the Public Health Service. If the incidence of abortion among birth control clinic clients was the same as among other women, no harm would be done by giving these seven groups such undue weight. As Dr. Dunn has pointed out, however, their rates are highly atypical, for several reasons. Omitting them decreases the estimated proportion of pregnancies ending in abortions to 12.7 per cent and the number of abortions to 351,000. These figures should be substantially better from a methodological standpoint than those cited previously.

Further improvement should be obtained by omitting the rates for other groups which are subject to the same objections, though in lesser degree. Thus, women with 10-22 pregnancies, and "highly fertile" women constitute a small minority of all women who have conceived in recent years⁴, have a decidedly atypical incidence of abortion, and should be adequately represented in the groups mentioned above which come close to being random samples.

⁴ According to the 1940 Census, of the ever married women under 50 who had borne children, only about 4 percent had borne 8 or more.

Two other groups should be treated similarly, namely those studied by Davis, and by Dickinson and Beam, and made up chiefly of women in the higher social and economic classes. Such women constitute an important minority of all women who conceive, nevertheless they are outnumbered at least five to one by those in the middle and lower social and economic groups. Furthermore, it is probable that these upper class women, like the clinic clients and the highly fertile women, are adequately represented in each of the remaining groups. There is no question but that each of these two groups has an atypical abortion rate, since only one clinic client group and one highly fertile group in Dr. Dunn's table showed as high an abortion rate. Furthermore, our Indianapolis data showed decidedly higher abortion rates for women in the top 30 per cent of the couples ranked according to income than in the lower 70 per cent (see Table 2).

If abortion rates for the five groups just discussed are disregarded, and a simple average computed for the remaining 16 groups, the resulting estimates are that 11.7 per cent of all pregnancies end in abortion, and the total number of abortions is 318,000. These figures can be criticized justly for being too heavily weighted by the rates for large cities and for Cattaraugus County, and for containing no group representing rural Negro women. The objections may be met in part by considering only the groups which are exclusively or predominately white, and weighting the rate for each of these groups according to the number of white births in such areas in 1940, as shown in Table 4. On this basis the percentage of the pregnancies of white women which end in abortion is 14.4. Assuming that Negro women have the same abortion rate as white women in urban and in rural areas results in an estimate of 415,000 abortions in the United States in 1940. The difficulty now is that the estimate is determined almost entirely by the results of a single study, namely that of the Public Health Service.

In view of the above discussion, it is natural that opinions differ as to the number of abortions in the United States. It is probable, however, that there were between 318,000 and 415,000 abortions in 1940, rather than the much higher figure indicated by the estimate of 681,600, which Dr. Taussig made a few years ago. To simplify my discussion of the effect of the frequency of abortion on the birth rate and future population, I will use the averages of the estimates presented above, namely, approximately 350,000 abortions in 1940, or 13.7 abortions per 100 live births.

To understand the effect of abortion on the birth rate and future population it is helpful to consider the probable changes which would accompany a decrease in the number of abortions. This is a complicated topic. One cannot say that the prevention of 100 abortions would increase the number of stillbirths by one and the number of live births by 99, because of the effect of

planned parenthood. Fortunately our Indianapolis Study furnished extremely useful information on this matter.

TABLE 4
A Weighted Average of the Number of Abortions per 100 Pregnancies Reported for Groups Which Were Fairly Representative Samples of the Area, and Contained Few if Any Negroes

Source of Data	Year of Study	Number of Abortions per 100 Pregnancies According to Study	Number of White Live Births in Area, in 1940 (to nearest 10,000)
New York City ^a	1935-36	12.1	} 10
New York City ^b	1931-32	15.0 ^c	
New York City ^d	1937	13.3 ^c	
Baltimore ^e	1915	8.5	1
Cincinnati ^f	1918-32	12.9	1
Indianapolis.....	1941	9.9	1
Chicago ^b	1931-32	13.3 ^c	} 5
Chicago ^d	1937	10.9 ^c	
Cities of 100,000 + ^g	1928-31	14.0	45 ^h
Cities of 5,000 to 100,000 ^g	1928-31	16.5	65
Rural (under 5,000) ^g	1928-31	14.2	79 ⁱ
Cattaraugus County ^j	1936	10.7	} 1
	1930-32	7.2	
Sum of the products.....			3059.6
Weighted Average.....			14.7

^a Dorothy G. Wiehl and Katharine Berry: *Pregnancy Wastage in New York City*. *Milbank Memorial Fund Quarterly*, xv, 3: 229-247 (July 1937).

^b Raymond Pearl: *Fertility and Contraception in New York and Chicago*. *Journal of American Medical Association*, cviii, 17: 1385 (April 24, 1937).

^c The number of abortions and stillbirths.

^d Raymond Pearl; quoted by Dr. Dunn.

^e Anna L. Rochester: *Infant Mortality*. Children's Bureau Publication, No. 119, 1923. Figures quoted are derived from Appendix Tables 187 and 188.

^f William M. Millar, M.D.; see Dorothy G. Wiehl and Katharine Berry, *Op. cit.*, p. 235.

^g Selwyn D. Collins; see Dorothy G. Wiehl: *A Summary of Data on Reported Incidence of Abortion*. *Milbank Memorial Fund Quarterly*, xvi, 1: 4 (January 1938).

^h Excluding the births in the cities listed above.

ⁱ Reduced to allow a weight of one out of 208 to the rates for Cattaraugus County, which is predominantly rural.

^j Unpublished data from studies of the Milbank Memorial Fund. See Dorothy G. Wiehl, *Op. cit.*

Of the couples classified as fecund in this Study nearly thirty per cent planned *all* of their pregnancies, that is, they conceived only when they

stopped practicing contraception in order to conceive. In addition, over 10 per cent planned at least their last pregnancy in the same way. Nearly all of the couples in these two groups had their last pregnancy because they wanted a family of the size which they would have if this pregnancy ended in a live birth. The fact that previous pregnancies had ended in wastage seldom affected the size of family; it simply meant that more pregnancies were necessary to obtain the size desired. Only very rarely, and under unusual circumstances (as when the last pregnancy ended in an abortion and was followed by sterility or a condition which made another pregnancy hazardous to health) could it be said that the prevention of abortion among such couples would increase the number of births. It should be emphasized that these two groups of couples constituted about 40 per cent of all the fecund couples in Indianapolis which met the requirements for inclusion in our study.

Another important proportion of the fecund couples did not plan the timing of their last pregnancy, like the two groups mentioned above, but did plan family size to the same degree. Some of these couples did not begin contraceptive practices until after they had the desired number of children. Others were practicing contraception when the last child was conceived (which occurred earlier than had been planned) but thereafter used contraceptives so effectively that no additional conceptions occurred. If no conceptions had ended in wastage it would be expected that these couples would have begun the effective practice of contraception after fewer pregnancies, but after the same number of live births. Hence, for such a group, too, the prevention of all abortions probably would have little effect on the number of births.

The remaining fecund couples who practiced contraception reported having had more live births than wanted. Some of these couples simply put off learning about effective contraceptive methods, or using them regularly, until forced to do so by the presence of too large a family. If no abortions had occurred and all of their pregnancies had ended in live births, family size would have increased somewhat more rapidly, with a correspondingly earlier pressure toward effective contraception. Nevertheless, the prevention of 100 abortions among such couples probably would raise the number of births significantly, perhaps by 25 to 50. Other couples in the group had not used contraceptives effectively up to the time we interviewed them. With no abortions there would have been greater pressure to improve the use of contraceptives, but among such couples a decrease of 100 abortions might increase the number of live births by 75 to 90, or even more.

Finally, in our Indianapolis Study there were the relatively few fecund

couples—a fraction of one per cent—who had not used contraceptives during the 12 to 15 years between marriage and interview. Here it is probable that the prevention of abortion would bring a nearly equal numerical increase in the number of live births. Summing up what has been said about all groups, the prevention of 100 abortions among women like those classified as fecund in our Indianapolis Study probably would increase the number of births by between 30 and 40.

Intergroup differences like these are not peculiar to the couples in our study, but exist all over the nation. In contrast, the proportional distribution of couples when classified on the basis of their success in planning size of family, varies widely between communities, and even between groups within a community. Unfortunately, our information on this topic is much less complete than that on the incidence of abortion. It is almost certain, however, that the proportion of couples who use contraceptives, and the proportion of these who achieve success in planning their families, are smaller for the United States as a whole than for our Indianapolis group. But judging from studies by Pearl and others it is equally certain that a large majority of the couples in the United States make some attempt to plan their families, and that an important proportion of them are successful. A good guess for the entire nation may be that the prevention of 100,000 abortions during the next few years would increase the number of births by about 50,000. If the extent and effectiveness of the use of contraceptives continue to change in the future as they have in the past, however, it will not be many years before the prevention of 100,000 abortions would increase the number of live births by 30,000 to 40,000, as it would for our Indianapolis fecund couples at the present time.

If an abortion prevention campaign had been begun in 1940 and reduced the number of abortions per 100 live births by 30 per cent during the decade, it probably would be considered highly successful. In this event there would be approximately 104,000 fewer abortions in 1950 than would occur at the 1940 rate of 13.7 abortions per 100 live births.⁵ Such a reduction in abortions in 1950 probably would increase the number of live births by about 52,000 and the crude birth rate by less than 0.4 per 1,000. To reduce the 1950 abortion rate by 30 per cent would be more difficult, but if achieved by 1960 would decrease the number of abortions in that year by almost 165,000. This would mean increases of about 74,000 in the

⁵ According to the medium estimates of future population made by Warren S. Thompson and the writer for the National Resources Planning Board, there will be 2,536,000 live births in 1950 (approximately the same number as in 1940), 2,347,000 in 1960, and 2,359,000 in 1970.

number of births, and 0.5 per 1,000 in the crude birth rate. Such changes are relatively insignificant.

The effect of such an abortion prevention campaign on the size of the future population would be much smaller relatively for a few decades—an increase of 0.2 per cent in 1950, and of 0.4 per cent in 1960. With the passing of additional decades, however, the cumulative effect of the annual increase in the number of births would become larger. But even so a 65 per cent reduction of the abortion rate between 1940 and 1970 (i.e., the 1960 rate mentioned above reduced by nearly 30 per cent) which probably is much larger than can be achieved, would merely increase the United States population in 1970 by about 1,450,000.⁶ This is a large absolute number, but relatively it is small—less than 1.0 per cent of the total population expected in 1970.

Because of the large financial, psychological and physiological cost of abortions it is to be hoped that great effort will be made to reduce their incidence. But it should be understood clearly that the effort is made primarily for these reasons, and only in minor degree because of the effect on the birth rate and the size of the future population.

⁶ The number of abortions per 100 live births would average 11.6 during the 1940's, 8.2 during the 1950's, and 5.8 during the 1970's. The number of abortions during the 30 years would be reduced by about 3,800,000. Allowing an average increase of 41 live births for each reduction of 100 abortions gives an estimate of slightly over 1,500,000 for the additional births between 1940 and 1970. Deducting deaths leaves about 1,450,000 as the estimated increase in the 1970 population.

DISCUSSION

The discussion of the papers of Dr. Halbert L. Dunn and Mr. P. K. Whelpton was conducted by Dr. Howard C. Taylor, Jr., Chairman of the June 19th morning session of the Conference.

Howard C. Taylor, Jr.: The papers of Dr. Dunn and Mr. Whelpton are now open for discussion. Dr. Taussig, will you open our formal discussion?

Frederick J. Taussig: I would like, first of all, to apologize for the very meager information contained in my book, which was published in 1935, on the actual number of abortions and abortion deaths. We had, at that time, the wildest estimates as to the number of abortions and the number of abortion deaths both in Europe and in this country, and I thought the numbers were conservative. In fact, when the book was published, those estimates were frequently commented upon as being entirely too conservative.

Since 1936, I have reviewed the figures carefully, and about three or four years ago presented before Dr. Adair's American Committee on Maternal Welfare a revised estimate of those figures. They were trimmed down considerably, particularly as to the number of abortion deaths, in which I attempted to find concealed abortion deaths under other causes of death. All of the latter, of course, were calculated on the basis which would exclude definitely the tremendously high figures given by many writers on this subject. I think we can positively say there do not occur over 5,000 abortion deaths annually in this country, no matter how we try to cull the various brackets in the mortality statistics.

On the other hand, I am not at all convinced that the figures as given by Dr. Dunn, of 350,000 to 400,000 abortions annually, may not be too low. I feel that while we meet with a certain amount of frankness on the part of the women in questioning as to the number of abortions they have had, there is often a reticence which will make them hesitate to state. They may even forget each instance they have gone overtime and whether or not it was followed by a rather free, bloody flow which in all likelihood was an abortion.

In any statistical study, it seems to me, it is just as wrong to take a selective group, such as the one Mr. Whelpton described, as it is to take a particular group such as would be found among the women patronizing the birth control clinics. I think it is an error to take the material which comes from a study of women who have been confined recently, as Dr. Raymond Pearl did, and as much in error to do as I did, in my very first study, in 1911, to in-

clude only patients who came to the gynecological clinic for treatment, a group which doubtless included a greater number of sterility cases than would be found normally.

If I were to venture a suggestion, it would be that we try to establish a composite picture of this statistical problem. For example, we might take 5,000 cases—1,000 from each group—to be studied in accordance with the methods employed heretofore and see what that composite picture of abortions among American women would show.

I feel very keenly that *one of the most important things we might plan to do is to increase our information regarding abortions in the country districts.* Dr. Plass once conducted a questionnaire study for my benefit on abortion in rural areas, which he did not publish. He mailed the questionnaire, I believe, to 500-odd physicians in Iowa whom he had contacted personally and secured from them letters in reply. I then tabulated the figures from this information. Dr. Plass felt, on the whole, that the results were not sufficiently accurate to justify presentation in the form of a separate paper.

Howard C. Taylor, Jr.: Are there any other comments? Dr. Burgess?

Ernest W. Burgess: I have only a question about one of the figures which Mr. Whelpton gave in his study, the conservative estimate and the liberal estimate of the percentage ending in abortion. I have here five or six births, 4.2 per cent; seven or more births, 2.9 per cent; then, for the liberal five or six births, 4.8 per cent; seven or more births, 16.3 per cent. Was that 2.9 per cent correct?

P. K. Whelpton: The 2.9 per cent is correct although the less conservative per cent increases among women with seven or more pregnancies, because of the one case I mentioned who reported 17 abortions. This case affects the group greatly, without a doubt. In fact, counting the 16 abortions performed on her, by a physician, probably compensates for a large proportion of the illegal abortions which were not reported to our interviewers by other wives.

In reply to Dr. Taussig's question, it seems to me that the validity of the data, from a study like ours, depends in a large measure on the type of interviewer one has, how well rapport is established with the wife, and how the line of questioning is developed.

As I said, this study was not made only by a group of demographers; we had the help of a group of psychologists. Moreover, we tested our schedules during a period of several months in different parts of the United States before starting field work in Indianapolis, and made many improvements as a result of this experience. We think, perhaps erroneously, that we have used a good technique for finding out about pregnancies ending in abortions

by asking about the usual length of the menstrual cycle, the frequency of variations, the extent of the cyclic variations, how often there were missed periods, and other pertinent data. In other words, we encouraged the women to discuss numerous details which would have some bearing on whether or not there had been a pregnancy and which she might have concealed if she realized the full information we were seeking. It was on the basis of this line of questioning that our interviewers became suspicious in a significant number of cases, that there was a concealed pregnancy, or that a reported unintentional abortion actually was an illegal abortion. Throughout the study we kept in mind the reticence of women to speak about these matters, and tried in every way we could think of to forestall the concealment of information.

Dr. Taussig suggests that it is just as wrong to base estimates of the frequency of abortion on the experience of a group like our Indianapolis women as on that of a group of birth control clinic patients, and that a better "composite" picture could be obtained by taking equal numbers of women from these groups, Pearl's confined women and others. I would like to emphasize, however, that our group, because of our method of sampling, is itself a composite group. It *already contains birth control clinic patients* and other distinctive women in the proportions as they actually exist among Indianapolis couples meeting the requirements for our study. Since we excluded Catholic couples and those with less than eighth grade education we no doubt have a higher proportion of birth control patients in our group than there is among all married couples in Indianapolis of the same age as ours.

The estimates I have given of abortions in the United States seem to us to be conservative. They do not represent the highest possible figure, but neither do they represent the lowest.

B. atrice Berle: Did you use men and women as interviewers?

P. K. Whelpton: We used women only. The husband was seen in the second interview, but that part of our interview did not deal with the pregnancy or contraceptive record at all. It dealt with economic factors and with attitudes toward many things which we thought might have a bearing on the number of children a person wants. We would have liked to send men interviewers to the husbands to get their reactions to contraceptive practices, but our study was exploratory, and fairly expensive as it was, so we did not feel justified in adding this procedure. If we repeat the study in other areas, as we hope to do, we may be able to make this change, among others.

Howard C. Taylor, Jr.: There are some points which have come up about which I would like to ask questions to see if I can get them answered. I understood Dr. Dunn to say that the estimated mortality for the induction

of abortion in hospitals was from 0.5 to 2.1 per cent. Is that correct, Dr. Dunn?

Halbert L. Dunn: I believe that was the estimate picked from the various hospital studies made.

Howard C. Taylor, Jr.: It is my impression that those figures are quite high. I wonder, Dr. Adair, if you will comment on that?

Fred L. Adair: The induction of abortions, as done in hospitals, are usually for rather serious conditions and, at best, I do not believe the mortality figure would be a fair one. If one had a woman who has had vomiting of pregnancy to such a degree that she has reached a semi-morbid state, or at least a very serious condition, and one terminates the pregnancy to prevent death the mortality statistics are not fair figures. The same would apply to cardiac cases or any other type of condition for which one was compelled to perform a therapeutic abortion. So I think that figure of 0.5 to 2.1 per cent, even if it is correct, would not be really a true index of the mortality which was due to the conduction of the abortion *per se*.

I would like to make a further comment. It seems to me *one of the fundamental things we have to settle is a matter of definition of abortion if we are ever to secure comparable statistics*. In these states where they report births from five months on, if the fetus is alive, it happens to be a live birth. If it happens to be dead, it is a stillbirth, and that of course would increase the number of living births and stillbirths in those states. From the standpoint of intentional abortions—and most intentional abortions are done early in pregnancy, certainly prior to the fifth month—those pregnancies that terminated after the fifth month would be either legal terminations due to some complicating condition or else to accidental complication.

A number of years ago, when I was in Minneapolis, we were trying to determine how large a factor syphilis was in the early termination of pregnancies. We surveyed all the cases which had been delivered in the Minnesota General Hospital, the state hospital, which included not only urban but a certain number of cases from the rural areas. In using the reproductive history as the basis we found that about one out of three pregnancies terminated in an abortion. We also found that about 30 per cent of the cases of abortion which came into the hospital were admittedly induced. I think probably the percentage was higher than that because undoubtedly not all women would admit it was an induced abortion, but certainly all that admitted it were reasonably accurate.

On the other hand, we have recently gone through our figures in the Chicago-Lying-In Hospital, in an abortion study, but in something over 27,000 deliveries, we found only 1,351 abortions, a ratio of about 1 in 20.

While the information would be dated, if we could get a large enough series

of histories on rural and urban women who had attained the age of 45 and borne children, we might get a good idea as to the probable number of abortions which occur during a woman's child-bearing period. I know of no such survey having been made. Do you, Dr. Dunn?

Halbert L. Dunn: Dr. Pearl was extremely interested in trying to get an experiment on maternal death certificates. He tried to get at the end of a woman's life her total pregnancy history, including abortions. The only reason we have not tried to run such an experiment is that I do not see how we could secure that information about a woman who had died, because it simply would not be known well enough to her husband, family or doctor. I think it would be very fruitful to get the total number of pregnancies among a group of women who had passed the childbearing age, urban and rural, white and colored, and check every death and birth that is recorded for each. That type of a study might lead us somewhere. I do not see any other approach to this problem which will prevent a bias of the samples. I would like to have Mr. Whelpton talk on that possibility.

P. K. Whelpton: Our group is not too far from that ideal type of group you described. Our women for the most part were between 35 and 45 and, on the whole, their families were completed. We have a few that were not.

Fred L. Adair: We have a good many births beyond the age of 35.

P. K. Whelpton: If you analyze all births, you find that the great bulk of births occur to women under 35. In 1940, for example, women under 35 had 88.6 per cent of the total births, though they made up only about 54 per cent of all the married women under the age of 50. Among the older women (those approaching 45) in our study, the great majority had had their last child five years or more before the interview. I am not saying that a woman aged 35 will not have another child, but only that the average individual at this age has completed at least 75 per cent of her reproduction.

I believe it would be highly desirable to repeat a study like ours among women who were approximately 45. Furthermore, it would be equally desirable, if a practical methodology could be developed, to include the groups that we omitted, namely, the Negro, the foreign-born white, the Catholic, those with less than an eighth grade education, and those with broken marriages.

Nevertheless, coming back to my total estimate of abortions, I think that the bias in our study is considerably less than the differences between our group and the nation. If you apply our results to the nation as a whole you come out with less than 300,000 abortions. That should be an upper estimate.

Philip F. Williams: I wish to ask Dr. Dunn, in regard to the standard birth certificate, which now has three captions for the number of children

borne alive and now living, those born alive and now dead, and the stillborn, whether an additional entry made of the number of miscarriages would serve, after some years, to throw some light on this question?

Halbert L. Dunn: I cannot answer that question. I would like to get the opinion of the group here about it. I know it entered the discussion during the revision of the new birth certificate in 1938-39, and it was felt then, by most state health officers and state registrars, that one would get additional information by that process. I don't know whether there were any tests made. Perhaps the thing to do is to request the number of miscarriages on the birth certificate and see what happens.

Howard C. Taylor, Jr.: Dr. Whelpton stated that among his group the percentage of illegal abortions was estimated at 1.3 and 2.4, while Dr. Adair mentioned 3 per cent as the induction rate in Minneapolis.

Fred L. Adair: Thirty per cent of the cases of abortion.

P. K. Whelpton: If you put our figure on the basis of the percentage of abortions which were induced it runs between 13 and 22 per cent, with the illegal abortions somewhere between those two figures.

Howard C. Taylor, Jr.: Dr. Virginia Hamilton, who is here with us, made a study of the admitted cases of abortion in Bellevue Hospital. I would like to call upon her to indicate the incidence of induction of those hospitalized at Bellevue Hospital.

Virginia C. Hamilton: Twenty-nine per cent of 537 cases admitted induction and 64.5 per cent claimed spontaneous abortion, and 5.5 were therapeutic.

Howard C. Taylor, Jr.: That figure is very close to Dr. Adair's.

Fred L. Adair: They are both institutions of the same character.

Howard C. Taylor, Jr.: City hospitals, though, have different populations. I thought one of the important statements, which I believe Dr. Dunn made, is that 33 per cent of the maternal mortality was due still to abortion. Dr. Bundesen, would you like to make some comment, particularly in relationship to abortion and the total maternal mortality?

Herman N. Bundesen: Dr. Adair called my attention to the fact that the figures which we have, and which compare with ours, are recorded figures of the U. S. Census Bureau, which show that 25 per cent of all maternal deaths are due to criminal abortion. The whole problem is one of conjecture and is based upon who makes the reports. We are not prepared, therefore, to give any definite figure for, as Dr. Dunn has said, it is anyone's guess.

Howard C. Taylor, Jr.: Have you any comment, Dr. Williams, with regard to the situation in Philadelphia, as it has a bearing on abortion, and its effects on maternal mortality rates?

Philip F. Williams: The figure for eleven years is close to 25 per cent, al-

though the figure for individual years varied from 19 to above 30 per cent, that is, of the abortions in the total maternal mortality in the city.

Halbert L. Dunn: I might say that the 30 to 35 per cent was what we figured it. The true figure on abortions is between 3,000 and 4,000 abortion deaths and, if it is in that neighborhood, it would be 30 to 35 per cent of total maternal deaths. Actually among the 1,800 maternal deaths which we tabulated the number is less than 50 deaths from abortion.

Howard C. Taylor, Jr.: Have you any comment, Dr. Aranow?

Harry Aranow: We did a study at the Academy of Medicine here in New York, and found about a third or a little less than a third, approximately 20 to 25 per cent of the maternal deaths, were caused by abortion.

There is one question I would like to ask in regard to Mr. Whelpton's Indianapolis study. Were the self-induced abortions, without sequelae, omitted? That changes practically the entire findings. After all, abortion is abortion whether self-induced or otherwise. If you add all those admitted by the patient, without sequelae, you change the figure considerably.

P. K. Whelpton: I would like to begin my reply by saying that on this matter we were guided by physicians as well as demographers. According to the physicians consulted, the chances are high that women who report they induced an abortion by taking quinine, for example (as some of our women reported) and who had no sequelae, were not pregnant.

Howard C. Taylor, Jr.: Dr. Hamilton, did you not have some figures in the Bellevue group on self-induced abortions, and what percentage was induced by physicians?

Virginia C. Hamilton: I did, but I do not know if I can quote them. I will say that 10 per cent, that is not 10 per cent of the induced but 10 per cent of the total group, were induced mechanically, while 19 per cent claimed to have been drug induced. The only deaths occurred among the mechanically induced group and we found, from the pathological reports on curettings, that about 13.5 per cent had never been pregnant, or more correctly, no signs of pregnancy were evident from the curettings. Among the so-called spontaneous and drug induced abortions, we felt that these separate methods could be considered almost as synonymous inasmuch as both were brought about without outside intervention by an assisting agent.

P. K. Whelpton: We are now in the process of putting our data on the code sheets, from which cards will be punched, so we can still modify many earlier decisions. I should like to ask this group to advise us as to the best way to classify questionable pregnancies. Should we count as a pregnancy ending in an illegal abortion every one that the women reported as terminating because they took drugs?

Frederick J. Taussig: May I ask the question: How do you define "sequelae"?

P. K. Whelpton: We included considerable bleeding, great discomfort, or some type of sickness, in short anything that laid the women up, or caused considerable pain or inconvenience.

John Rock: By that you mean what?

P. K. Whelpton: To be conservative, since our medical advisers believed that the great majority of women who reported self-induced abortions without sequelae were not pregnant, we would exclude all such pregnancies from our regular pregnancy and abortion tabulations. Are we wrong in doing this? Should we go to the other extreme and count as a pregnancy and an illegal abortion all which the women claimed had occurred without sequelae?

Beatrice Berle: Did you count it as an abortion whenever any mechanically induced bleeding occurred?

P. K. Whelpton: Yes, if the woman thought she had terminated a pregnancy by mechanical means and there was bleeding or other sequelae.

Beatrice Berle: Any bleeding at all, an amount which might be no more than menstrual bleeding? The woman would not be in a position to determine that.

P. K. Whelpton: We had to go on what the woman said. If she thought it was menstrual bleeding we would not count a pregnancy or abortion.

Beatrice Berle: When any mechanical means were used and any bleeding occurred, you counted that as an abortion?

P. K. Whelpton: Yes, with the exceptions above noted.

Howard C. Taylor, Jr.: There is one aspect of this problem which has been touched but little. I think it is really part of Mr. Whelpton's title. We have talked considerably about the effects of abortion on maternal mortality rates. We had hoped there would also be some discussion about the total effect of the abortions taking place in the United States on the population trend, which, although less obvious, seems to me a very important subject. Would you extemporize on that, Mr. Whelpton?

P. K. Whelpton: It is true that I omitted that phase, rather deliberately, and for reasons which I am glad to explain. In the first place it seems to me that if a discussion of the affect of abortion on population trends is to have much practical value there should be a real possibility of reducing the abortion rate appreciably. I am not at all sure that there is, except as illegal abortions are reduced through a wider and more effective practice of contraception—a reduction which would not affect the birth rate at all.

Another and more important question is this—if pregnancy wastage is to be reduced will there not be a corresponding reduction in the pregnancies

which under present conditions occur after unintentional abortions? For example, consider a couple practicing contraception effectively, who eventually desire children, who have two spontaneous abortions, but who finally obtain live births on the third and fourth pregnancies. Eliminating those abortions would not increase the size of their family, but merely reduce the number of pregnancies. In contrast, a couple not practicing contraception effectively, a reduction in abortions should result in a corresponding increase in births, other things unchanged. The crucial question is, therefore, which type of couples are more numerous in the population?

One thing which the Indianapolis study is going to show is that conceptions are fairly well under control among the native white, Protestant married couples which have had at least an eighth grade education. I do not mean to say that every pregnancy is planned in such a group. That is not the case. But most of the unplanned pregnancies bring the first and the second child, which nearly all couples want. After the second pregnancy some sort of contraception is usually practiced, and most subsequent pregnancies are planned, or are due to faulty contraceptive practices or occasional neglect. On this account, a given reduction in abortions would result in a much smaller increase in the birth rate. Of course, there are occasional exceptions to this generalization.

Even if abortion could be eliminated entirely and without reducing the present post-abortion pregnancy rate, the effect on the birth rate and on future population growth would be much less than the effect of the decline in the live birth rate which occurred during the nineteen twenties.

This is a very brief discussion, of the topic, but I honestly think it is not worth much more at the present time in view of the lack of information about the extent to which the abortion rate can be reduced, and the effect of such reductions on the present post-abortion birth rate.

Halbert L. Dunn: I quite agree with you. I think though, that on the supposition all of this wastage did result in live births, it would mean 300,000 or 400,000 more. That is about the size of what is now going on in connection with the increased births. We do not know whether that is a real population change or not. In other words, the change is within the same kind of range as this increase of the last six or seven years which has gone on in births. We are not sure to what the phenomenon is due. We are not sure how temporary it is or whether it represents a real change in the birth rate trend. That is one reason I called your attention to these birth rates which I sent around. They happen to be put up in terms of births per thousand women, but in terms of total population the birth rate is hovering around 19 now.

You will notice that the birth rate which is listed for older women, that is, for mothers who are in the older age brackets, is still continuing downward. As I understand it, that is where most of the problem comes in the abortion picture, that is, when there have been extensive pregnancies. It is in the younger women where this upturn in the birth rate has occurred in the last few years. This increase extends to both the white and negro ascending to the age of 35 years. I do not believe it is an important factor in the total population change.

Fred L. Adair: In this study of mine, to which I referred earlier, of the abortion cases which came in I cannot tell how many of them were threatened, but among the total number of abortions we were only able to salvage about 100 for eventual delivery, so in the abortions which are mostly intentional, except the therapeutic in which we have to assume they were necessary in our clinic, there could not have been a very great salvage of life, at least in the larger group of abortions which are intentional.

Another point which should not be ignored is the effect of abortion on population due to the fact that a good many of these abortion cases are subsequently sterile. So I do not think you can interpret population trends solely on the number of abortions because a large number of women are rendered incapable of having children by infection which cuts off the source of supply.

Howard C. Taylor, Jr.: I think that is an important point.

P. K. Whelpton: As I said earlier in our study, the proportion of pregnancies ending in illegal abortions was considerably higher in the upper income groups than in the lower. I do not have with me these data by order of pregnancy, so cannot say to what extent these abortions occurred in the first, second, third or fourth pregnancy. Later on, in our more detailed analysis, we will present information on this matter.

Howard C. Taylor, Jr.: I suppose the most important data we are missing is on the frequency of abortion in unmarried.

P. K. Whelpton: We have information about 48 definite and 14 suspected premarital pregnancies in our Indianapolis study. Not one of them happened to end in an abortion of any kind. In most of these cases the couple were engaged or at least were planning to be married in the near future, so there would be much less incentive for an illegal abortion than among other single women who became pregnant. The fact that we learned of so many premarital pregnancies is another indication that we established fairly good rapport in our study. Several of the wives probably did not intend to tell the interviewers about these pregnancies, but our series of questions brought them out nevertheless.

Howard C. Taylor, Jr.: I think we should push on, if there are no more

questions or comments on these two presentations. Dr. Dunn, have you any comment to make in closing or in reply?

Halbert L. Dunn: I am open to suggestions on how the material can be bettered.

Howard C. Taylor, Jr.: Mr. Whelpton, have you any further comments?

P. K. Whelpton: No.

Howard C. Taylor, Jr.: If not, we will proceed to the next paper. We have been impressed with the difficulty of securing reliable statistics on such definite things as to whether an abortion has been committed or not, whether death occurred or not, and I am sure it will be understandable if the information in the next presentation is perhaps still less definite although more descriptive statistically. Abortion presents extremely important problems and it would be improper for this group not to consider them carefully.

CHAPTER III

EFFECTS OF ABORTION ON THE GENERAL HEALTH AND REPRODUCTIVE FUNCTION OF THE INDIVIDUAL

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When pregnancy is prematurely interrupted by what we term abortion, the human race suffers loss and damage in 3 ways:

First, an infinite number of potential human beings are destroyed before their birth.

Secondly, abortion carries with it a considerable death rate among expectant mothers.

And finally, abortion leaves in its wake a high incidence of pathologic conditions, some of which interfere with the further possibility of reproduction.

A survey of the mortality figures has already been given you by others. May I stress in that connection that a mortality rate of 1.1 per cent as given by Kiss in 35,265 abortions in Hungary (1941-43), which corresponds closely to the collective tabulation of 1.2 per cent in my book, does not give the true picture. Such a death rate does not include the large group of abortions that were never sick enough to require medical attention. Then, too, as Ruther points out, better aseptic technique by the abortionist has in recent years certainly led to fewer fatalities. The present death rate of abortion is, I believe, considerably less than 1 per cent. If on the other hand the number of abortions has been increasing, as some figures indicate, the total maternal mortality from this cause may remain unchanged or may even be somewhat higher.

The Russian experiment in legalized abortion extending over a period of about 10 years, proved beyond doubt, that when the bars were let down in permitting instrumental evacuation of the uterus, in spite of the relatively low primary mortality, there was a marked deterioration of the physical condition of the aborted women. These sequelae of abortion deserve the most careful analysis. The harmful effects of abortion, both spontaneous and induced, may broadly be divided into the *immediate* injuries and infections such as perforation fistulae, thrombophlebitis, anemias, etc., and the *later sequelae* such as sterility, complications in subsequent labors, menstrual and endocrine disturbances, and pelvic infection.

The Russian experiment revealed clearly the many immediate as well as late complications following instrumental evacuation of the uterus. In spite of the fact that the procedure was done in hospitals by men expert in the technique, the percentage of complications was very high. Ter Gabrilian in an analysis of 1120 cases, divides them into 844 who had had legalized induced abortions, 74 with spontaneous abortions and 197 who had had illegal criminal abortion done outside of hospitals, largely by midwives. He found the following interesting incidence of complications.

	Induced Abortions	Spontaneous Abortions	Criminal Abortions
	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>
No complications.....	42.7	74.6	44.6
No early complications.....	18.6	6.3	8.6
Early complications.....	10.8	7.5	34.5
Late complications.....	27.9	11.6	12.3

These figures would indicate that while the early complications are more common in the criminally induced cases, the late complications, probably as a result of the instrumental curettage, are definitely more often found in the legally induced abortions.

Partial retention of abortion residue with its attendant hemorrhage and infection is a common outcome. Karlin in 7,167 cases of induced abortion in 30 Leningrad institutions found that 51 had to be curetted a second time, 58 had infection with temperatures of over 38 degrees, and 187 had subinvolution. Anufriev in his Russian experiences, advised that although patients were kept in the hospital for only 3 to 4 days, it was found necessary to continue post-operative supervision for at least 3 weeks to prevent complications. The most frequent disturbances were due to incomplete regeneration of the endometrium and the presence of necrotic tissue opening the way to infection. Even where a large proportion of the abortions were spontaneous, the percentage of early complication was high. In a statistical analysis of 1,000 abortions, J. H. Simons found that 59 cases had to be readmitted, twice for infection and 57 times for hemorrhage. Of these one-half had retained secundines, and the remainder had abnormal menstruation or subinvolution. Thirty-seven of these patients required curettage.

For every abortion death from septic infection, there are approximately 4 or 5 who are seriously ill for a long period of time. Some of these have peritonitis, others have extensive pelvic exudates and still a third group are the patients with thrombophlebitis. A fair estimate of the invalidism immediately following septic abortion would involve an average of 3 or 4 weeks

bed rest and many months of partial disability from housework or other occupational duties. In many instances the infection localizes as a pelvic abscess, requiring incision and drainage and an additional period of bed-rest. I am here considering only the immediate septic infections.

As a result of the severe hemorrhages immediately associated with abortion we may have profound anemias necessitating prolonged treatment. An occasional case of retinal blindness (Mittelstrass) has been reported subsequent to post-abortal anemia.

Among the immediate direct sequelae of abortion mention might also be made of the development of chorio-epithelioma. While these tumors are of rare occurrence, there is evidence of relatively greater frequency following abortion than after normal confinement. According to Rock, this may be due to the fact that a type of hydatiform degeneration, as Hertig points out, is found in 30 per cent of unselected specimens of abortion ovisacs.

Of greater importance to the health of the mother than the immediate complications are the many harmful effects of abortion upon her subsequent well-being and her ability to bear children normally. It was this racial deterioration produced by wholesale legal abortion in Russia that largely prompted them to revoke their laws.

Foremost in importance is the increase in sterility. Much has been written on this subject and some of the reports will not stand critical analysis. The percentage of sterility following abortion ranges from A. Meyer 5.4 per cent, Philip 10 per cent, Sievers 14 per cent, Schultze 19 per cent to Zacherl and Richter 27 per cent sterility.

The incidence of sterility varies in accordance with many factors. According to Kakuschkin, sterility was more frequent after 1 abortion (49.1 per cent), less common after repeated abortions due to the extreme fertility of the latter group. The very fertile woman is only rarely made sterile but the infertile ones frequently. In some women there is merely a lowered fertility. Rubin found that sterility was much more common after 219 induced abortions than after 239 spontaneous abortions. Brachtel found 40 per cent of women sterile after septic abortion and this figure corresponds to Schultze's compilation who found sterility twice as common after septic cases (38 per cent). Premarital abortions were particularly apt to be septic, hence Schultze found the incidence of sterility in this group was much higher. Sievers also found a higher incidence of sterility in promigravidae—23 per cent compared to 14 per cent sterility for the entire group of 682 women studied in his analysis. He states that in cases of septic abortion sterility was 4 times as great as in non-septic cases.

When these cases are analyzed as to the factors responsible for the sterility

we find that Serdukoff in a detailed study of 75 cases found that local pelvic symptoms could be cured by treatment without relieving the sterility and attributes the latter to endocrine disturbances following abortion. Ernst found 80 per cent of all secondary sterility due to abortion. Berutti found that in a series of 129 cases of secondary sterility following abortion, 45 per cent occurred after a single abortion. He attributes this high incidence of sterility after a single abortion not merely to pelvic infection but also to hormonal and constitutional derangement attendant on the abortion.

Bublitschenko stresses the fact that in spite of the pessimistic reports from Russian sources, practitioners know that many thousands of abortions occur, leaving but little subsequent damage. He examined personally 200 women who became sterile after abortion. In 114 of them chronic infection was located in the tubes and in the remaining 23, in the uterus. Most of the 86 sterile women who showed no evidence of infection were asthenic individuals.

The most careful survey of the incidence of sterility following abortion was made by G. K. F. Schultze. Out of 1,130 cases of sterility, 469 had had a previous conception. Of these secondarily sterile women, 58 per cent showed evidence of tubal occlusion and of this number 75 per cent had had an abortion. This meant that 42 per cent of the secondary sterilities followed abortion. Abortion hence is not only the most common cause of sterility but the resulting lesion (tubal occlusion) is least amenable to treatment.

Studying now the problem primarily from the angle of abortion, he analyzed 1,123 cases who had had an abortion. Of these, 52 per cent had further pregnancies. Of the remaining 48 per cent who remained childless, he included only those *married* couples who were *childless* and had had *1 abortion* and who therefore in all likelihood desired offspring. Seven per cent of this group were sterile.

Another series of 1,200 abortions were studied by personal questioning as to whether a further pregnancy was desired by them or not. Recent cases of abortion and those using contraception were not included in this inquiry. Sterility was present in 17 per cent. Where the abortion had occurred before marriage the resulting sterility was 33 per cent and in the postmarital abortion group it was 14.5 per cent.

A fourth series of cases were examined for tubal patency by the Rubin test, 1 to 3 years after abortion. Of 53 such women, 8 or 15 per cent showed an occlusion. These occlusions did not occur primarily in the frankly septic abortions but in milder infections. Taking the group of abortions as a whole, however, the septic cases were productive of twice as many cases of sterility.

Summarizing these reports on sterility, we can conclude that about 15 to

20 per cent of involuntary childlessness follows abortions, and that this incidence is relatively greater in women with low fertility and in those who had a severe infection following abortion.

The harmful effects of abortion are not limited to this sterile group but extend also to those who have further conceptions. The tendency of these women to have a second spontaneous abortion in their next pregnancy is very considerable. This is true of the induced abortions as well as in the spontaneous group, where we might conceive of a repetition of some maternal or ovular factor responsible for the premature expulsion of the ovisac. In the induced cases apparently the pelvic injury and endocrine upset tend to decrease the chances for carrying the pregnancy to term.

In the early months of a new conception following induced abortion we must be on the look-out for possible implantation of the ovum in the tubes, for the Russian experience showed a strikingly higher ratio of ectopic gestation in conceptions following abortion. Philip in 165 cases of ectopic pregnancy at Kiel, Germany, found 115 with a previous history of abortion. This was twice as many as those with a history of previous gonorrhoeal salpingitis and 4 times as many as those having an ectopic pregnancy after normal childbirth. Mayer and Sievers also call attention to the increased frequency of ectopic gestations after abortion.

As we approach the termination of pregnancies in women who have previously aborted we find placenta praevia and transverse presentations of strikingly greater frequency. Zacherl and Richter find these conditions 5 times more common than after normal deliveries and others (Ernst, Kelin, Mayer) corroborate this. Philip in a report of 1,628 women who had previously aborted found placenta praevia in 3.5 per cent compared to an incidence of 0.74 per cent in 10,000 full term pregnancies.

Placental complications of all kinds were more frequent in women who had previously aborted. Philip gives the following figures: Premature separation of placenta 1.66 per cent, compared with a normal of 0.35 per cent; adherent placenta 2.83 per cent, normal 0.87 per cent; post-partum hemorrhage 11.85 per cent, normal 9.65 per cent. Apparently the process of placental implantation is unfavorably influenced by the previous abortion and curettement. Adherent placenta even to the point of a placenta accreta, is stressed in the report of Azleckij. Of 4,276 confinements, 1,337 had a previous artificial abortion (31.2 per cent). In this latter group there were 83 manual deliveries (6.2 per cent) while in those without abortion only 27 (0.9 per cent) required manual interference, a ratio of 7 to 1.

Prolonged labor, associated with primary inertia or rigidity of the cervix was more common, especially where abortion had been done instrumentally

in the first 3 months. Faulty presentations occurring more frequently contributed to such prolongation. Ritala found an average increase of 5 hours, Bronnikona an increase of 7 hours in the labors of primiparae. Lankowitz 1,722 primiparae without previous abortion to 661 primiparae with one or more artificial abortions, found labor more difficult, and the fetal mortality appreciably greater. With the added frequency of complications in labor, these patients naturally have a higher incidence of post-partum infection. There seems no doubt therefore that induced abortion carries in its wake a high incidence of complicated childbirths.

Another important group of sequelae associated with abortion are the chronic pelvic infections. In many patients there is no definite interval between the acute and the chronic stages. One merges into the other and the patients pass into a state of semi-invalidism with occasional exacerbations of fever and severe pain. Many require surgery, often a double-sided salpingectomy. It is probably no exaggeration to say that 3 out of every 100 abortions terminate in such an operation. Looked at from the angle of pelvic infections Mayer reports that out of 264 such infections subjected to operation, 96 or 36.3 per cent had abortions as their cause.

Out of 200 infected abortions in Leipzig, E. Gross found that 21 per cent developed an acute salpingitis. Injuries to the cervix at the time of the instrumental dilatation led to many tears and parametrial infections. The resulting stenosis of the cervix leads sometimes to hematometra, as in the case of P. P. Mueller, and to chronic painful parametrial exudates requiring prolonged local treatment. The use of pastes for the interruption of pregnancy (Welsch) may result in severe cauterization by saponification of the uterine mucosa and in not a few instances to fatal embolism. The use of these proprietary pastes by some practitioners is not justified by experience. Various organisms may be introduced at the time of the instrumentations of abortion and especially in self-induced abortions we may find the occasional development of a pelvic actinomycosis. Bax and Haselhorst have each reported such a case.

Menstrual disturbances following abortion are very common. They are due to 2 causes: (1) the sudden changes involved in the endocrine secretions of the individual; (2) the use of the sharp curette, removing not only the decidua but often the entire endometrium. In spontaneous abortion treated conservatively we are not so apt to find these sequelae. On the other hand in cases of induced abortion or in rigorous instrumental evacuation of the uterus, we frequently meet with dysmenorrhea, menorrhagia or oligomenorrhagia. Endometrial hyperplasia according to Heitgress and Heyrowsky may follow abortion and result in prolonged and excessive menstruation.

The re-establishment of menstrual rhythm after abortion has been studied by Vignes and Fares. They found a delayed onset of menses, irregularity, and excessive bleeding in many of these patients. After therapeutic abortion the interval was prolonged over a week in 6 out of 10 cases. In spontaneous abortion, the irregularity was less pronounced in only 14 out of 41 instances. In 13 cases of criminal abortion, the periods came too frequently, and in our patients was attended by pronounced hemorrhages lasting for a month or longer before menses were resumed.

Pathologic changes in the myometrium, as Orlova points out, are frequently found following abortion. These and the tendency to cystic ovaries, are in part a sequence of the endocrine upset attendant on the sudden changes in ovarian, thyroid and pituitary secretions. The interchange of hormonal secretions attendant upon normal pregnancy and confinement are seriously disturbed by the sudden changes attendant upon induced abortion and result in many symptoms interfering with the well-being of the individual. The abnormalities of menstruation following in 43% of women who have aborted, are considered by Nicholson to be primarily due to an alteration of ovarian function. Marked disturbances of metabolism manifested by high cholesterolin retention in the blood of aborted women, as pointed out by Kagan, Lewinson and Libin, are of frequent occurrence. Abortion interrupts the growth processes of a normal pregnancy and tends to hypoplasia of the genital organs (A. Mayer).

In estimating the damage to the individual done by abortion, we must not limit our consideration to the somatic changes but give due weight to the psychic trauma with its resultant neuroses and psycho-neuroses. Timm, Kankleit, Flesch and others cite cases of serious mental aberration following abortion. Some of these can be cured by psycho-analysis. Many a psychic upset of unexplained origin will be found on careful questioning to hark back to an induced abortion years ago which the patient has tried in vain to put out of her memory. The value of an abortion done for mental disease, according to Edelberg and Galant, must for this reason be seriously questioned. Sexual anesthesia, dyspareunia and marital quarrels have frequently followed induced abortion according to some writers (Kakuschkin, Mayer). Divorce is often the outcome.

An analysis of the psychic sequelae of induced abortion is made by M. Cenac. He discusses the psychopathology resulting from the damage caused by abortion to the Ego of the woman. In her sexual life woman is more or less inferior or "tributary" to man. This feeling of inferiority is partly compensated or overcome when the act is fruitful and pregnancy ensues. Should an abortion be produced, the woman is left psychically wounded and

symptoms of inferiority manifest themselves in the form of sexual frigidity and other forms of psycho-neurosis. Depression and irritability, even to the point of obsessions and phobias, may disturb her married life.

A recent study of the social and psychological factors attendant on 537 cases of abortion by V. C. Hamilton gives valuable data. Hamilton's cases were divided into 156 (29%) who admitted induction, 346 (64.5%) who denied it, and 30 (5.5%) who had a therapeutic abortion. In 248 patients regret was later expressed that an abortion had occurred. This applied to 61 per cent of the spontaneous cases and 23 per cent of the induced. In the latter group fourteen patients expressed profound remorse and twelve felt frightened by their condition. While Hamilton does not discuss the frequency of a definite psychosis, her figures indicate that in many women abortion is performed on the impulse of the moment. They often "act in haste and repent at leisure."

This leads us naturally to a few words in conclusion on the prevention of abortion. The relatively high incidence of regret in the induced cases as pointed out by Hamilton suggests that something might be accomplished if the physician would explain carefully to the woman contemplating abortion something of the dangers to her life, health and future happiness of such an act. In a group of married women, Gornick was able to persuade 196 out of 518 women (37.3%) to carry their pregnancies to term.

While I have not actually tabulated the cases in my private practice in which I have tried to dissuade women from having an abortion done, I am certain that in married women I have met with success in almost one-half the cases. Among the unmarried, only a small number could be influenced. While it is time-consuming to explain in detail all the harmful effects of abortion, this is more than compensated for by the subsequent gratitude of the mother who has carried her child to term.

In the group of spontaneous abortions, much of the subsequent ill-health of the patient can also be prevented by insisting on hospitalization and prolonged rest and follow-up in every case. The ruthless use of the sharp curette to empty the uterus must be avoided to prevent needless damage. An analysis of the factors producing spontaneous abortion and their correction whenever possible, may prevent further abortions and increasing invalidism.

Regarding induced abortions, Raymond Pearl has possibly exaggerated when he states that "by so doing they are voluntarily taking one of the most serious risks to their very lives, as well as to their future health and well-being, that a woman can take short of suicide and self-mutilation." Nevertheless, the immediate danger is a very serious one and the remote harmful

sequelae manifold. Whether the abortion be spontaneous or induced, it is a pathological process that in my instances damages the woman's health for all time. It is well for us, therefore, to give due weight not merely to the immediate destructive effects of abortion but to these less evident but equally important remote consequences.

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DISCUSSION

The discussion of Dr. Frederick J. Taussig's paper was conducted by Dr. Howard C. Taylor, Jr., Chairman of the June 19th morning session of the Conference.

Kenneth Thompson: Dr. Taussig's data on the physical harmful sequelae largely came from Russian sources, and I wonder if he might consider the surgery done in those cases as a factor in the harmful outcome? Although I have no personal knowledge of Russian surgery, I made a long tour of Germany, and I am quite sure I could not compare the results generally with we would expect.

The other thought I had may be only for my own interest; in thinking of the psychic sequelae of abortions, I recall one particularly interesting illustration. The patient, an apparently normal woman, had had two spontaneous abortions, the first at three and one-half months and the second at five and one-half months. On the day of her second abortion and the following day she had no particular regrets. She recognized it was just hard luck and a healthy child would be obtained ultimately. However, the day the milk came in, she began to have enormous regrets, and for six months was desperately upset by the harmful effects of the fact she lost a baby. The milk coming in fully in case of an abortion is an untoward event. I presume that this is due to the fact that the entire placenta was discharged. I recall this incident from my intern days because I was aware that very few women lactated after an early abortion, whereas some women with complete spontaneous abortions do. It might be possible to bear in mind the hormonal influence of this lactation. There is experimental data that the hormonal factors have a great bearing on the psychic behavior at this time in the child-bearing period.

Virginia C. Hamilton: What has been said about the hormonal effects on the woman's psychology has been very interesting. My own impression has been increasing, the more women I have seen, that there is a sort of a mental "foreign body reaction," you might say, to early pregnancy in almost any woman no matter how much she may desire a child. Her first reaction is one of rejection. She feels a sense of inconvenience, of inexpediency. She asks herself, "Why am I doing this at the present moment? Wouldn't it be better for me not to have a child?" This feeling remains until the third or fourth month. Whether it is with the formation of the placenta or

whether with the knowledge that she now has reached the time when she could not safely have an abortion I don't know, but if you can persuade a woman to carry that long, even though social and economic conditions do not alter at all, she usually settles down to be a very contented mother. Whether it is psychic or hormonal, I do not know. I have seen it happen time and again, and Dr. Taussig spoke of the same thing from his far wider experience.

Robert L. Dickinson: I speak from the point of view of better and fewer abortions, and from trying to rescue the abortion from the abortionist. With many years interest in this matter it is a great satisfaction to see it at last coming to some well considered study. The abortion stands almost alone in many respects and but few of us here are technicians. It is the only surgical procedure in which the profession fails to visit the experts to observe their several techniques. In visiting abortionists, and questioning leading abortionists, I find there is a considerable variation of techniques of which the general profession is ignorant. The specialists' statistics of success are wholly suppressed. The failures are given wide publicity.

The method of simply inducing the uterus to empty itself to the severe and sharp curettage must be studied. As Dr. Taussig brought forward, the spontaneous abortions are so vague and uncertain that unless we take an abortionist who is doing a very large series and sending to the embryologist and the microscopist every case, we are not able to tell whether a pregnancy is present or not. In this manner, all factors in studying post-abortif infections and after-results would be taken into account. I hope Dr. Taussig will answer, considering his experience in Russia when he saw a large series of operations, for my recollection is that they were somewhat roughly and hurriedly done, at an eight-minute interval of time.

Although abortion is the only operation done on an invisible field, with hemorrhage difficult to control, training for necessary skill is handicapped or prevented. Certainly it is the only operation in which the largest percentage of cases have no after-care, are sent home by the specialist or abortionist, not told how to take care of themselves, and under such conditions the relative and extraordinary absence of after-troubles is most remarkable.

The specialists in this department of medicine are denied hospital facilities for operation or after-care. Although sometimes needed to save life, research on methods, or on simple or non-surgical means of induction is neglected or absent. Journals to publish comparison of results, meetings to evaluate methods, and organization to classify those well-trained and expert in a category apart from the careless and unethical are all denied.

Wherever the State forbids giving birth control advice against unwise

pregnancy, this operation is promoted by such restrictions. Restrictions and legal condemnations, like those against one other operation, sterilization without unsexing, are formulated largely by theological dogma. Therefore, it is the more necessary that we medical people take it into our hands as a scientific, surgical and physical problem.

The law lags far behind public opinion concerning the interruption of pregnancy, as shown by the extreme rarity with which district attorneys can obtain convictions of physicians by whom three-fourths of all abortions are done. The person chiefly concerned has little part in the decision. Even intolerable burdens of multi-motherhood are disregarded, as well as the branding of the unmarried mother and the innocent child. We have heard little about illegitimacy.

For nearly twenty years I have been trying to secure a realistic study of abortion. I persuaded Dr. Taussig, I am happy to say, to undertake an elaborate revision of his volume, "Abortion, Spontaneous and Induced," now our bible, which the National Committee published. I did some pioneer picturing of the steps of the operation in both editions of my "Control of Conception," and in "Human Sex Anatomy."

I have interviewed some of the leading abortionists of the country, all of them stating that they would welcome investigation by representatives of the Scientific Societies. One was asked on a Saturday and by Monday he was sending 12 specimens, Tuesday 16, and Thursday 15, to the embryologist. I do not know what his rate has been since.

Clair E. Folsome: In one instance 40 specimens were sent in a single day.

Robert L. Dickinson: Forty in a day! With all that research material available we talk statistics, speculate on theology and morals and we do not get down to brass tacks. When are we going to do it?

A sub-committee from the Academy of Medicine, some years ago, considered the problems of abortion but made no clinical study as far as I am aware. I welcome, therefore, this first attempt to start the investigation. The medical profession should initiate these studies. The medical profession must assume the leadership in the attempt to better the present deplorable conditions, and halt the forcing of many pregnancy interruptions by unskilled hands, with the consequent dangers to life, health and fertility. This betterment can be accomplished in a reasonable time by thorough clinical research on methods actually employed by those devoting themselves to interruption as a specialty; on the character of the results obtained and the accidents or infections encountered; by study of the amount of diminution of abortion that would occur with reasonable access to instruction in birth control.

In regard to the question of abortion indications. Have we studied them? I think not. Our indications are determined by mores and superficial medical opinions. Do we know which abortionists are expert? I could give you case after case somewhat like this: Retroversion requiring pessary watching; diabetes; four children and great economic stress. As her doctor, I referred her to a younger gynecologist, an assistant professor. I said her labors had been so increasingly difficult in my care that she should not have another. She was 36 or 38 years of age. Her Friedman test was positive. The assistant professor of gynecology in this large service hemmed and hawed and stated he would rather not perform this therapeutic abortion. I said, "See here, how many interruptions have you done? You are one of our best laparotomists and a gentleman. You are swift and skillful. What do you know about pregnancy interruptions?" He replied, "I am most uncertain. I don't want to do it. Can you get someone else to do it?" All this time he was admitting the indications, based upon three medical recommendations, but still unfamiliar with competent techniques of the operation.

It is up to us to find specialists. I would like to set up a program which it seems to me we might take up perhaps at our last session though I wish to sketch it out hurriedly at this time to encourage cogitation upon it: (1) The diminution of resort to abortion where instruction and prescription for birth control is readily accessible. (2) Evaluation of medical indications for pregnancy interruption, and let us not fail to face what we do with any other illness whatever, and in addition consider the economic and social limitations. (3) Investigation of removal of the concept of illegitimacy and the effect on the abortion rate. (4) Make a study of techniques, listing the skilled specialists. (5) Examine microscopically material from abortionists right in sequence and know what we are about. (6) Follow-up to determine results in experienced hands, not this by and large thing such as Dr. Hamilton made. Such is an excellent study of unskilled abortion. We would rather study the skilled act of abortion. (7) Check up on frequency of post-abortual sterility as Dr. Taussig suggests. (8) Inquiry on claim of women to medical decisions as to whether early pregnancy shall continue and provide her with methods of counsel. We who have never had labors tell the woman to go through this serious condition. We are the exemplary counselors in some ways but the ultimate decision should be hers finally. (9) Studies of the elements of humanity, mercy and kindness involved in a series of abortion candidates.

I think such a program is up to us, and I hope we can come out at the end with a real research, not regarding law, not concerning theology, but including the actual needs and the real economic, social and medical situations,

and above all our own operative techniques, to determine whether we know really the operation or not. (Applause.)

Frederick J. Taussig: Returning to Dr. Thompson's question, the figures on my paper are perhaps just as much based on German as on Russian analysis. To be sure, some of these analyses followed the abandonment of the Russian experiment in legalized abortion, and they constitute a rather large compilation of experience. Unfortunately we, in this country, have not tackled the problem of the sequelae of abortion by a careful statistical study, and I think it would be a very valuable thing if we could at the conclusion of this conference develop a definite plan for such a study.

As to the techniques employed in Russia, I had, you might say, a legitimate excuse for visiting the abortion clinic when I visited Russia, because there it was legalized, and hence it was somewhat different from visiting the home of an abortionist here in New York or somewhere else where one might be subject to ethical criticism. But these professional abortionists, as we might call them, in Russia, were the associates and assistants in the gynecological university clinics. They were well trained in surgical technique.

Owing to the necessity of doing about 57 abortions in a morning it was not possible to employ any anesthesia, nor all of the usual precautions as to asepsis. However, the physicians were careful in sterilization of instruments, and in refusing to take care of any cases with cervical infection, especially gonorrhea. They wanted to keep the mortality down and used excellent technique. Their low primary mortality ranged in the neighborhood of .02 per cent. If they had a relatively high incidence of sequelae, it would be my impression that it was not fundamentally the fault of the technique employed.

Robert L. Dickinson: May I ask whether the technique included complete curettage?

Frederick J. Taussig: Yes. It was limited to dilatation and curettage and early in pregnancy.

Robert L. Dickinson: To the third month?

Frederick J. Taussig: Never beyond the third month and never, except in 2 or 3 per cent, to those who had not had a previous child. Despite these precautions, the sequelae were high. The point Dr. Hamilton has raised of the possibility of persuading mothers to delay a decision until the third month or fourth month is weakened by the development of the Friedman test. All women know about the mouse or the rabbit tests and if you do not confirm or deny early pregnancy within a relatively short period of time, they know where they can get an answer to settle their question. Consequently the excuses we had thirty or forty years ago are not now adaptable.

We cannot tell them to come back three or four weeks later and hope that perhaps by that time they may have had a change of heart. That subterfuge is no longer applicable.

Beatrice Berle: I would like to ask Dr. Taussig whether the statistics on sequelae were checked cumulatively, or subsequently to the time the Russian Government had decided to discontinue their program of legalized abortion?

Frederick J. Taussig: Practically all the statistics were checked prior to revision of the Russian codes.

Beatrice Berle: Then their statistics are valid?

Frederick J. Taussig: They are. The professor of gynecology in Kiev, with whom I visited, was much disturbed, as were the men in Moscow, by the high incidence of harmful sequelae.

Beatrice Berle: When were the statistics upon abortion sequelae checked?

Frederick J. Taussig: From 1924-25. Within five years time they produced definite evidence of the results.

Beatrice Berle: Have there ever been other comparative studies made? You state sharp curetting was considered one of the reasons for subsequent sterility by harming the basalis layer of the endometrium and for other reasons. Has any one made a study of the subsequent fertility among individuals who have had diagnostic curettage with sharp instruments for other reasons? Is there a comparative study between those curettages of the non-pregnant uterus and those done for therapeutic abortion?

Frederick J. Taussig: I think Dr. Adair will agree that curettage done for diagnostic reasons would be less harmful than the use of sharp intra-uterine manipulation done at the time of a true therapeutic abortion.

Howard C. Taylor, Jr.: Dr. Taussig, there is one item in relation to post-abortal sequelae about which I would like to have your opinion. You quoted statistics showing that the early complications were worse following illegal abortions, while the late complications were more likely to be worse following therapeutic abortions, and you suggest that the difference was probably due to type of curettage. Is that correct?

Frederick J. Taussig: Yes.

Howard C. Taylor, Jr.: On the Bellevue service a sharp curettage is performed on all cases of spontaneous abortion. Do you think this procedure places them in this class of the therapeutically induced abortions on which a sharp curette is used, and would you therefore expect a higher percentage of late complications in spontaneous abortions so treated?

Frederick J. Taussig: I think the late complications may well be higher. It depends entirely upon how the abortion is done. If a sharp curette is used, as so often is the case, to actually try to remove every last bit of en-

dometrium, then I think the harmful effects will be considerable. If, on the other hand, the man using the sharp curette realizes that all he wants to do is to remove the decidual tissue, then I do not believe any material damage would result. It is not perhaps so much the manipulation of the curette as the degree of pressure exerted by the operator and the points where such force is utilized which should be stressed.

Fred L. Adair: I think we should not forget in evaluating some of the sequelae that there is usually something wrong, otherwise an abortion would not have occurred. Either something disturbs the development of the embryo, or some accidental complicating condition brings about the abortion, which certainly should not be ignored in relation to the sequelae of abortion.

Howard C. Taylor, Jr.: Those are spontaneous abortions.

Fred L. Adair: I do not like the term "spontaneous" because of the reasons I have given. I think we are hiding behind a word when we use the connotation "spontaneous" abortion. It is not spontaneous. There is some cause for it. We must not be misled by the term "spontaneous."

Howard C. Taylor, Jr.: What term would you suggest instead of "spontaneous"?

Fred L. Adair: We have become accustomed to use the descriptive phrase "intentional" abortion. Certainly, I think the word "spontaneous" as a categorical term gives us a wrong impression about the whole abortion problem.

Howard C. Taylor, Jr.: The morning has been somewhat long, but I would just like to ask for some discussion on one point which has been overlooked, namely, the psychological aftermath of intentional abortion. Does anyone wish to comment on that topic?

John Rock. I used to think a great many unmarried girls would do better if they were relieved of their burden. I am not uncommonly consulted either by the girl involved or by the boy. I cannot quote figures, but I have succeeded in carrying through a great many of these—I think 30 per cent at least—and I feel very sure that most of the girls, although overwhelmed at first by the financial burden or by the social disgrace, want to carry on and are willing to do so. My attack has always been on the two difficulties—expense and publicity. The girls who persevere and have their babies are much improved members of society. I think they are proud of themselves, and I know none of them regret it.

Sophia Kleegman: In assaying the psychological after-effects of abortion, a most important factor is the interpreter and his own emotional content. Aside from this, we have to consider social status, as the problem differs greatly between the married and unmarried.

Considering only the married woman who is pregnant and unwilling to carry on, I disagree strongly with my psychiatrist friends who feel that no woman should be persuaded to have a baby she does not want. I plead guilty to breaking that rule in that I use my strongest powers of persuasion in urging against abortion. Most people have a time-limited perspective of the problem, they see the situation from one or two years hence, but not in relation to their total life span. When a patient comes to the physician, we have a definite responsibility to guide her from the lifetime view. I tell the patient, "You face the choice now of either having this baby or perhaps never again getting pregnant. It is an inconvenient baby now, but a year from now it will be the source of your greatest happiness." I have been in practice long enough to feel sure that such persuasion is good service. Among the women whom I have persuaded to go on with their pregnancies, none have regretted it and all have been grateful.

The unmarried pregnant girl presents a different problem. We, public opinion, have created this taboo problem for her. Our society says to her, "If you have the abortion, you'll go to hell." On the other hand, "If you have the baby, we will make it hellish for both of you." Until our society resolves this contradiction, I do not feel free to put pressure on the unmarried girl to carry on with the pregnancy. I inform these girls of possible harmful after-effects of having an abortion. I show them also the various ways they can be helped to carry on with the pregnancy. I do not frighten them with distorted statistics, nor do I persuade them. After offering them every possible help, the choice is left to their own inner spiritual strength or weakness. One cannot say that there is less psychological trauma to the unmarried girl who had her baby than to the one who had an abortion.

Married or unmarried, the most important determining factor of the degree of psychological trauma following abortion is whether she has subsequently as many babies as she wished, or whether she becomes sterile. In my experience, the married woman having an abortion, who becomes subsequently sterile, suffers far more than the unmarried girl having an abortion who later marries and cannot conceive. The married woman feels, "I could have managed." The unmarried girl is apt to feel, "I couldn't help it." However, I have found the greatest degree of psychological trauma in the case of the unmarried girl who has her baby, gives it up for adoption, and who then later marries and does not conceive. In my experience, those girls who give their babies up for adoption seem more troubled throughout their future than those unmarried girls who have an abortion.

Hazel Corbin: My experience shows that the average woman does not know what harmful effect abortion has on future childbearing, or its possible

dangers to herself, or its future psychological effect, even if she has had children. All the facts most women know are very simple, namely, that an abortion costs \$35 to \$75 depending on which side of the avenue the friend lives who advises her.

The average husband knows little about an abortion and as a consequence, a husband who loves his wife dearly, may yet push her to see an abortionist. He does not see how they can have a baby. He does not know what is going to happen. If the result is frightful it is just too bad. I believe that if every woman and man understood pregnancy and how the baby grows and is born, and exactly what abortion is and the possible sequelae, we would see a reduction in the abortion rate. Although some doctors are not sure we would, nevertheless we would have a much healthier group of mothers than we have at present. I feel we have neglected the personal equation in our discussion of the abortion problem from the medical end. We have not considered the viewpoint of the patient and husband.

SPONTANEOUS ABORTION AND ITS PREVENTION

SECOND SESSION: FRIDAY AFTERNOON

June 19, 1942

INTRODUCTORY REMARKS TO SECOND SESSION CONFERENCE ON PROBLEMS OF ABORTION

FRED L. ADAIR, M.D.

Chicago, Illinois

This morning we were discussing some questions relative to the magnitude of the abortion problem, and also some of the medical aspects surrounding abortion. As may be expected, there are divergent opinions. I think we have to approach this abortion problem essentially from the viewpoint of conserving the lives and the health of the people involved. As far as the fetus is concerned, of course, it is a total loss in abortion. Whatever the number of abortions, less those valueless major malformed embryos, they represent a loss of life which is potentially valuable. As pointed out this morning, we could not limit the loss to the number actually involved in the abortive process itself, because a woman might suffer irreparable damage making it impossible for her to have future pregnancies, or difficult for her to have a normal pregnancy even though she became impregnated.

I think perhaps we do not know much about the sequelae of an abortion so far as its effect on subsequent pregnancy is concerned, or its effect on subsequent pregnancies if and when they occur, from the viewpoint of the effect upon implantation and development of the embryo. Those are all problems which need investigation. As indicated this morning, it seems to me very important to reach some fundamental classification and definitions before engaging on any wide study of the abortion problem because we all have to work from a certain uniform standard otherwise we cannot compare our conclusions.

I have always objected to the term "spontaneous" in connection with abortion, because the mere fact that we use it indicates we are not in an attitude of mind to find out what the etiology is, which is of very great importance in connection with any abortion study. Also we would have to reach some uniformity of definition and reporting in the different states so we would be using the same standards in recording our vital statistics in those various states. If in some states, abortion indicates that a woman

terminates her pregnancy between five months and 28 weeks either as a living birth or still birth, or in others it is considered as an abortion up to 28 weeks, it seems to me we can only have confusion relative to the number of living births, stillbirths and of abortions.

There were a number of points mentioned this morning with reference to microscopic examination of the specimens obtained by curettage, and I hope this afternoon that Dr. Streeter will enlighten us as to how valuable as an absolute criterion the curetted material might be in determining the presence or absence of a pregnancy in its early stages.

The point is that perhaps some of these women may have gone a week or two beyond their time, taken drugs and began to flow and yet not have been pregnant. I am wondering how accurate the diagnosis from the curettage of an early pregnancy would be unless you obtained the implantation site or the embryo. Would we not have considerable difficulty in our laboratory diagnosis from the endometrium alone in determining whether there was a pregnancy or not if we did not see some of the embryonic tissue itself?

There is another point which I have seen in fatal cases following, or presumably following, criminal abortion where on examination of the uterus microscopically, even though the history or the gross appearance of the uterus indicated there had been a prior pregnancy, one was unable to secure microscopic evidence that a pregnancy had existed, due to inflammatory processes. We should not be misled with the idea that even the microscopic examination of the curetted material would be an absolute criterion of the existence of or non-existence of pregnancy.

I think most of us would not rely on the use of drugs in an attempt to terminate a pregnancy. On the other hand, most of the women who come for therapeutic abortion, for instance, are not the real early cases and just because we might not be able to induce an abortion in more advanced pregnancies by drug therapy might not completely negate their value. There might be a difference in such cases in producing an abortion by oxytocic agents. I have no evidence on that point as to whether or not it is possible to terminate a very early pregnancy by drugs. Those are some of the considerations which might come up in a discussion of some of the abortive processes. I am sure we will be most interested in the material which Dr. Streeter will present.

Dr. Streeter needs no introduction to you. He has been allied closely with anatomy and embryology for many years, and has worked with normal and abnormal specimens. He is associated with one of the, if not *the* foremost institutes of the world which has to do with embryology. I presume the Carnegie Institution has the finest collections of serial embryos of any place in existence.

CHAPTER IV
EMBRYOLOGICAL DEFECTS AND THEIR RELATION
TO SPONTANEOUS ABORTION

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I have brought some slides with me by means of which I wish to present the viewpoint of the embryologist on the subject of defective development. In doing this I shall restrict our considerations to the egg and disregard the part played in abnormal development by the environment. The condition of the mother's genital tract, the mother's constitution and the existence of altered hormonal functions constitute factors on which I am not qualified to speak. I think we would all agree that *in the past the mother has had to bear too much of the blame*. It was the mother who aborted. It was usually something she did, or something about her condition that was held responsible for the abortion. It is only in recent years that we have learned that the initial quality of the egg, including both the maternal and paternal elements, is an important factor in development. With this change in viewpoint the examiner now has occasion more often to ask himself why a given egg stopped developing rather than why it was aborted.

Under the term *egg* one must distinguish between "germ plasm" proper and certain auxiliary substances which do not actually form embryonic parts but serve as trophic and protective membranes. Going still further, under "germ plasm" one must distinguish chromosomal structures and chromosomal abnormalities from cytoplasmic elements and cytoplasmic defects. Apparently abnormalities may primarily reside in the chromosomes or in the cytoplasm and also may be present in both. To identify the primary locus of the abnormality is our first task. Evidence that defective development can be transmitted by the chromosomes according to the laws of heredity has accumulated from various sides. As one example of what must be designated a chromosomal defect I will describe some experiments on the heredity of rickets vulnerability.

A joint study was conducted for several years by E. A. Park and D. Jackson of the Department of Pediatrics of the Johns Hopkins Medical School and myself. The purpose was to see if by mating individuals shown to be rickets-vulnerable, on the one hand, and mating those shown to be rickets-resistant on the other, one could obtain vulnerable and resistant strains re-

spectively. That turned out to be the case. After 14 generations a relatively homogeneous strain of vulnerable animals was produced, in contrast to a similarly homogeneous strain of resistant animals. In other words the problem of rickets (and it is doubtless true of other constitutional diseases) has two aspects. It not only involves the injury done but also involves the amount of resistance existing in the individual tissues. Since our breeding experiments in rats exhibit the same genetic pattern that characterizes genes in general it is clear that rickets vulnerability is chromosome born. The defect is in the fertilized egg but it can be further localized in the chromosomes of the egg. (A slide was shown of x-rays of the tibia in young animals after 3 weeks feeding on deficient diet, i.e., absence of vitamin D, high calcium and low phosphorus. The original stock shows a great variation in the width of the epiphyseal line. Slides were then shown of a vulnerable litter from the strain produced by repeated breedings, and similarly of a resistant litter from the contrasting strain. The former characterized by uniformly wide epiphyseal lines typical of interruption of bone development, whereas the latter had narrow lines showing but little disturbance.)

This study then may be taken as an example of a deficiency in embryos that is carried in the chromosomes.

Cytoplasmic deficiencies of the egg must include those that cannot be attributed to the chromosomes and are not inherited according to genetic laws. As an example, a case is presented of fraternal twins, one of which went through to term as a normal, well-developed baby. The other had died at the 20th week and was retained twenty weeks and expelled at term along with the normal twin. Its presence was in no way detrimental to the other. In such a case we have two eggs having the same father and mother, fertilized at the same time, and developing in the same uterus. The environment was thus essentially identical. The difference between the two must have been inherent in the eggs themselves, that is, in their germ plasm. (Slide showing large normal placenta with normal cord to which the living baby had been attached, and abutting against it a smaller fibrous shrunken placenta with flattened, twisted and degenerate cord. A second slide showed a section cut through the line of junction of the two placentae, an abrupt demarcation separating the normal villi of one from the degenerate villi of the other. The third slide shows the 20 weeks retained fetus. It presents a picture typical of a large proportion of non-induced abortions, with loss of muscular tone and consequent fantastic positions of the extremities, flattened heads, gaping eyelids and mouths, such as seen in this case, but which seem to do no harm to the mother.) Their automatic expulsion occurs when the trophoblastic shell ceases the secretion of the substance that either di-

rectly or indirectly suppresses uterine contraction. In this case of twins the 20 week fetus was retained because of the presence of the normal twin placenta, and the two came out together at term. It is obvious that the difference in the products was due to the difference in the eggs.

In the preceding case we were dealing with defect in the egg as a whole. It is common, however, to have defects that are limited to part of the egg. This may occur in the trophoblastic part of the egg or in the embryo forming part, the other part apparently capable of normal development. Slides of monkey specimens were shown illustrating the segregation of the trophoblastic part of the egg, during the process of cleavage, from the embryo forming part, the two thereafter being distinctly demarcated from each other, one forming the membranes and placenta only, the other forming the embryo. It was also shown how the trophoblast at the surface becomes differentiated into a syncytial layer, which is the active agent in attachment of the ovum to the uterine epithelium. The syncytium erodes the latter and thereby reaches the underlying stroma cells and maternal blood elements. The ingestion of the latter provides the necessary nutriment for the ovum.

At this point a very early potential abortion was shown. A monkey egg at the stage when it usually attaches was demonstrated in which there was a defect in syncytial formation with the result that the implantation was not advancing as it should. Instead of a 12-day development as called for by the date of ovulation, as determined by Hartman, and the status of the corpus luteum, as estimated by Corner, the ovum had only reached a development of about 9 days and would doubtless have soon been aborted. Thus here is a case where the defect is in the trophoblast whereas the embryo cells appear entirely normal. The opposite condition is constantly found in abortion material, where it is the embryo forming cells that are defective whereas the trophoblast is carrying on in normal fashion. Such specimens may show a chorion as large as a golf ball richly covered with villi but inside there may be no embryo at all or perhaps a stunted nodule of embryonic cells.

The defect in the embryo-forming cells may involve the whole mass, but more commonly it is only part of the mass that is involved. This produces circumscribed focal defects. As illustrations of this two human embryos were demonstrated. An 18-somite specimen (22 days) in which the vascular system and the gut tract had reached a development normal for that age, had however an open neural plate. The brain and cord had not closed as a neural tube as they normally do but were developing as a total spina bifida.

Another embryo was shown, a few days older but less than four weeks old,

in which the defect was limited to the extreme tip of the tail bud. The remainder was entirely normal and the heart had been observed to be beating at the time the fixative was flowed over it. This probably would have gone to term and would have been born with a spina bifida limited to the sacral region.

Localized and focal deficiencies occur in infinite variety, so much so that one wonders if any individual is entirely perfect. A conspicuous group is formed by defects in the extremities. The distribution of some of these throughout all four extremities serves to date their initiation. That is, they must have been determined before the limb bud tissues became bilaterally placed, back in the cleavage stages of the germ disk. As an illustration of limb defects slides were shown of intra-uterine amputations involving various levels of the limbs. Formerly supposed to be due to amniotic bands and adhesions, it was shown that they are a breaking down process of the extremity tissue. Depending on the location and severity one can account for the various malformations that result from the sloughing off of these defective tissues. Contrary to agenesis which is usually confined to one area, intra-uterine amputations are usually represented in all four extremities although to different degrees. In other words, in the latter, the embryonic arms and legs are laid down in normal manner but after a few weeks' development the deficient areas undergrow necrosis and become sloughed off. The adjoining normal tissues close in and the wound becomes healed over. The various steps in this process were demonstrated.

On the other hand, there are cases in which tissue areas may give an exaggerated response to growth stimuli and there is thus produced local gigantism. The case of a 19-year old boy was demonstrated in which the thumb and index finger of one hand and the palm and forearm of the opposite extremity were about twice the normal size. Otherwise he was normally formed. When two years old the same boy had been x-rayed and the films show the condition already existing at that time. We must assume that it was already present in the early embryonic limb-bud primordia.

Thus far we have been reviewing various forms of cytoplasmic and chromosomal defects that underlie abnormal development and abortions. They all belong in the domain of pathology. Falling into a different category is a group of defects that are the result of what may be called developmental accidents. In these cases the involved cells are apparently normal in structure but they exhibit slight aberrations in behavior. This gives rise to inaccuracies, errors or failures in the team work required in the mechanics of development.

It is hardly necessary to remind this audience that the development of an

embryo is a highly complicated series of events. Cell division in itself is an intricate phenomenon, and when it is remembered how many cell divisions occur in the making of an embryo one can appreciate the vast number of hazards that are to be overcome. The cytologists have taught us much regarding chromosomes and mitosis. By means of the Feulgen reaction, which colors the chromosomes but not the rest of the cell, one can observe the intact chromosomes and their locations without necessarily sectioning the embryo. By this means it has been demonstrated that in embryos of lower forms of animal life many accidents happen in cell division, that single chromosomes become adherent to the spindle and are thus eliminated. In some cases this is the normal procedure but where it is not, there results defective daughter cells. If it happens to be a cell of minor role no great harm is done. If it is an important cell the defect may be serious.

Another type of abnormal mitosis has been demonstrated in motion pictures of living tumor cells and seems to be characteristic of that type of defective tissue. Furthermore, it has recently been shown that abnormalities in cell division can be produced experimentally by the use of colchicine. The latter drug arrests the mitosis as the chromosomes are about to split and there results a doubling of the chromosome number and consequent abnormally large cells. Plant tissues survive this handicap to some extent but in animal tissue it is usually fatal.

There are other sources of developmental accidents that must be kept in mind and to be appreciated one need only review the precarious first weeks of development. A great advance has been made in this field through the collaboration of Dr. Rock and Dr. Hertig of Boston with the Carnegie Laboratory in Baltimore. We now know more details of the mechanism of implantation and are able to trace more clearly, than was before possible, the successive physiological stages through which the embryo passes in its progression from a simple organism to a large and more highly complex one. Slides were shown of the human ovum of about 8 days at which time it has just penetrated through the uterine epithelium to the stroma. At this time it is a simple predatory parasite. Its precocious trophoblast cells in the succeeding days take the form of a fluid filled sac, thus constituting a tissue culture chamber. Its thick syncytial walls take up nutrient materials in the nature of stroma cells, blood plasma, and maternal red cells. These substances are digested and secreted into the interior of the ovum creating a large exocoelomic reservoir, being a tissue culture medium suited to the needs of the small clump of embryo-forming cells contained in the sac. It is not until then that the embryo cells begin their differentiation. As the embryo disk takes form, being still small, it acquires its nutriment by diffusion. But

as it becomes larger and thicker a special device is required for the coelomic fluid to reach the deeper lying cells. This is accomplished by the development of a coelomic channel which constitutes a primitive coelomic circulation. The channel surrounds the primitive heart and the circulation is thus aided by the early heart pulsations. In the meantime the chorionic villi have been forming and the blood vascular system has established an efficient blood circulation which soon supplants the temporary services of the coelomic channel. Thereafter the blood circulation itself passes through a long series of transformations in adaptation to an ascending scale of requirements on the part of the developing embryo. Because of the better histological methods that are now available many of these phenomena can be seen under the microscope. We are learning the structural form of functional processes and this is placing us in the position of distinguishing the normal from the abnormal.

After seeing these slides I am sure you will agree with me that the business of making a little embryo is an intricate affair. The egg in its cytoplasm and in its chromosomes must be a good one to start with and besides that there must be no accident along the line if it is to get by as a perfect baby. Indeed there is good reason to doubt whether there ever is such a thing as a wholly perfect baby.

DISCUSSION

The discussion of Dr. George L. Streeter's paper was conducted by Dr. Fred L. Adair, Chairman of the June 19th afternoon session of the Conference.

Fred L. Adair: It is a wonder, considering the complicated process, that there are not more abortions and stillbirths, a wonder that so many of us are nearly as normal as we are, or as we think we are, at least.

There is a question which usually interests a prospective mother who is having a prospective abortion. If one can halt this process of aborting, will a normal baby be obtained? That was one of the central theses we had in the abortion study at the Lying-In, which is quite incomplete. Maybe the abortions would have been prevented anyway but we were successful in halting about 100 threatened abortions. These potential abortions went through to eventual delivery of fetuses. In this group the percentage of malformations was not any higher than you would expect from cases which did not have threatened abortion, so we can answer that question to our patients' satisfaction.

John Rock: The conceptuses which Dr. Hertig and I have contributed to the Carnegie collection are not the products of abortions. The women who furnished our material were all patients who needed hysterectomies for conditions discovered and recorded by other surgeons in the hospital who had no interest in this work. The important thing I did was to operate on them in the latter half of the cycle, rather than in the first half of the cycle.

All material that I recover in the operating room is sent to Dr. Hertig who, with extraordinary ability, examines the endometrium; and it is due to his meticulous care and great technical ability that these little "blisters" are found. I am sure that in any hospital a similar laboratory technique would recover from the uterus this sort of material. I do not know whether or not so much would be recovered in a short time. I do not think we will henceforth find them as frequently as in the past. Our twelve conceptuses were recovered in the course of examinations of uteri of 61 patients who had been carefully followed with respect to their menstrual habits, and were operated upon in the latter half of the cycle. These patients were chosen because the indications for operation did not involve any gross disturbance in reproductive ability.

Out of the 12 conceptuses recovered, 5 have been adjudged abnormal by

competent authority. With one exception, the 16.5-day old specimen, these embryos are all within a 14-day ovulation age. If 5 out of 12 are already bad, we may say that of this group of pregnancies, 42 per cent were doomed to inevitable abortion regardless of treatment because the defects seemed to be such as to make recovery most unlikely. It seems probable that this particular proportion would not hold in a larger series of cases, but I think we should consider the facts which we have thus far. If we cut down on our operative cases, we may surely expect that a large number of those women who do not get themselves aborted will miscarry just the same.

We all know that a great many women who consider themselves sterile do conceive, but lose the conceptus before the diagnosis of pregnancy is made. We have in our sterility clinic and private practice about ten women who have retained a pregnancy possibly because of intra-uterine manipulation during the immediate post-ovulatory period.

The first patient who came to my attention was one who had been trying for 7 years to become pregnant, and on the 21st day of a presumably 27-day cycle (i.e. with catamenia occurring on the 28th day) was subjected to a biopsy of the uterus. She carried on with the pregnancy; possibly, a mere coincidence. When, however, that process is repeated at least 10 times, then one begins to think that perhaps something was done to the endometrium or the environment of the ovum which made it possible for the particular pregnancy to persist, whereas other pregnancies had been lost.

Fred L. Adair: Our time is not too long and I think it would be better if we discussed the topics only after the papers are presented, and at the conclusion of the 4 papers we can open up for general discussion. So in asking questions and in entering the discussion I ask you to limit yourselves to the topic which Dr. Streeter presented.

Robert L. Dickinson: May I ask whether in those cases of Dr. Rock's there was a distinction between anterior implantation and posterior implantation, that is, as to their goodness.

John Rock: There was, but I did not want to bring it up because it must be a false relationship. All 5 of the embryos considered defective were found on the anterior wall of the uterus, whereas the other 7 normal embryos were recovered from the posterior wall. We know that from the posterior wall we get more babies, but some placentas cover the anterior wall.

Robert L. Dickinson: Always on the walls and not on the fundus so much.

Frederick J. Taussig: I would like to ask whether, in the analyses of the 12 embryos, the underlying pathology in the uterus which indicated the hysterectomy was taken into consideration? Were the bad embryos necrotic? In the case of necrotizing embryos or the fibroid, was there any relationship

between the development of the bad embryos and any particular pathology, indicating the hysterectomy?

John Rock: There is no correlation except in one case. There was evidence of pathology in the endometrium immediately surrounding the embryo in only the one case in which the embryonic disc was absent. This pathological conceptus was found imbedded on the end of a tiny bit of polypoid hyperplastic endometrium. In two normal and in one abnormal case, small hemorrhages were found in the endometrium. I doubt if these are significant. In one other abnormal case, the corpus luteum was compressed by a small cyst into a crescentic shape. It seems unlikely that this was causal either.

Fred L. Adair: I would like to ask Dr. Streeter or Dr. Rock a specific question. If these women with young embryos had aborted a few days or a week or so beyond the expected period, and if following indications for abortion they had been curetted, could you then tell from the curetted material whether or not a pregnancy had existed save in those cases wherein one actually encountered the embryonic site?

George L. Streeter: I am sure we could not. We cut various places of endometrium and they seldom look anything like the embryo. We would not be able to say a pregnancy had existed.

John Rock: All our embryos were obtained before the subsequent period was due, and in all but one case the period would have occurred if pregnancy had not supervened. The endometrium was still undergoing normal change. Actual secretion in the case of the 7.5-day embryo is just starting. The picture is characteristic of the 22nd day in a 27-day cycle (i.e. with catamenia occurring on the 28th day), the stage when the epithelium of the glands is only beginning to break down.

If the conceptus continues to grow beyond the date of the anticipated period, then one would expect to find a well developed decidua. In our cases we have nothing but secretory endometrium. This tissue does not change to a true decidua until the corpus luteum has completed the usual cycle, so I do not think we could tell in the younger ones; but, in the older ones, when the endometrium has undergone other changes, we might guess the patient had been pregnant if the conceptus had been carried long enough to react on the endocrine setup of the patient so that decidua developed.

William H. Cary: I wish for some further enlightenment upon one of Dr. Rock's statements. Does he think some of these women carried the embryo through because of some manipulation inside the fundus? The point is not entirely clear with me.

John Rock: That is what I said, but in reference to other (sterility) patients, not to the patients from whom our embryos were obtained.

William H. Cary: What was the basis for that?

John Rock: Only because, in at least 5 instances, women who had been sterile for 2 to 9 years maintained the fetus following submission to intra-uterine instrumentation. The fetus was there when we used the instrument, for in all our cases biopsy was done within 7 days of the expected catamenia.

William H. Cary: I have been most careful to avoid such conditions and such a possibility has caused me to be severe with some of the younger men because of the dangers of inducing early abortion.

John Rock: One has to be most careful. At the 22-day stage the little blister on the endometrium is 0.4 mm. to 0.5 mm. in diameter, and, if it is normal, it may readily be on the posterior wall. If one, for instance, confines himself at that time to meticulous and delicate manipulation on the anterior wall, he is likely to miss it.

William H. Cary: Do you think the embryo may grow through the hemorrhage or blood attendant upon such unfortunate intrauterine manipulation?

John Rock: I do not know. Possibly the continued fetal growth is due to the decidual stimulation.

William H. Cary: Abortions are associated with hemorrhage. I was wondering, Dr. Streeter, whether you saw any evidence of excessive hemorrhage, possibly due to some deficiency in vitamin C or vitamin K?

George L. Streeter: Yes, in some cases.

William H. Cary: What do you think the source of it was?

George L. Streeter: During the second week of pregnancy there is invariably a great distinction of the blood vessels immediately underlying the ovum creating large blood sinuses. The trophoblastic syncytium appears to open up the capillary endothelium and in this way there is a certain amount of extravasation. The extravasated blood is in part consumed by the trophoblast and frequently some of it is found in the uterine glands. It is through the latter that it reaches the lumen of the uterus.

Fred L. Adair: If there is no further discussion, we will continue with our next 3 papers. Dr. Earl T. Engle of New York, Professor of Anatomy in the College of Physicians and Surgeons, will present his contribution entitled, "Hormonal and Metabolic Disorders in Spontaneous Abortion."

Dr. Engle will be followed by Dr. Philip Levine on "Serological Factors as Possible Causes in Spontaneous Abortion." We have been most interested in Dr. Levine's work in connection with determining the possible relationship of the mother to some of the fetal causes of death. This may be an instance where we may have to hold the mother in a measure responsible for some of these conditions.

Dr. Philip F. Williams will speak after Dr. Levine on "The Prevention of Spontaneous Abortion."

CHAPTER V
HORMONAL DISTURBANCES IN SPONTANEOUS ABORTION

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The previous speaker, Dr. Streeter, has intimated that, because of the primary deficiencies of the ovum itself, the mother should largely be absolved of responsibility in certain involuntary abortions. I am quite sympathetic with this viewpoint, but will present the meager data regarding the possible role of the corpus luteum and its hormone, progesterone, in pregnancy and in involuntary abortions.

Progesterone is produced by the corpus luteum and begins to be distributed through the blood stream about 24 hours following ovulation. It has a direct effect on transforming the endometrium from the proliferative to the secretory stage. Only in this phase of activity will the endometrium be responsive to nidation of the highly active trophoblast.

There is not a direct test for measuring the amount of progesterone that is elaborated by the corpus luteum. The routine method, in use now by most gynecologists, is the determination of the metabolic by-product or end product of progesterone metabolism, sodium pregnandiol glucuronidate. This conjugated substance, which is excreted in the urine, is an equivalent of progesterone. One milligram of progesterone, secreted and liberated by the corpus luteum, produces about one milligram of the metabolic end product, sodium pregnandiol glucuronidate.

When Brown and Venning first published their method of determining the pregnandiol excreted it was thought that it was a rather specific measure. It appeared that the amount of work performance of the corpus luteum could be assayed by means of the gravimetric determination of this material. It was thought that the transformation of the progesterone into the pregnandiol conjugate occurred only in the endometrium. Buxton and Westphal (1) in our laboratory injected progesterone into men, whom we rather securely felt had no endometrium. These males produced almost as many milligrams of pregnandiol as do normal women who had been injected. Therefore, it is clear that the endometrium is not essential to the process. Other workers have reported sodium pregnandiol in the urine of women who had tumors of the adrenal cortex and in whom there were no corpora lutea. Pregnanndiol determination is not always a specific method for proving the presence of corpora lutea.

Urinary assays during the menstrual cycle by means of 24-hour specimens, saved as carefully as is possible, disclose that there will be days within the cycle when there is no pregnandiol output. If single samples are used it is necessary to resort to pooled, 48 or 72 hour, samples, for a false negative response is frequently obtained by using a single 24-hour specimen.

The older scientific opinion once considered that the corpus luteum was essential to the maintenance of pregnancy. A most interesting recent paper on the subject has come from Segar and Delfs (2). They report a case in which the ovaries were removed on the 63rd day of pregnancy and the patient went to full term and delivery with a relatively normal excretion of pregnandiol. This study suggests that while the corpus luteum starts secreting progesterone, other sources such as the placenta may also elaborate this substance.

A scatter curve of pregnandiol determinations as demonstrated by Browne, Henry and Venning (3) illustrate the ranges of distribution of the amounts of pregnandiol throughout the duration of a normal pregnancy. The titre climbs rapidly and maintains a high excretion rate right up until delivery. Segar and Delfs (2) demonstrated that in their case the pregnandiol excretion, although lower than average values, is well within the normal range for pregnancy.

An involuntary abortion is precipitous in inception and course, and there have been few have been studied before and after the abortion. Browne, et al. (3) report a few cases of habitual abortion in which pregnandiol determinations were made. These authors believe that there is a decrease in the amount of excretion of the pregnandiol complex, as well as a decline in the urinary excretion of the chorionic gonadotropic hormone in certain cases of involuntary abortion. If such a decrease in pregnandiol output is the rule, then progesterone therapy might be indicated.

When a physician is confronted with a spontaneous abortion he does not usually confine himself to the strict experimental standards of the laboratory. He is obliged to put the patient to bed. He feels obliged to use any or all methods of treatment and these include sedation, therapy with wheat germ oil, progesterone and perhaps a little thyroid extract. Maintenance of the pregnancy is of prime importance.

As a result we have few clean-cut, clinical and experimental tests by which the importance of progesterone therapy in cases of spontaneous abortion can be fairly evaluated. Frequently the abortion is well under way before any therapeutic measures can be instituted.

Corner (4), in a review of the role of the corpus luteum and progesterone, states that one important role of progesterone is in stopping the involuntary contraction waves of the uterus. If the involuntary contraction of the

uterus, and the hyper-excitability of the uterine musculature are factors related to spontaneous abortion, the progesterone may act to prevent actual abortion.

An interesting paper by Malpas (5) deserves careful study, not only by the statistician interested in the incidence of abortion but also by the obstetrician. Malpas states, from his statistical study made on a rather small amount of material, that in a three-abortion sequence, there are almost certainly recurrent factors. That is, the first abortion a woman may have may arise from a bad egg, it may come from some intrinsic endogenous situation, or it may come from a failure of the corpus luteum secretion. If, however, there is a series of three involuntary abortions Malpas believes a common recurrent factor is responsible. The chances of a live birth after this sequence is only 1 to 3. The total number of pregnancies in which these recurrent factors occur is only about 1 per cent and Malpas further makes the point that it is only those women with a three-abortion sequence who should be considered as habitual aborters and who would lend themselves for clinical experimentation to determine the efficacy of any of these therapeutic agents.

There is a considerable literature dealing with the beneficial effects of progesterone or of alpha tocopherol in threatened or repeated abortion. It would not be profitable to review the separate reports, because they consist of clinical reports in which very inadequate criteria are put forth for judging the therapeutic effectiveness of a single procedure.

Recently McGregor and Stewart (6) reported a series of cases which are selected for reporting because they meet the rigorous standards of Malpas for classifying women as chronic habitual aborters. McGregor and Stewart report 20 cases with a total of 65 recognized pregnancies. In this series there were 10 live births. Nine of the women had 2 previous abortions, and 11 had 3 or 4 abortions. Subsequently these 20 women were given progesterone during some portion of pregnancy. Fourteen of the 22 conceptions in these women terminated in a live birth. Thus, in the 11 women, with 3 or 4 involuntary abortions, the statistical expectancy of live birth according to Malpas would be 3. With progesterone treatment, 8 of these women produce living children.

This series is small, but the data are quite adequate in the sense of a careful report of previous reproductive wastage in the patients under treatment. From the report of McGregor and Stewart one may derive some hope that in certain cases progesterone may be of some value in preventing involuntary abortion.

It may then be admitted that some abortions which are not due to the

inadequacy of the ovum itself may be related to incomplete nidation or to lack of development of the endometrium.

In these cases a lack of the hormone progesterone may be a factor in the abortion. Precise clinical and experimental data on such cases are not abundant, and as a result, progesterone therapy of spontaneous abortion is largely empirical, and the results of such therapy uncertain.

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CHAPTER VI
SEROLOGICAL FACTORS AS POSSIBLE CAUSES IN
SPONTANEOUS ABORTIONS

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Recent studies led to the importance of the concept of isoimmunization of the mother by hereditary dominant agglutinable factors in the blood of the fetus. The first observations were made in connection with the origin of atypical agglutinins which were held responsible for serious intra-group transfusion accidents in pregnant women (1, 2). Further investigation yielded proof that isoimmunization of the mother was the most essential feature in the pathogenesis of a specific familial disease of the fetus and the newborn, i.e., erythroblastosis fetalis (3). Clinically it was already known that mothers of erythroblastotic infants have a higher than normal incidence of spontaneous abortions. Although the mechanism of erythroblastosis fetalis was unknown at the time, it was felt that the same mechanism could also operate in the early fetal period (4, 5).

As will be shown below, a particular blood factor, Rh, common to the blood of macacus rhesus and 85 per cent of all human bloods, plays a major role in inducing isoimmunization of the mother. In 90 per cent of the cases of erythroblastosis fetalis, the mother's blood is not agglutinated by anti-Rh serum, i.e., the blood is Rh—. This value is to be contrasted with an incidence of 15 per cent Rh— in a random population. In this large group of Rh— women, 100 per cent of the fathers and affected infants are Rh+. It is assumed that enough Rh+ fetal blood finds its way into the Rh—maternal circulation, thus stimulating the mother to produce anti-Rh agglutinins. These agglutinins then pass the placental barrier so that their continual reaction with susceptible Rh+ fetal blood results in the intra-uterine hemolytic process which is so characteristic of the pathologic and clinical features of the 3 recognized forms of erythroblastosis fetalis, i.e., fetal hydrops, icterus gravis and anemia of the newborn.

From this brief description one may conclude that the pathogenesis of erythroblastosis fetalis can be classified essentially under the heading of genetic and constitutional causes. It is significant that the prenatal course

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and delivery in the great majority of these mothers is entirely uneventful except in the much smaller group of fetal hydrops, in which there is an incidence of about 30 per cent toxic symptoms in the mother (6, 7). Granted that a particular factor in fetal blood, Rh, may immunize the mother with resulting pathologic effects on the fetus or infant, the question naturally arises why isoimmunization brought about by other fetal blood factors may not also terminate in morbid conditions of the fetus and the newborn. This issue is particularly pertinent because so little is known about the large group of early and late fetal death and in view of the great individuality of human blood resulting from the permutations and combinations of several well described hereditary blood factors aside from Rh, such as A and B, M, N, P and still others.

Actual evidence of a preliminary nature will be presented below, that the factors A and B in fetal erythrocytes may immunize mothers who lack these factors with resulting abortions and stillbirths. In comparison with the clear cut relationship of the Rh factor and erythroblastosis fetalis, the evidence on isoimmunization by factors A and B causing abortions and stillbirths is not as convincing. However, the statistical proof for the pathogenesis of erythroblastosis fetalis is so thoroughly established that it serves, indirectly, to support to a considerable degree the concept of isoimmunization by A, B, or other factors. Furthermore, the general procedure for obtaining proof of fetal and neonatal morbidity by isoimmunization by blood factors A, B, or others does not differ in principle from that found so expedient in the Rh studies on erythroblastosis fetalis. It is for these reasons that erythroblastosis fetalis assumes an importance altogether out of proportion to its low incidence so that a complete description of the developments leading to the concept of isoimmunization by the Rh factor is indicated.

ISOIMMUNIZATION BY THE FETUS: THE Rh FACTOR

Isoimmunization implies immunization within the species. Obviously, this phenomenon cannot occur without the existence of individual differences within the species. As is very well known, the four blood groups O, A, B and AB serve as an excellent example of intra-species differentiation in red blood cells. Until recently, isoimmunization in man was observed rarely and exclusively in cases of intra-group transfusion reactions following repeated transfusions. In these cases it was assumed that the atypical agglutinins resulted from the repeated transfusion of donor's blood which contained antigenic (immunizing) blood factors which were foreign to the recipient. However, it was characteristic of the severe and sometimes fatal

intra-group transfusion reactions associated with pregnancy that they followed the very first transfusion. That isoimmunization had occurred was evident from the demonstration of atypical agglutinins which were held responsible for the transfusion reaction. Consequently, Levine and Stetson (1) assumed that the source of the isoimmunization was a blood factor in the fetus which was foreign to the blood of the mother.†

Curiously enough the specificity of the atypical agglutinins in the mother was almost identical with that of the experimental anti-rhesus blood immune serum of Landsteiner and Wiener (8). Consequently, the terms Rh and anti-Rh were employed for the antigenic blood factor in fetal and its agglutinin in the mother's serum (23). *The significant observation was made that the pregnant women suffering from transfusion accidents because of immunization by the Rh factor in fetal blood had obstetrical histories characterized by a high incidence of abortions, stillbirths and neonatal deaths.* It was

TABLE 1
Outcome of 37 Pregnancies in 7 Patients

Mothers	Number	Births	Number
Anti-Rh agglutinins	6	Normal babies	10
Transfused	5	Erythroblastosis }	15
Transfusion shock	5	Neonatal death }	
Death after transfusion (anuria)	3	Stillbirth }	
		Abortion or miscarriage	10
		No data	2

apparent that the two phenomena—isoimmunization and fetal-death were correlated (2).

The nature of this relation became clear since the cause of fetal and neonatal death in a small number of the early cases could be attributed, on the basis of clinical and pathological grounds, to erythroblastosis fetalis. Accordingly, it was assumed that this condition is brought about by (1) isoimmunization of the Rh— mother by the Rh+ fetal blood and (2) the passage of maternal immune agglutinins through the placenta and their continuous reaction with susceptible fetal blood. The other characteristic feature of erythroblastosis fetalis, i.e., familial incidence in certain matings and sporadic in others can be explained on the basis of homozygous and heterozygous character of the Rh factor in the father's blood (9).

† The blood factor in this case studied in 1937 was shown to be identical with the Rh factor.

The statistical evidence supporting these concepts is presented in table 2.

Another element in the proof is the demonstration of anti-Rh agglutinins in mothers of affected infants. It is evident that the chances for demonstrating these antibodies are better if the tests are carried out soon after delivery.

It is of great importance for the prevention of maternal mortality in this group to appreciate that the Rh— mothers of erythroblastotic infants who

TABLE 2
Statistical Evidence

Blood studies of	Incidence of Rh factor	
	+	-
	<i>per cent</i>	<i>per cent</i>
Random population.....	85	15
350 mothers of affected infants.....	10	90
204 husbands of Rh— mothers.....	100	0
139 affected infants of Rh— mothers.....	100	0

In the Rh+ mothers, isoimmunization may be induced by Hr, A, B or other unknown factors in fetal blood.

TABLE 3
Incidence of anti-Rh agglutinins in Rh— mothers of erythroblastotic infants

When tested	Incidence
	<i>per cent</i>
Up to 2 months postpartum.....	47
2 months to 1 year postpartum.....	25
1 year or longer postpartum.....	5

have no agglutinins in their serum nevertheless have been immunized as evidenced by the occasional occurrence of severe transfusion shock following the transfusion of Rh+ blood. It cannot be too strongly emphasized that all Rh— patients must be transfused with blood of Rh— donors (10).

Without going into the details of the serologic tests it may be stated that not all human anti-Rh sera derived from mothers of erythroblastotic infants give identical specificities (9). In addition to that type of serum giving 85 per cent Rh+ reactions there is one variety giving 87 per cent, and a third one giving only 70 per cent positive reactions. For the diagnosis of

erythroblastosis fetalis and for the prevention of intra-group transfusion accidents either the 85 per cent or the 87 per cent will be satisfactory.

It is of interest that anti-Rh sera giving 87 per cent reactions contain several agglutinins so that after suitable absorption the specificity of the treated serum corresponds to that of the serum giving about 70 per cent reaction. This effect could not be produced with the serum giving 85 per cent reactions.

In the 10 per cent of the cases in which the mother is Rh+, or both parents are Rh-, it is assumed that other agglutinable factors such as Hr, A, B or perhaps still other unknown factors of fetal blood may immunize the mother. The factor Hr demonstrable by means of an agglutinin by an Rh+ mother is related genetically to the Rh factor, probably in the form of an "allelomorph."

Heredity of erythroblastosis fetalis. As indicated above, there are two strikingly contrasting obstetrical histories given by mothers of erythroblastotic infants. In certain instances only the first one or two children may be normal while all subsequent pregnancies terminate either in abortion, stillbirth, or in one of the 3 recognized forms of erythroblastosis fetalis. In other matings, only one of numerous pregnancies may result in fetal death or morbidity due to erythroblastosis fetalis. From a genetic standpoint it is quite obvious that the contrasting obstetrical histories depend upon the homozygous or heterozygous nature of the Rh factor of the father's blood. The significant genetic crosses involved are given in table 4.

So far as the Rh factor is concerned, only heterozygous (Rhrh) Rh+ infants may acquire this disease.

The first one or two pregnancies with Rh+ fetuses in both sorts of matings may result in normal infants because a sufficient degree of isoimmunization has not yet been attained. But once the mother has developed a sufficient degree of isoimmunization all her future pregnancies with Rh+ fetuses will terminate in erythroblastosis fetalis. Since Rh- offspring cannot immunize the mother, it is obvious why only a few out of many pregnancies will result in affected infants in matings with a heterozygous father. In general, the incidence of erythroblastosis fetalis is apt to be higher with a greater degree of parity with Rh+ infants.

That the Rh factor is inherited as a Mendelian factor was shown by Landsteiner and Wiener (11).

As already stated, erythroblastosis fetalis occurs but rarely, its incidence as given by Javert being 1 in 438 full term deliveries (12). Undoubtedly this value will be somewhat greater if Rh tests are applied as a diagnostic reagent in all cases of fetal and neonatal morbidity. In any event, the

condition is rare if one considers that in 13 per cent of all random matings the father is Rh+ (85) and the mother is Rh- (15 per cent). Obviously, there are a number of factors of safety, the most important of which is the inability of many of these Rh- mothers to produce anti-Rh antibodies. Another important factor is the current tendency to small families, especially in view of the fact that the first one or two Rh+ infants are frequently normal.

The evidence presented indicates that Rh+ fetal blood in one form or another enters the circulation of the Rh- mother (9). Since the Rh factor

TABLE 4

Heredity of Erythroblastosis Fetalis Depends on Heredity of the Rh Factor

1. Rh inherited as mendelian dominant
2. Dominant gene..... Rh
- Recessive gene..... rh
3. 3 genotypes RhRh Homozygous }
- Rhrh Heterozygous }
- rhrh Recessive..... Rh-

Significant Matings

Rh+ Father x Rh- Mother

Genotypes	Homozygous Father RhRh x rhrh	Heterozygous Father Rhrh x rhrh
Genes in sperm or egg.....	Rh rh	Rh rh
Offspring.....	Rhrh 100% Rh+	Rhrh 50% Rh+ rhrh 50% Rh-
	Every pregnancy may immunize Rh- mother	Rh- offspring cannot immunize Rh- mother

in contrast to the blood factors A and B is not present in body fluids (or other tissue cells) it must be the formed element itself i.e., the red blood cell or the stroma which find their way into the maternal circulation (13). Whether or not this is possible without the presence of gross lesions is as yet premature to decide. Assuming that such lesions are present (14), their pathogenesis is of paramount importance. Theoretically, such gross lesions may be due either to environmental conditions or else to constitutional defects in the mother. In any event, these lesions must recur and become operative in each succeeding pregnancy with an Rh+ fetus. However,

one need not predicate the existence of gross lesions if it can be assumed that minute amounts of fetal blood acting over a long period suffice to induce a sufficient degree of isoimmunization. In that event, the question will arise whether or not this can occur under physiologic conditions of pregnancy.

Once anti-Rh agglutinins have been produced, they pass through the placental barrier to act on the susceptible Rh— fetal blood. There is no difficulty in accepting this view since it is generally recognized that maternal antibodies are the source of the passive immunity in the neonatal period.

Finally, the concept presented offers a suitable explanation for the markedly contrasting forms of erythroblastosis, namely, the invariably fatal fetal hydrops on the one hand and the mild, frequently unrecognized anemia of the newborn on the other hand. Nothing is as yet known at present as to how early in the course of pregnancy isoimmunization begins. However, there is indirect evidence that fetal hydrops results from the prolonged intra-uterine action of maternal anti-Rh agglutinins, while shorter periods of this activity will produce the milder forms of icterus gravis and anemia.

ISOIMMUNIZATION BY A AND B FACTORS AND EARLY AND LATE FETAL DEATH

From a historical standpoint it is of considerable interest that more than 20 years ago incompatibility of the blood of the mother and fetus was held responsible for icterus neonatorum, icterus gravis and fetal death (15, 16, 17). In some manner this incompatibility also adversely affected the birth weight. In this connection the terms homospecific and heterospecific pregnancies were employed by Hirszfeld and the only combinations considered by him to be compatible were those in which the blood groups of the mother and her infant were identical. Accordingly a mother of group A or B and an infant of group O were classified by him under heterospecific pregnancy. Analysis of these early papers failed to reveal any reference to isoimmunization of the mother by the dominant blood factors A and B of fetal blood. The fact that the significance of isoimmunization of the mother by dominant factors in the fetal blood was not appreciated at the time probably explained, at least in part, why these early significant observations were not accepted.

Shortly after the pathogenesis of erythroblastosis fetalis was established, the writer had an opportunity to study the bloods of women submitted because of histories of abortions and stillbirths not attributable to erythroblastosis fetalis. It soon became evident that the Rh blood factor played only a comparatively minor role in these cases (26). However, a difference was observed in the blood group of the mother on the one hand and of the

father and fetus on the other hand, which could be interpreted as isoimmunization by the blood factors A and B. In these instances the mother's blood was lacking the blood factors A and B which were present in the father and in the affected fetus. This sort of mating is defined as incompatible in contrast to those compatible matings in which the blood of the father and the mother are either identical or in which the dominant factor is present in the mother's blood.

The two sorts of matings are classified in table 5.

Based on the following incidence of the four blood groups in the white race of the United States O 45, A 41, B 10 and AB 4, 65 per cent of all random matings are compatible and 35 per cent are incompatible. This ratio is altered so that there is a higher incidence of incompatible matings in a group

TABLE 5
Blood Group Matings
(F and M indicate father and mother respectively)

Compatible F x M	Incompatible F x M
O x O	A x O
O x A	B x O
O x B	A x B
A x A	B x A
B x B	AB x O
O x AB	AB x A
A x AB	AB x B
B x AB	
AB x AB	

of cases selected because of two or more instances of unexplained early or late fetal death. This evidence along with other significant data is tabulated in table 6.

It is noteworthy that in the matings of Rh- mothers with erythroblastotic infants the incidence of incompatible blood group matings is even lower than normal. Furthermore, in the exceptional group, i.e., where the mother is Rh+, the incidence of incompatible matings is considerably higher than normal. Shortly after these observations were made on a smaller series, reference was found in Dr. Taussig's book (20) on abortions to the significant findings of Paroli and Tranquilli-Leali, which are also recorded in table 6.

The values given by the Italian workers of homospecific and heterospecific pregnancy do not correspond with the figures given in table 6 which were

derived by Levine from an analysis of their data in terms of the concept of isoimmunization.

Although the statistical data presented in table 6 are very likely significant, they are not as convincing as the studies in erythroblastosis fetalis. But this is rather to be expected since the heterogenous group studied is not by any means a readily recognized clinical entity such as erythroblastosis fetalis. There are obviously several factors responsible for fetal death in this group but the preliminary studies indicate that at least one of these

TABLE 6
Isoimmunization by Factors A and B

Matings	Compatible	Incompatible
	<i>per cent</i>	<i>per cent</i>
Random.....	65	35
115 with 2 or more miscarriages.....	46	54
43 with 2 miscarriages or stillbirths.....	44	56
41 with fetal death*.....	41.5	58.5
215 Rh- mothers†.....	75	25
28 Rh+ mothers†.....	50	50

* Paroli (18) and Tranquilli-Leali (19).

† Mothers of erythroblastotic infants.

TABLE 7
Blood Group Incidence

Group	Random	158 Mothers	158 Husbands	316 Parents
O	45	50	28.4	39.2
A	41	33.5	51.9	42.7
B	10	13.9	14.6	14.2
AB	4	2.5	5.1	3.8

factors can probably be attributed to isoimmunization of the mother by the agglutinable properties A and B of fetal blood.

From the point of view of isoimmunization by factors A and B it does not differ in principle whether one is dealing with early or late fetal death. Accordingly, one is justified in lumping the two series in order to indicate the varying distribution of the blood groups in the mothers, the fathers, and their sum, i.e., the parents.

The unusually high incidence of group O in the mothers and the equally high incidence of group A in the fathers are self evident. As is to be ex-

pected, the distribution in the parents does not differ much from that in a random population.

Further proof for the isoimmunization by fetal blood factors A and B can be obtained from a small number of cases in which specific increase of agglutinins can be demonstrated following an abortion or stillbirth. Illustrating examples are given in table 8.

It is true that specific increase of agglutinins was at first not correlated with fetal death (21, 22), but these observations were made in women following their first pregnancies. If the views presented are correct, these women should show a high incidence of abortions and stillbirths in their future pregnancies.

In contrast to the findings on erythroblastosis, intra-uterine hemolysis does not occur in this group in spite of specific increase of the normally present agglutinins, so that the actual cause of early or late fetal death is

TABLE 8
Specific Increase of Maternal Isoagglutinins

Blood Group of Mother	History	Titre	Blood Groups of Husbands
O	4 abortions	{ Anti-A 1:320 Anti-B 1:40	} A
O	1 stillbirth	{ Anti-A 1:80 Anti-B 1:640	

still to be established. There is, however, experimental evidence to indicate why these cases do not show manifestations of erythroblastosis fetalis. The significant fact is that in contrast to the Rh factor, the A and B blood factors are present not only in the red blood cells, but also in the tissue cells and body fluids of the fetus. However, this applies to more than 80 per cent of the cases, (secretors) and in the remaining cases, described as non-secretors, the A and B blood factors may perhaps be limited to red blood cells (23). Nevertheless, proof is still to be provided that this is the explanation for the high incidence of incompatible blood group matings in the small group of Rh+ mothers of erythroblastotic infants (see table 6).

Although it is not known how early in the course of pregnancy isoimmunization begins, a very early onset may be assumed since red cells form in the yolk sack as early as the fourth week (24). According to Kemp (25) and Moreau (26), agglutinable factors in the blood could be demonstrated in the two to three months' old fetus. From the point of view of the

present discussion, the more fundamental property of antigenic (immunizing) function may be assumed to have an even earlier origin.

It is of interest to speculate why a higher incidence of early fetal death may result from isoimmunization by A and B factors than by the factor Rh. In the first place the effects of isoimmunization by the A and B may occur earlier because anti-A and anti-B are normally present antibodies. Secondly, and this may prove to be far more significant, the specific reaction of maternal anti-A and anti-B with the excess of A and B factors in tissue cells may exert a far more lethal effect on the embryo or the fetus than the specific reaction of maternal anti-Rh on the fetal red blood cells exclusively. In the latter case, no vital organ or tissue cells can be affected because the Rh factor is limited to the red cell.

TABLE 9
Incidence of Group A Offspring in matings O x A and A x O

	Father x Mother O x A	Father x Mother A x O
Hirszfeld (28) (15 authors).....	65.1	56.0
Hirszfeld and Hirszfeld (29).....	63.1	60.5
Landsteiner and Levine (30).....	60.6	44.8
Wiener and Vaisberg (31).....	54.8	52.5
Clausen (32).....	66.3	62.0
Vuori (33).....	46.7	63.8
Landsteiner and Wiener (12).....	68.4	25.0
Levine and Landsteiner (34).....	77.1	45.2

In 1925, Hirszfeld (27) made the significant observation that the incidence of A children is lower in matings of father A with mother O than in the contrasting mating of father O with mother A. At one point in his paper he states that in the former mating this is probably due to loss of A offspring through miscarriages and stillbirths. It is very curious that this significant finding was soon neglected by Hirszfeld himself probably because he finally accepted Bernstein's hypothesis that a group O mother can not have an AB child because of genetic reasons rather than because of his view, i.e., hetero-specific incompatibility.

Since Hirszfeld's observation on the selective loss of infants containing the dominant blood factors seems to support the concept of isoimmunization by the factor A, 7 additional heredity studies were analyzed by Levine. These results are presented in table 9.

Accordingly, the results in 6 of the 7 heredity studies confirm the concept

of selective fetal death by isoimmunization. At this point mention may be made that in erythroblastosis fetalis there is also selective effect on heterozygous Rh+ fetuses. These considerations suggest that further studies be carried out in which the obstetrical histories are recorded to take into account fetal death by miscarriage, stillbirth or neonatal death.

As an example, the following family can be cited in table 10.

In this instance there are two incompatibilities, involving both the blood groups and the Rh factor. Of the 4 surviving children one has the dominant factor of the father, the remaining 3 have the recessive property of the mother. The question arises, what was the blood group or the Rh reaction in the stillbirths?

TABLE 10
Family F. C. B.

	Group	Rh
Father.....	A	+
Mother.....	O	-
1. Child M.....	O	+
2. Stillborn.....		
3. Child C.....	A	-
4. Stillborn.....		
5. Child L.....	O	-
6. Child K.....	O	-
7. Stillborn.....		

Other evidence of isoimmunization and fetal death. As already stated, erythroblastosis fetalis furnishes a thoroughly established precedent for genetic and constitutional cause of fetal death on the basis of isoimmunization. Thus the data on the Rh factor and erythroblastosis fetalis indirectly serve to support the view that the same mechanism induced by other blood factors may also cause fetal death. In general, the effects of isoimmunization by any fetal blood factors should have some familial trend and more specifically, its modus operandi in erythroblastosis fetalis is now well understood. Although there is not yet available similar data for fetal death induced by other blood factors, this may be implied from the recent and important statistical studies of Gardiner and Yerushalmy (35, 36). These workers observed that there is a familial tendency to stillbirths and neonatal deaths. Furthermore they write as follows: "one may speculate that among other things, the father may also play an important part in these cases of

repeated loss to the family." . . . "It may therefore be indicated that the study of infant loss should embrace also factors in the father. This seems to be especially important in the cases of habitual abortions and in cases of families in which many infants have been lost through stillbirths and neonatal morbidity."

These important observations indicate the necessity of correlating similar statistical investigations with serological blood studies. But even at this early stage it is already highly suggestive that the conclusions of Gardiner and Yerushalmy as well as the findings of Robinson (37) and Corner (38) on selective fetal death in animals are not incompatible with the concept of isoimmunization.

These investigators studied the causes of intra-uterine fetal deaths in pigs and ferrets, and infertility in horses. After excluding infection, toxicity and endocrine deficiencies, Robinson and Corner concluded that genetic and constitutional factors are probably responsible for a high incidence of fetal death. In the case of ferrets and pigs, these workers found normal fetuses alongside of dead macerated fetuses in a uterus which was free of detectable disease. Corner assumes the presence of genetic lethal factors analogous to these found in *Drosophila* and in the case of the yellow mouse studied by Cuernot, Castle and Little and Kirkham.*

To make the analogy closer, it may be stated that selective fetal death is a characteristic feature of the manifestation of isoimmunization by the factors Rh and A and B. It is clear that only heterozygous Rh+ (Rhrh) fetuses or newborn can acquire erythroblastosis fetalis, at least in 90 per cent of the cases. More specifically, reference may be made to the family discussed above (table 10) in which 3 out of 4 surviving children have the recessive property of the mother, i.e., group O, Rh-. Furthermore, in the case of twins only one of whom had erythroblastosis fetalis, the affected member was Rh+, while the Rh- individual was normal.

Isoimmunization by blood factors in the fetus may or may not be entirely compatible with the concept of genetic lethal factors, but there is no reason to assume that isoimmunization by the fetus should be limited to man. On the other hand there is serologic evidence to indicate that isoimmunization by pregnancy should occur frequently and with comparative ease in many animal species. It is well known that the individuality of blood in many species is based experimentally upon the isoimmunization resulting from repeated transfusions. This phenomenon seems to occur more readily in animals than in men. Furthermore, pregnancy offers certain conditions

* Cited by Corner (55).

which are peculiarly favorable to isoimmunization, i.e., slow administration of the antigen over a long period. This probably explains the general impression that the manifestations of isoimmunization by the Rh factor in fetal blood occur more frequently than isoimmunization in Rh- patients by repeated transfusions with Rh+ blood.

It must be kept in mind that the data on the role of isoimmunization by the blood factors A and B in causing fetal death is only of preliminary nature. There are several criticisms which can readily be directed against this concept, one of which is the factor of the normally present isoagglutinins anti-A and anti-B. Perhaps the simplest approach to the subject is a heredity study of selected families with a high incidence of miscarriages, stillbirths and neonatal deaths.

Summary. It is now established that a specific disease of the fetus and the newborn, erythroblastosis fetalis, can be attributed not to disease in the father or in the mother, but rather to genetic and constitutional differences in the antigenic composition of their erythrocytes. The actual mechanism depends upon isoimmunization of the mother by the Rh factor in fetal blood and the intra-uterine action of maternal anti-Rh agglutinins on susceptible fetal blood. Evidence of a preliminary nature is presented to indicate that the same mechanism induced by other blood factors may be responsible for both early and late fetal death, i.e., abortions and stillbirths.

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ADDENDUM

Since this paper was submitted, numerous publications on the subject of isoimmunization by pregnancy appeared in the literature. Only some of the more significant contributions are listed below.

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CHAPTER VII
THE CONTROL OF ABORTION

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The question of the control of abortion opens up a multilateral problem. We have to consider abortions which occur spontaneously, those which are induced for a medical reason, and that undoubtedly enormous number where pregnancy is interrupted illegally.

The methods of control of the various types of abortion must form an extremely broad assignment. The control of spontaneous abortion is a task for physicians and patients. The control of illegally induced abortions is a problem in the solution of which physicians have a part, but I feel the major work is the responsibility of leaders in sociology, economics, morality and education. In general, a reduction here depends upon improvement of moral standards, economic status, and public health education such as family limitation and early and effective prenatal care.

In the obstetrical and gynecological services with which I am connected in Philadelphia, abortions are classified as early and late, although the filing classification refers to all terminations of pregnancy up to 28 weeks as abortion. Early abortions are regarded as those which occur prior to the eighteenth week, and late abortions from the eighteenth to twenty-eighth week. If the period of gestation is unknown the crown-heel length of 37 centimeters and the weight of 1200 grams are used as diagnostic criteria.

Spontaneous abortions depend upon causes which may be present before conception occurs, as well as those which arise after conception. A large proportion of spontaneous abortions are due to embryological defects, deficient germ plasma or developmental defects in the ovum or its appendages. The figures range from 30 to 70 per cent in various reported series. The conditions producing or influencing proper development of the united germ cells may be found in either partner and may be due to temporary or permanent lesions. Since many of the causes present before conception are only suspected after a spontaneous abortion occurs, the method of control in this situation would seem to be an expansion of premarital and preconceptional examination of the partners of the marriage to a degree where obscure lesions might be discovered and remedied before conception was attempted.

A tendency to some spontaneous abortions may be anticipated by a meticulous medical history and a careful physical examination of the male partner. The influence of previous disease of either a genital or extra-genital nature may be elicited, his nervous and mental make up, type of work and mode of life assessed and defects of his genital apparatus discovered; a qualitative semen examination may not be amiss if history or physical evaluation are at all suggestive.

In the woman, physical examination for body type or the finding of hypoplastic genital organs, injuries needing repair, irregularity of menstrual cycle, lack of libido, late marriage or long period of infertility, may be suggestive that spontaneous abortion would result if conception occurred. The control of many of these factors would be difficult, in some instances insuperable, and the partners might be regarded of such low fertility that even though pregnancy occurred it would probably not continue. On the other hand, the amelioration of some factors might be possible.

A further influence toward spontaneous abortion may arise from various imbalances of glandular systems. Thus implantation and nutrition of the ovum depend upon a proper relationship between estrogen or the anterior-pituitary hormone and progesterone. An excess of the former or a deficiency of the latter may initiate a chain of events resulting in abortion. A hypertonicity of the uterine muscle with contraction at the usual time for the menstrual flow may result in spontaneous abortion. Such irritability has been ascribed to a similar imbalance or antagonism between estrogen and progesterone. Such abnormality of the endocrine influences on the ovum or uterus may often be the primary cause of many spontaneous abortions accredited to physical factors. Many abortions from such imbalances, if seen early, can be prevented by the administration of progesterone and the opiates, particularly in the latter group.

A basic method of control of spontaneous abortion would be to initiate health education in the adolescent period, and continue it into maturity, with emphasis on genital health from the viewpoint of future reproduction. This would pave the way for pre-marital consultation and examination with pre-conceptual check up. In this manner many frequently responsible factors would be discovered and corrected.

Spontaneous abortion is apparently no more frequent in first pregnancies than in those of higher order. Where spontaneous abortion occurs for the first time in the multigravidas, physical or intercurrent conditions rather than developmental defects should be regarded as the cause of abortion.

Syphilis is a possible source of early spontaneous abortion, particularly if infection and fecundation are synchronous. The control of abortion occasioned by syphilitic infection depends upon early recognition of the

disease and prompt and effective treatment. With the extending and expanding laws on required tests for syphilis before marriage and at the first prenatal visit, much may be accomplished in control of syphilis as a cause of abortion.

Cardiac and renal lesions can occasion early spontaneous abortion but are much more likely to be the responsible factor in the termination of pregnancy as it approaches the seventh month. The early recognition of the lesion either in heart, blood vessels or kidneys should lead to sufficient supervision and treatment so that the average patient with a lesion not too far advanced may possibly be carried to the point of viability. On the other hand, such infectious lesions as endocarditis and pyelitis may through the toxic influence of the infection predispose to a spontaneous abortion in the early months of pregnancy. While little can be done for endocarditis, such infection as pyelitis may be treated not only medically but surgically to protect the embryo.

Functional disorders of the thyroid gland, hyperthyroidism and hypothyroidism have been held responsible for the production of spontaneous abortion. Such functional disorders have been found to be common, in both the iodine deficient and other areas. More extended studies on the activity of the thyroid gland and its relation to spontaneous abortion should be carried out.

The term late abortions may be regarded as defining those terminations of pregnancy which occur between the eighteenth and twenty-eighth week. The etiology of such abortion may be divided into obstetrical and non-obstetrical.

The most prominent obstetric cause, as evidenced by a study of the histories of a group of such cases, would seem to indicate that some type of obstetric hemorrhage or a supposedly spontaneous premature labor of an obscure etiology was responsible for an approximately equal number. No doubt many of these bleeding cases represent abortive lesions, which, later, or at term, would be diagnosed as placenta previa, low implantation of the placenta, or premature separation of the placenta. For this group no plan of control is apparent.

A second group of obstetric causes of late abortion is found in premature rupture of the membranes and consequent onset of labor. A considerable number of these cases follow unrestrained coitus in the middle trimester although at times the etiology is obscure. Again one must look to what Bingham calls "preventive instruction" to eliminate this group. Other traumatic factors may be listed under the general title of severe physical strain and may range from too heavy domestic or industrial burdens to too great an indulgence in sports, and particularly, long automobile rides.

There can be little doubt that nervous exhaustion occasioned by worry or anxiety, or the profound influence of severe mental shock may act as exciting factors to produce a spontaneous abortion, particularly, if the background of some previously mentioned predisposing factor is present.

Non-obstetrical causes producing late abortion have in our services been found to include cardiac lesions, renal degeneration and renal infections. In recent years the more intensive study of heart cases has diminished this cause of late abortion. The chronic nephritic, nephrosclerotic or vascular lesions occur frequently as etiological factors in late abortion.

Therapeutic abortion is a diminishing cause of fetal wastage. With the restriction of obligatory consultations now placed on the performance of this operation in the majority of hospitals, there seem to be few diseases for which abortion is indicated or accepted. If we accept the view that therapeutic abortion should only be permitted to save a woman's life, the additional procedure of sterilization should be practiced in practically all instances except hyperemesis gravidarum and possible pulmonary tuberculosis. The denial of permission for therapeutic abortion in a disease in which it was formerly allowed accentuates the necessity for good medical care during continuance of pregnancy and at delivery.

Habitual abortion refers to repeated spontaneous abortion in the same individual occasioned by one or more of the basic causes already stated. Of these, however, defective formation or nutrition of the ovum, hormonal dysfunctions and chronic renal lesions apparently are outstanding. In many habitually aborting women no apparent cause can be demonstrated. Large series of such cases have demonstrated the beneficial effect of Vitamin E, progesterone, and thyroid gland therapy. Without studies to justify the therapy, many women, after an apparently unexplained spontaneous early abortion, have been placed on some combination of these drugs in a succeeding pregnancy and carried to term successfully. The action of progesterone has been credited to substitutional therapy. It has been questioned whether large doses interfere with the metabolism of the intrinsic progesterone, and whether it interferes with regeneration of the mucosa and later re-establishment of the cycle, if abortion occurs again. Sometime ago the Council on Pharmacy had not accepted the claims for Vitamin E in this respect. Certainly a second spontaneous abortion calls for a very searching investigation of both partners from both a clinical and laboratory standpoint, with endocrine assays, sperm examinations and blood grouping well indicated. Naturally one expects that nutritional deficiencies will be overcome.

Control of criminal abortion is a tremendous problem but one which must eventually be faced frankly. Legislation and prosecution will have

little, if any part, in my opinion, in solving this particular problem. A careful study of the septic abortion deaths in Philadelphia, with as much of an investigation as we could make into the family background, led us to believe that the cause of self-induced and criminal abortion was not, as commonly believed, the reason of illegitimate pregnancy, but a direct corollary of economic and social conditions. Personally, I believe that the primary step in the control of this situation lies in laity being taught the dangers of induced abortions. I believe that *one element of control lies in early and widespread sex education* and instruction in contraception. It is possible that some type of maternity benefit might prevent single instances of this practice.

One of the preliminaries for the control of abortions should be study of large series of cases with exact statements as to the cause. For the most part, series of abortions reported in the literature deal more with methods of treatment than with etiology. Such a study should be as broad as the Stillbirth Study conducted by the Children's Bureau, and an effort should be made to make the study continuous for some years in an effort to determine what methods are most suitable and efficacious in carrying subsequent pregnancies to term. Large series of cases should be studied by follow-up investigations to determine whether active or conservative treatment of abortion is followed by large proportion of subsequent pregnancies, and as to whether spontaneous abortion, other things being equal, repeats itself to a large degree in cases which were conservatively or actively handled.

Research in hormonal studies should be made in large series of women in early pregnancy. Little of practical value regarding this has appeared in the literature. Research should be stimulated in hormonal studies in early pregnancy to determine the relationship of the estrogens and anterior-pituitary hormones and progesterone. They should be of practical nature in order that the average physician might receive information to benefit him in treating cases of threatened abortions. Similar studies should be made of thyroid function.

It is probably too early to determine the influence of planned parenthood or family limitation on a large scale in the control of spontaneous abortion or even induced abortion. Since the Health Departments of the States of North and South Carolina have made birth control a public health measure, there should be sufficient statistics eventually to determine whether such a plan has had any effect in either the problem of maternal morbidity or mortality, or death rate from septic or non-septic abortions. A long span of years will be necessary to determine the influence of such a program on the health and development of the offspring of the family to whom such a program has been offered or taught.

DISCUSSION

The discussion of the papers of Dr. Earl Engle, Dr. Philip Levine and Dr. Philip F. Williams was conducted by Dr. Fred L. Adair, Chairman of the June 19th afternoon session of the Conference.

Fred L. Adair: Does anyone have questions or comments on this complicated problem?

Howard C. Taylor, Jr.: I am impressed with the continued diversity of opinion as to which is the responsible cause for most spontaneous abortions. The ideas appearing in the papers of this afternoon seem to me to be in some conflict. I wonder if Dr. Levine would venture an opinion as to what proportion of abortions might be due to the mechanism he suggests. I would like also to ask Dr. Streeter if he thinks it possible that the type of defects in ova which he describes from a morphologic standpoint could be attributable to incompatibility of blood groups.

Fred L. Adair: Dr. Levine, will you answer first?

Philip Levine: In response to Dr. Taylor's question I may state that the object in presenting these findings is only to indicate that early fetal death may result from isoimmunization by blood factors A and B. Unfortunately, the nature of the material is such that an accurate determination of the number of spontaneous abortions due to this mechanism cannot as yet be given.

Howard C. Taylor, Jr.: Would your guess be a low figure, as low as 10 or 20 per cent?

Philip Levine: If I may be permitted to speculate, the value may very well be even higher than 10 or 20 per cent. These cases were selected because of a history of unexplained fetal death. They were referred by a large number of general practitioners and obstetricians. Time has not permitted us to investigate each case thoroughly in order to exclude all known factors responsible for fetal death. A carefully selected group of cases will have to be tested in order to confirm these findings and to obtain some estimate of its quantitative role. So far as fetal death induced by the Rh factor is concerned, it is my impression that manifestations of isoimmunization by the Rh factor occur in about 1:150 pregnancies.

George L. Streeter: It is probable that Dr. Levine and I are talking about different things. Since my interest has been in the earliest stages, the kind of embryos that I see are very small ones, such as I showed you in lantern slides. These are so small that they can only be studied in serial sections under the microscope. You will recall that one of the specimens was an

ovum in the blastocyst stage and just beginning to attach. At that time the germ disk has not yet formed and the only differentiated cells are those of the trophoblast which normally provide the invasion mechanism. In this case these cells were defective and abortion already inevitable. There could have been no interchange yet between the ovum and maternal tissues and there would have been no positive Friedman test.

Also, I showed young embryos of the third and fourth weeks, one having a total spina bifida and the other a defect localized in the tail bud. These are stages where there are but relatively few nucleated embryonic blood cells and there is no efficient circulation established yet. I would think it very unlikely that we could account for these early focal defects, before the embryonic blood has been chemically and structurally differentiated, by the blood incompatibilities that Dr. Levine has discovered in later fetuses. I am convinced that defective development may arise from a great variety of causes, and I pointed out a number of them earlier this afternoon. Dr. Levine has made a great contribution in his studies of the Rh factor but it would seem to me that its chief application would be found in larger fetuses. It might apply to the case of twins which I demonstrated, in which one of them died at the twentieth week and the other went to term. We would have to say, however, that though both twins were males, one of them had the wrong Rh factor. This is unlikely and it is rendered more unlikely by the fact that the mother, 40 years old, had previously born 12 living children by the same father.

Howard C. Taylor, Jr.: Would you say, Dr. Streeter, what week Dr. Levine's mechanism might conceivably become effective?

George L. Streeter: I would say that the mechanism would not become effective until there was a well developed fetal circulation and free interchange of substances between fetal and maternal blood through the placental barrier.

Howard C. Taylor, Jr.: When does blood appear?

George L. Streeter: Erythrocytes are found toward the end of the second month.

Philip Levine: Of course, there is considerable speculation now, but it has not excluded that even the forerunner of the red blood may carry these antigenic factors. We do not know how one can demonstrate it. If one could obtain the material it might be demonstrated by the absorption method, not by direct agglutination. The agglutinable substances in the red blood cells are present in the 4-6 weeks old fetus. It is probable that the capacity of the blood to produce and react with antibodies is present in a still earlier stage of development.

I should also like to make a remark concerning the occurrence of congenital

malformations. A higher than normal incidence of malformations are present in erythroblastotic infants according to Hawksley and Javert. The same probably holds also for the series of cases in which isoimmunization by blood factors A and B is suspected. Since trauma is suspected to be a factor in causing congenital malformations, the phenomenon of isoimmunization may serve as a source of intra-uterine damage which may be sufficient to disturb the normal processes of development.

I would like to ask Dr. Streeter a question now, if I may. He has noted, as have others, that the germ plasm is often defective in these cases which abort or result in embryonic errors of development. At present we have no means of examining the ovum to determine whether it is normal or abnormal but we do have a means of examining sperm cells, and in connection with sterility studies in our clinic we have gotten a good many males who have a much higher percentage of abnormal, immature cells than we consider normal, and I wonder whether or not he thinks there would be any possibility there that these abnormal germ cells could fertilize an ovum, and if they could fertilize it whether or not it might be they would go on to an abnormal development?

George L. Streeter: Personally I have not worked in this field. My impression is that no one has been able to demonstrate, in any mammal, that a malformed sperm is capable of fertilizing an ovum.

Sophia Kleegman: For many years I have been interested in the relationship of abnormal sperm morphology to spontaneous abortion. We have a large series of infertility cases, and we have also done sperm morphology on sixty mates of fertile wives. We find a definite correlation between spontaneous abortion and abnormal sperm morphology. We have not had any normal babies where the sperm was classified as infertile with a morphology of over 30 per cent abnormal heads. We have 7 cases where pregnancy was initiated despite poor morphology, but 5 had spontaneous abortions, and 2 went to term and delivered congenital monstrosities.

Of the factors presented this afternoon, there was the hormonal, the serological, and the defective germ plasm. Now we add abnormal sperm morphology as an important etiological factor in spontaneous abortions, that is, within the first three months. What should conservative treatment consist of, and how long should these cases be treated expectantly? I have come to the conclusion that in most early spontaneous abortions, the pregnancy is past saving because the fetus dies before the onset of symptoms. When Dr. Falls first presented his progestin treatment, I treated all spontaneous abortions with immediate hospitalization and injected progesterone enthusiastically. My results were poor, and subsequent progress proved that the fetus was dead when symptoms started, in most cases. The only

septic spontaneous abortions we have had in private practice were 2 cases who became septic and seriously ill after 2 weeks of conservative treatment. I think there is a risk in treating these early spontaneous abortions conservatively for more than a few days. First there is the danger of infection; secondly, if there is an abnormal sperm morphology and the threatened interruption is treated successfully, there is the great risk that the pregnancy may go to term with the delivery of a grossly abnormal baby. We have 2 cases to demonstrate this.

Frederick J. Taussig: May I ask the opinion of the clinicians as to their experience regarding the reliability of a negative Friedman test as an indication of fetal death? I have had only relatively small experience, but it seems to me that possibly if there could be some refinement of that test we might arrive at an earlier determination as to whether fetal death has occurred in these cases.

Fred L. Adair: We usually figure that the test disappears within a week or 10 days after chorionic death. Dr. Falls in his clinic in Chicago has worked out a test which he thinks may indicate, by an alteration in this reaction, that it might be due to fetal death, but I do not think that has been confirmed in other clinics.

What I was really getting at is whether or not in some of these cases we might not prevent some of these abortions by treating the father before the pregnancy developed. If these abnormal germ cells were a factor in subsequent abortions, that is the point at issue. Perhaps someone here has an answer.

Sophia Kleegman: We have many cases where we have done sperm morphology studies in the same person from time to time over a period of years. This is especially true in our sterility cases, and we find a definite correlation between the sperm morphology and the infertility. Given a sterility case where we classified the sperm as infertile, and a pregnancy subsequently takes place, re-examination of the sperm shows a demonstrable improvement in the morphology. In some of these cases there is a spontaneous abortion with the first pregnancy, and the second pregnancy goes to term normally. There is a correspondingly better sperm picture in the second pregnancy than in the first—the man improving with time to treatment. Conversely, we have cases where the pregnancy history of some years ago was normal with a present complaint of sterility. In many instances the only change we find in the couple is due to the fact that the man's general condition has deteriorated sufficiently to give him infertile sperm as shown by morphological study. Sperm morphology is certainly not the only factor, but we do not get normal babies from sperm having a high percentage of abnormal heads, even though the number and motility may be good.

SOCIAL, MORAL AND ECONOMIC CAUSES AND CONTROL OF ABORTION

THIRD SESSION: SATURDAY MORNING

June 20, 1942

Dr. Taussig opened the Saturday morning discussion and presented Algernon Black, Executive Secretary, Society of Ethical Culture, who gave his paper on "Influence of Moral and Cultural Patterns on the Abortion Problem."

CHAPTER VIII

THE INFLUENCE OF MORAL AND CULTURAL PATTERNS ON THE ABORTION PROBLEM

ALGERNON D. BLACK, A.B.

New York, New York

I assume that we all think abortion is evil, and that we all would like to reduce it to a minimum. I assume that we do not want anyone to become pregnant who does not really want to become pregnant. That would require a tremendous amount of education, not only in the purposes of life, but in moving toward those purposes, the development of more wisdom in living—in our own living. None of us has been clear enough in purpose, or wise enough in method, to assure to ourselves and others, happiness in the deepest sense.

The situation with regard to abortion is a humiliating one. America has an exceedingly high abortion rate, and with it death and disease, invalidism and sterility—not to mention infinite mental suffering. It is humiliating to the medical profession, and I should say to all "professions." For the social workers, teachers and religious leaders also are not without blame. Although abortion is considered chiefly as a medical problem, it has also its extremely important non-medical aspects. We have broken life down into special fields in order to get hold of it. To get at the facts and principles, to achieve mastery of specialized fields, we have the medical profession, the legal profession, the educational group, the ministry, and so forth—each one through specialization trying to come to grips with reality, with some aspect of human life. This specialization has meant something gained, but also something lost. We have made advances, but we have

lacked contact. *We have lost touch with one another. No profession can blame another profession.* The medical profession, no matter how much advance it makes in the problem of the medical aspects and techniques of abortion, is helpless unless the people understand, unless the people are educated, and unless the other professions understand and take responsibility for helping.

The truth is that the clergy and the teaching profession, generally speaking, which have charge of education and guidance, do not know as much about the place of sex in life as they should—the problems of marriage, of birth control, sterilization, and others. Unless a teacher, unless a minister is for some reason specially interested, he can go on preaching and advising and acting as counselor to people and not really know the a-b-c- of the problem of sex inter-relationships. It may well be considered that a *primary responsibility of the medical profession is to develop inter-professional educational programs.* There is a tremendous need and opportunity in this field of activity. That is really the reason I am here today. I felt I could learn something here as a teacher and as a religious leader.

I shall stress one point which might be worth noting, one which many people are troubled about. First in our society, we have held up a perfectionism, particularly in the Christian ideal of life, of sexual experience only within marriage, and within marriage some have taught sexual intercourse only for procreation. How realistic a teaching is that? Do we hold to it? Do not most of the children and young people grow up with the impression that sex is unhealthy, unclean and immoral? There are probably millions of children growing up in this country who are not getting any sense of sex as part of a good life. There is no effort to convey to the young a sense that sex is wholesome, that it has esthetic and spiritual values where people cherish one another and assume responsibility for one another's welfare.

At the same time this perfectionism is taught, there exists no longer the small community with homogeneous attitudes and standards, and a public opinion which can enforce them. In the big cities we have a tremendous variety of viewpoints on morality, especially on the place of sex in life. We have no public opinion that could possibly enforce a high standard of sex morals because the true communities of a great city are scattered. There are clusters of families who do have a way of life which could be called a way of life in common, who live alike and who want to bring up their children with some of the healthier moral standards. But these families live in different parts of the city. It is only through rumor and gossip and the

fear of discovery that there is any negative control over conduct. There is no small, homogeneous group whose public opinion can affect the individual. One can have a pregnancy and an abortion without its being known even in the family. One can go away and lose one's self, so there is no longer the help of the community in enforcing even the sex standards which the community proclaims.

Sexual conduct is most neglected in education and religion. Yet sexual expression is taught to be the worst sin of all. Woe to anyone who deviates sexually. If there is any doubt as to sex deportment we find it can mean ruination for family, social group or in one's profession. It is considered the worst evil. Yet it is neglected by school and church—yes, and home. The professions steer clear. They tend to fear it. There are multiple contradictions and inconsistencies that the professions have to face and work out, meanwhile maintaining their integrity. This is not necessarily the responsibility of any one profession. It is a community and social responsibility, and a religious and educational question.

If we were to inaugurate sex education in the schools of the City of New York, what would be the difficulties? Curriculum and material only? Another problem exists. It is a personnel problem. There are so many unmarried teachers, many teachers who are themselves maladjusted, many who think sex is as simple as eating, and others who are individualistic without much sense as to their own responsibility in sexual relationships. The science teacher, however brilliant and informed, may have a most unwholesome and distorted notion of how sex is to be expressed in life. I am saying this of my own profession, although I think it is true of every group.

While we may agree that the sexual problem is not just a scientific matter and that there are spiritual aspects involved, I must also differ further with the Church, though I have great respect for the Church. It tries to be consistent and to be careful about sacred things. I cannot, however, accept the teaching that abortion is the destruction of a human being, in the same sense that murder is, and hence a crime. Most doctors, when they perform therapeutic abortions do not feel they are guilty of a crime in destroying a potential human being. If we try to think this concept through we are in difficulties. *It is the crucial philosophical and religious problem.* We do not pretend to have thought it through. There is a sensitivity in people which makes them feel that sex emotionally and spiritually is connected with personality in such a way that it cannot be treated merely as fact or technique.

Because we are aware of this, we are not so easily able to go ahead as we

might on a purely biological basis in dealing with this problem, and that is why I respect the Church's care in the matter, even though I cannot accept the position it holds. In the Ethical Society we have no formulation on this problem. Most of us have done less thinking on this subject than other groups. We have a deep religious feeling of the sacredness of all life, upon a philosophical and anthropomorphic basis, and particularly a sense of the sacredness of the human personality. But does that mean that we do not destroy the fly, the insects, the bacteria? Is our reverence toward life so inclusive that it does not even *discriminate* between the forms of life? Do we want to discourage the destruction of any kind of life? Do we want to promote every kind of life in the universe? Are we going to respect the syphilis bug more than the human being who is threatened? No! So we make a choice.

Living in this universe, in ignorance of the ultimate nature of things, we make the judgment which, for us, is the highest form of conduct in life. The human self with which one can have a relation, and which is conscious and living on the level of a personality, must be protected and promoted at the expense of other forms of life. So we promote the mother's life in preference to the unborn child because she is a human being in fact. The embryo, however, especially in the early months, has not the selfhood, the relationships, or the consciousness of human personality—save potentially. In our laws and our education we have to deal with the problem of abortion with that sense of values.

My own sense is that the law should be liberalized in this matter and that the medical profession should broaden its interpretation of therapeutic abortion to include other indications just as it has done in its dealing with birth control. There should be information centers in the cities, throughout the nation, where people can come and get some help in this matter. *One great crime of this civilization is that an individual can be in trouble in the midst of people and have no place to seek help.* He may get into a terrific personal mess, and have no center of guidance and understanding to help him. Where can the girl go if she is in trouble in New York City today? There should be centers where young people and old people can go freely and with trusting confidence. To give people security and help does not mean necessarily that we approve careless or promiscuous relationships. It is quite possible to help the individual in difficulty, for his sake and that of his family and Society, and still work for a more adequate implementation of the marriage ideal. Special training for physicians and the licensing of physicians for this purpose may be necessary.

I would suggest also that the medical profession undertake something in

the way of an educational program reaching out to other professions such as the teaching profession and the clergy. When the doctors go to the State Capitol to get a law through, they meet difficulties and defeat. Why? We know what politicians are. They wet their fingers and put them up to find out which way the wind is blowing—not which is the right way or the best way for the people. *If the medical profession has the knowledge, it must educate the people.* If it has not educated the people and the people do not do what is right, then the medical profession cannot shed all responsibility in the matter. I am pleading for more reaching out between the professions and more mutual education.

DISCUSSION

The discussion of the paper of Mr. Algernon D. Black was conducted by Dr. Frederick J. Taussig, Chairman of the morning session of the June 20th Conference.

Frederick J. Taussig: The meeting is open now for discussion on this subject which Mr. Black has presented to us so ably.

Fred L. Adair: May I say that, as a physician, I have been rather surprised at the lack of consideration, by the speakers, of the family in this whole program. It seems to me that the family is the most important unit. There has been talk of referring people with these problems to the medical profession, the religious profession and others. Why in the world when a girl is in trouble should she not go to her own family for advice and help? Perhaps that is because the subject of sex has been more or less socially taboo, not only to the general public but also in the family. However, I do not see why there should not be some knowledge and understanding relative to sex problems disseminated among the young people of the family by their parents. I was a little surprised that the family was omitted as a means of reaching the solution of some of these problems.

Kenneth W. Thompson: In the presentations here, there has been an undertone of reference to the problem of the attraction that sex has in various phases of life. I had hoped there would be some mention of the hormonal influences which have a bearing on why we do some of the things we do, particularly those related to emotion. The effect on behavior is evident particularly in the recent information we have about the male hormone. We talk of libido, in general, as being the drive that makes us do things we do, not just sexual drives, but everything. Whatever the final solution, we must take into consideration the fact that nature herself has provided these issues, and the drives, no matter how inconvenient, such as hunger pangs of low blood sugar, cannot be too seriously curbed.

Sophia Kleegman: Dr. Adair is perfectly right when he says that we are forgetting the importance of the family in educating our youth. All authorities in the educational field agree that the family unit is the most important educational influence, especially for the teaching of attitudes, moral and ethical. At the same time, the family is headed by the father and mother, and these two people can only pass on that type of sex education which they themselves received. We know that to date, the sex information which

parents have to give is nil, or erroneous, and often harmful. Mr. Black has a just complaint. Is it not therefore, a proper function of an educational group, such as this, to stop this spinning wheel of "passing the buck" and plan a sensible workable program of sex education in which the parents, by all means, should be included.

As for the moral standpoint of abortion, there is something that has troubled me for years. Although my experience is limited to four large cities, New York, Philadelphia, Boston, and Chicago, the same is probably true of the whole country. In all these cities I know that leaders of our profession, men of great integrity and absolute honesty, who would not break the law performing an illegal abortion themselves for any fee, will refer patients to abortionists. Is there any difference from the moral standpoint from performing an abortion oneself or referring a patient to an abortionist? I don't think there is. My first question is: Hasn't the time come for a re-evaluation of the indications for abortion? Here we come to what Mr. Black spoke about—the interprofessional relationship. The lawyer says it is the doctor's fault. The doctor says it is the lawyer's fault. Judge Kross says it is up to the medical profession to state the indications for abortion. Dr. Aranow says they cannot get their bill passed by the legislature. Whereupon the lawyer says it is the Church's fault. In between this "passing of the buck" falls the family unit, every part of which suffers as a result. Not until our leaders have the courage of their convictions will we ever make progress in this field.

This brings me to a second question:

Is it right for one particular church to enforce its tenets on members of other churches? You can secure the utmost cooperation from the Church in a health program *except when it pertains to abortion, sex education, or birth control*. As an example, the Albany Hospital, a non-denominational hospital, supported by community funds, has had a birth control clinic within its walls for a period of 7 years. Patients were referred to this clinic by physicians for medical indications. After 7 years' good work, this clinic was forced out of the hospital by the compulsion of the Catholic Bishop of Albany. Now there is no contraceptive clinic in the Albany hospital, even though organized medicine agrees that the giving of contraceptive information for medical indications is part of good medical practice; even though some workers maintain that the giving of safe contraception is the best preventive treatment for induced abortion.

Judge Kross says, "It is up to the doctors." What are the medical leaders willing to do? Where and what is the program necessary to enable physicians and educators to approach, in their public work, the facts they really believe and practice themselves?

Halbert L. Dunn: I was speaking recently to a writer famous for taking hold of social problems and presenting them to the public. I said, "You know, there is not only a great story but a great campaign of stories in this abortion problem because it challenges the Church; it challenges the deep-seated beliefs that we hold; it challenges certain concepts we have about family life; it strikes at the taboos of sex. It ought to be dragged out into the open." He replied: "My paper would like to do it. I wonder if we dare do it?"

In listening to this conference it comes home to me that we are never going to solve this problem in secret conclave. This problem is just where the syphilis problem was about 6 years ago, when Surgeon General Parran mentioned syphilis on the radio and was cut off the air. Today you can mention syphilis among the youngsters in the Army or the high schools, and you can talk intelligently, in most family circles, about it.

This program is of that order. I am wondering if perhaps one of the major tasks this group should assume should be the objective of bringing this subject of abortion out into the open, into the public hearings, instead of making an attempt to solve it in closed meetings. It can be written about. It can have a "Town Hall forum," or University of Chicago forum type of discussion, until it gets in the thinking of the regular public because it is the people themselves who must solve this problem in the end. It is not until people find out what they want to do that they are going to think through the problem of what it is possible to do.

To me, this whole abortion problem is but one of a number of problems of the sacredness of human life that must be brought out in the open if solutions are to be found for the future. It seems that such action might be one of the major results of this conference.

Frederick J. Taussig: I am sure there was not any feeling this conference was to be in any sense a secret conference. We feel that—I am right, Dr. Taylor, am I not—we want to have as a result of the papers of these 2 days as much information as we can secure, and to have a program correlated in every phase of the subject, especially concerning those particular aspects of it that require the education of the public.

Howard C. Taylor, Jr.: When the original invitations to this conference were sent out, it was our belief that some of the invited guests might not come unless they were assured there would be no publicity. To a few inquiries from the press we have replied that we were committed in advance to no publicity. It might be possible for us to reconsider that stand, but a change could be made only with the unanimous consent of the speakers on the program.

There is one point we should remember when comparing this program with

that for the control of syphilis. When the crusaders against syphilis went before the public, they felt justified in putting the subject on the front page of the daily press because they had a positive solution to offer. If we had an answer for the abortion problem today, we would be morally bound to try to make the front page of the New York Times tomorrow. Until we have such a complete solution at hand, I think it unreasonable to assume that the same principles of public education may be expected to produce success.

Frederick J. Taussig: If there is no further discussion of Mr. Black's paper, we will proceed to the next contribution, by Judge Anna Kross, concerning the abortion problem as seen in the criminal courts.

CHAPTER IX

THE ABORTION PROBLEMS SEEN IN CRIMINAL COURTS

ANNA KROSS, L.L.D.

New York, New York

Abortion is a subject about which as a lay person, I have limited knowledge, but in my capacity as City Magistrate, I do come in contact with the problem. My observations have indicated the inadequacy of community facilities for handling these problems. In each abortion case which came before me I was impressed by the fact that the unfortunate victim herself did not appear in court; that the case would not be found in court if the woman had not died. I felt that the community failed to provide the facilities which might have prevented her death from abortion, and neglected to give her the proper medical attention she was entitled to.

In my professional work I have spent a great deal of time in seeing the results, as far as our criminal law is concerned, not only of abortion but of the various multitudinous sex crimes with which our community is afflicted. I know of no time in which consideration of the abortion problem is more imperative than it is today, nor of any group to whom the challenge is greater than to a group of professional medical men. Today, the general mood the world over, is for increased population.

Concerning the legal aspects of this problem, it is also a psychological moment. In New York we have just gone through one of our periodic exposés. This time it was of what we call the "abortion ring". The conditions became so scandalous that we had an Extraordinary Grand Jury and a presentment, and now what are we going to do about it? The very self-same thing we have done in the past! Perhaps we will improve the agencies that make it possible to apprehend and convict a few more malefactors, or we may go to the Legislature and make certain we overcome some loopholes in the technical aspects of the law from its legal standpoint. Nonetheless, this problem will remain just as unsolved as it was some fifty years ago. It is a law most difficult to enforce, not merely because of its present language but because of fundamental reasons which we usually overlook.

Abortion appears to have been widespread in the United States for at least a century and although sound statistics are lacking, we know that it is rife today. Both the number of prosecutions and convictions annually in the United States are negligible, and convictions of women inducing or

procuring induction of abortions upon themselves are virtually unknown. Under our law today the woman is as guilty as the abortionist. You can readily see why there are so few convictions. Estimates have ranged from one million to three million cases annually, and the thing that has shocked the public about Mr. Amen's investigation is the million-dollar racket it has become. The proportion of abortions to confinements, as shown by Dr. Taussig, however, indicates that about 680,000 abortions are performed yearly. These figures are gross, making no distinction between criminal or intentional, and those which are therapeutic. The number of therapeutic abortions, however, is clearly inconsiderable. Criminal abortions are reported to account for at least 50 per cent of the total number, and the admitted classification of many of these as spontaneous makes likely a more substantial figure.

Abortion, as a practice, is driven underground instead of being eliminated. The statutes have brought about a situation where abortions, instead of being performed in hospitals by competent physicians under aseptic conditions, are now performed by women themselves, by incompetent midwives, by doctors who even though they may be skilled, must operate with secrecy, thus precluding the subsequent attention necessary to the safe performance of the operation. The best available figures indicate that one-quarter of all the maternal deaths each year are the result of abortion.

We cannot have the proper evaluation of the rationale of these laws relating to abortion if it is left only to lawyers. The lawyers feel totally helpless unless you, as the scientific group charged with the responsibility of maintaining the health of the community, face this situation frankly and freely, and give us the benefit of your advice and your researches in the field of medicine. Although the law and medicine are considered the two conservative professions, the medical profession has run way ahead of the legal profession, and we in the legal profession are still faced with the anachronism of having to apply old, obsolete laws to a modern world.

I recently came across an article entitled "Social Causes of Criminal Abortion" written by a woman, Inez C. Philbrick, which begins: "That criminal abortion prevails today to an alarming degree is patent" . . . "not more startling than its prevalence is the universal indifference, lay and professional, with which it is regarded." . . . "All students of the subject to whom I have had access admit its greatest frequency among the married, consideration of which class is most germane to the purpose of this discussion." I was surprised to find that this article was written in 1904. My own observation is that nothing has been done to radically change the situation to date, thirty-eight years later.

In the fields of psychology and psychiatry, as far as their implementation

is concerned in the entire field of sex, as we see it daily in our courts, we have made negligible progress. This is true whether one considers the phase of the law which involves what we term as the impairing of morals, or rape, or seduction, or abortion, or sodomy, or a multitude of other various types of criminal statutes which we have on our books involving sex. The purpose of all of them is to make the community more moral, to safeguard the youth from the pitfalls of sex. We have a strange delusion that by law we can overcome the lack of knowledge, the lack of economic opportunity, the lack of social opportunity and the lack of religious training. The quicker both the legal profession and the medical profession wake up to this illusion, the quicker we can hope for a solution.

As one who has seen the effect of lack of knowledge in the community in attempts to enforce the criminal law, I would like to say to you that the thing we have to do is become realistic about this question. Drop off the shackles and the old taboos of sex, wipe away the hypocrisy which seems to have blurred our vision, and frankly say that this is a time when we want to face the future, and in facing the future we want to see to it that at least America's new generation will be safeguarded as far as it can be. We cannot merely rely upon a law on the statute books. We have to recognize that this is fundamentally a problem of education. Education for democracy must begin at the cradle and end at the grave. It therefore involves the home, the church, the school and the community.

We recognize that the function of schools is to educate. How much sex knowledge do our children get in the school? They hear about the bees and know about the flowers, but when they are all through I have yet to meet the youth, male or female, that knows very much that is fundamental. Even collegiate education does not improve our knowledge in sex department. As far as the community beyond the school age is concerned, what do we provide? The existing type of education in this fertile field hardly produces the best results.

We come then to the question of marriage. We do require a license, but what does that license ask of the individual? If you want to get married, all you do is pay the clerk a fee and he gives you the license whether you know anything or not about what marriage involves. You have not even been required to present a certificate from a minister that he has advised you of the moral aspects. Only recently were you required to get a statement from a physician that you were free from venereal disease. If we were realistic about the requirement of a marriage certificate, that would at least assure certain basic knowledge, and we would not have the annulments we have.

I feel that we can ultimately solve not only the abortion problem but the

other fundamental problems if the medical profession will indicate to the legal profession that there is this fund of available knowledge, that it is not salacious, that it is fundamental, that it is something every man and woman should have at his or her command. Should young men and women have to wait until they are overwhelmed with the problems of a large family before being informed of contraceptive measures and planned parenthood?

If we are to have women in the Army, they should not be precluded from all the available scientific information on contraception and prophylaxis. This data should be given to men and women alike as soon as they arrive at an age to understand it. They should also be given all the necessary information to prepare them to face vital problems of sex and marriage. Then we might be able to attack the problem fundamentally. Then you would see the problem as I see it in the Women's Court, as it effects the less competent of our community, both economically and socially. Educationally and psychologically, these individuals are confronted with all the disadvantages and handicaps that go with the lack of education. They are the victims resulting from the malapplication of the statute as it exists in this whole question of abortion. It is not the woman of "the privileged group" who comes before the court. The woman in that upper group who seeks an abortion goes to a high class physician. But the wife of a laborer who does not know what to do and whose neighbor says "go to Dr. So-and-So", begs, borrows, or steals the money and gives it to some cheap practitioner, who treats her under the worst possible conditions. When I hear the case in court I hear the most gruesome and brutal details.

From my own personal observation I would like to leave this concluding contribution: we cannot hope to solve the "abortion racket" and, no more can we hope to solve any one of the phases of our community life which involve sex, unless we face sex unequivocally, honestly, courageously. Today we have at our command a great deal of information which the outstanding experts in the medical field have contributed. Now we must use it.

The group advocating birth control has a really great contribution to make. We have to take a courageous attitude because today the pressure is going to be for more and more population. We are now giving up our best for the preservation of democracy. If all we are going to have is a continuation of population with as few safeguards for its vitality, physical and moral, as we have had in the past, we shall not be preserving democracy, and it will not be worth the price we have to pay for it.

I want to congratulate and commend this group for attempting this intensive study of abortion and only urge when you are through making this study, whatever your recommendations are, that you recognize that we in

the legal profession, to whom the church and the school and the medical profession necessarily turn for the administration of the law, are sorely handicapped for lack of knowledge. It is fallacious to look to the courts or the legislature for the solution of this abortion problem. The job the medical profession must undertake is to see that the agencies the law sets up for the carrying out of the measures you think are so essential for the community, are properly enlightened and that the men and women placed in charge of administration are equipped with knowledge.

DISCUSSION

The discussion of the paper of Judge Anna Kross was conducted by Dr. Frederick J. Taussig, who presided at the morning session of the June 20th meeting of the Conference.

Frederick J. Taussig: Thank you, Judge Kross. I would like to hear a discussion of this paper from those present, for I think we are open in every way and to every viewpoint.

Harry Aranow: I have been appointed by the Academy, at the suggestion of Dr. Kosmak, as Chairman of a Committee to make a Study of the implications of the abortion problem. I remember that at a meeting with Mr. Amen, statements were made, somewhat as Judge Kross offered this morning, to the effect that we are not solving the problem by making new laws or trying to enforce them. I agree thoroughly with all she says. I do want, however, unpresumptuously as possible, to try to clear the medical profession from the blame which has been placed on it.

I happen to have been the Chairman of the Legislative Committee of the Medical Society of this State for a great many years. For some years we introduced a bill in Albany giving the medical profession the right to give contraceptive advice, and the bill never came out of committee. So how is the medical profession to try to accomplish anything if they cannot achieve even a minor thing like that? Whose fault is it, the Legislature's, or the "leaders" in religion or is it the social "leaders"?

A few years ago I was asked by the State Society or the Academy, I do not remember which, to speak on the radio on prenatal care. Lo and behold, on the day I was to speak I was told I could not speak. Why? Because in that speech I told how to prevent abortion and they did not want the word "abortion" mentioned because some school girls at 11 o'clock in the morning were listening in. These girls did not want to know what abortion meant. I had to change the whole subject and changed the word "abortion to "premature delivery." That was perfectly correct!

Herman N. Bundesen: I was rather startled by some of the statements Judge Kross made, but if I misunderstood I hope she will correct me. I understood that the Church, having failed, goes to the Legislature to get laws to enforce those things in which they have failed, and that the laws are for men. I knew of no law anywhere in the United States that was for men and not for women. I know of no Church or law which does not hold that

men and women are equally guilty in any sinful act. Will Judge Kross enlighten us as to where there is a law that penalizes men and not women.

Incidentally, I would like to say that Chicago has one of the lowest maternal death rates, and it has the lowest infant mortality rate of any large city anywhere in the world, including New York City.

Anna Kross: I had hoped the Health Commissioner of New York would be here to mention the reduced infant mortality rate in our city and the fine standards of our city hospitals. I am glad that Dr. Bundesen is here because I admire what he has done in Chicago in the venereal disease field, but I wonder if he, like other doctors, does not take a great deal for granted as far as law is concerned.

I am not quite familiar with the State of Illinois nor with the agencies which it employs in the City of Chicago for the enforcement of what we call prostitution. I am, however, quite familiar with the law in the State of New York and I would like to tell Dr. Bundesen, and the other doctors here, since that question has arisen, that in the City of New York, under a State law we run a Women's Court under the greatest subterfuge possible. It is not a section of the penal law. I don't know why they ever stuck it in what we call the "Criminal Code of Procedure" the famous number "No. 887." Under this No. 887, which is a vagrancy statute, we arrest on an average of 5,000 to 6,000 women annually. In my own time, as one of those who advocated at least the recognition of the fact that it took a man and woman to commit most sex offenses, we went to the legislature and fought for the amendment of the statute, as it now exists. Originally it was worded "a female who solicits for the purpose of prostitution." We did have the word "female" deleted and now the statute reads "a person."

The practical significance is that we arrested about 6,000 women, but I kept pressing the police. I said to them, "You arrest these women," for at first the statute said 'women' but as I have said it now reads 'a person,' "so when you go into a disorderly house don't bring in only the women but bring in the men as well." As a result they started bringing in some of the men, but when a man's case is heard, he is of course dismissed because a higher court held that although the statute reads "a person," it applies only to the woman, she being the seller and the man only being the purchaser and the customer. All of the men are not brought in. If a raid is made in a fashionable house, a fashionable neighborhood, the men are asked to identify themselves and they are sent home. I did not know that the microbes discriminated between upper and lower Park Avenue. The police think they do. If you do not think that is discrimination, let me know. Dr. Bundesen, if you can find any logic that can convince me that that is sound, I would be

very glad to hear it. All I know is that it is not only illogical but as far as the end results are concerned, as I have seen this operate, it is preposterous!

Concerning the churches, we organized a Wayward Minors' Court in New York City. I found in the Women's Court they were taking in youngsters, sixteen years old, in the court and handling them in the same way as the prostitutes. I will say publicly just what I say now in this private conference; the way we handle the prostitute today is disgraceful although, too, we have made some strides, and we do examine the women. We do not allow any woman to walk out with venereal disease.

When I talk about the Wayward Minors' Court, although I have not been sitting there myself for 3 or 4 years, I will say they are still following the same technique. Here is what I found, so far as the churches are concerned, and you will find it true all the way down the line, that the girls brought in had very little, or very nominal religious education. The Church, and it makes no difference what the denomination is, has paid little attention to moral problems, i.e., the moral problems which brought the girl to court. As to the question of sex discrimination, through all the 3 dominant religions, the same attitude continues as far as the situation is concerned. If the boy is concerned, you know it is all right. He is sowing wild oats, or he is not going to bring the baby home!

When the medical profession realizes what we, in the legal profession, have to contend with; when the churches, whose business it is to handle the moral problem, and who have not handled it, realize these issues—*then, together, we may able to solve it.*

When one considers the question of a young girl and talks to her, as I have to hundreds of them, one sees she has a hazy idea of sex or as little knowledge about it as did Topsy in "Uncle Tom's Cabin." When I spoke to the boys—and I made it my business wherever I could to find the boys in the case—I found they knew just as little. When I sat in the courts, and had to handle what is called "statutory rape"—we have a statute which brings a man into court and charges him with statutory rape if he has any relations with any girl under 18 years of age—a great number of the males were just boys of a little over 16 or 17 and the usual attitude of the churches was to get them married. If marriage eventuates the case is dropped. Whether they should be married, whether the background would justify it, does not matter. It is just another case. I feel that the churches should initiate the type of work we are trying to do.

Frederick J. Taussig: We have a long program this morning, so unless someone has some questions to raise at this point, we will proceed with the next presentation.

CHAPTER X
SOCIAL AND ECONOMIC ASPECTS OF ABORTION

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The fact that so many different disciplines are represented in this Conference is significant. It is a recognition that abortion, as a problem of human behavior, has many aspects. We may begin by thinking of it as a medical problem, then as a problem of population, or as a legal problem. Sooner or later, however, we realize that it has economic and social aspects and that it is inextricably bound up in its modern manifestations with the changes taking place in the folkways and mores, and in public opinion.

Research findings upon abortion as a medical and population problem are quite numerous and relatively satisfactory (1). Research findings upon the economic and social aspects of abortion have been meager and unsatisfactory, despite the increasing realization of their importance in dealing with certain fundamental causes of the problem. The main justification of this paper is to emphasize this lack of research upon the economic and social factors in abortion and to suggest the crucial lines of investigation necessary to provide definitive findings.

Because of the small amount of evidence upon the economic and social causes of abortion, I am taking the liberty of introducing some indirect evidence—largely from the findings of 2 studies (2) now in progress at the University of Chicago, one upon "One Thousand Engaged Couples," and the other "A Follow-Up of Engaged Couples Three Years After Marriage."

Before taking up a consideration of the overt operation of economic factors in the causation of abortion it seems desirable to analyse the role of several other proposed causes to determine, so far as direct or indirect evidence is available, the nature and degree of their influence upon abortion and their relation to the economic factor.

First to be considered is the factor of social stigma. The popular stereotype of abortion is that of the pregnant unmarried woman who secures an abortion to avoid the shame and disgrace of child-birth. There seems no doubt that in our society abortion with unmarried women is due to the social stigma attached to pregnancy before marriage. Among some primitive peoples and in certain European peasant societies pregnancy before marriage carried no social condemnation, but was regarded as a desirable precondition

to marriage (3). If, in our society, the social stigma were removed from illegitimate births, both for the mother and the child, there would be a great decline in this type of abortion. Proof of this comes from Germany, where the birth of a child is valued so highly, as a contribution to the nation and the Fuhrer, that the stigma upon illegitimacy has been erased and the abortion rate correspondingly reduced (4).

It seems clear that *this type of abortion does not result, at least directly, from economic motives but from a desire to escape social disgrace*: The underlying reason why there is or is not a social stigma may be related to an economic system, such as that of a peasant community where fertility is valued, or to a political order which emphasizes population increase in relation to military power. On the basis of the existing evidence, Taussig (5) concludes that the number of criminal abortions in this country among unmarried women is only approximately 10 per cent of the total. Social stigma in its contribution to the abortion rate is, then, a minor rather than a major factor.

The next argument to be examined is that the use of contraceptives is a cause of abortion. The theory of this relationship is well stated by A. W. Bourne (6).

"The problem of abortion was linked to that of contraception. If the latter was recognized and encouraged apart from medical sanction, it was an easy, if fallacious, logic to reason that if the conception was the result of a failure of a technique which was not wrong, then the destruction of the result of the failure was also not wrong" (6).

To what extent is the theory supported by the facts? Raymond Pearl, in his analysis of findings upon fertility and contraception in New York and Chicago (7), reported that the abortion rate in both cities was higher for the users than for the non-users of contraceptive methods. Later, in a study of over 25,000 hospital records of white women, he found that by breaking down the cases by economic groups (8), the abortion rate was much higher for contraceptors than for non-contraceptors among women in the very poor, poor, and moderately circumstanced classes, but that for the well-to-do was slightly higher for the non-contraceptors, although not to a statistically significant degree.

If an association is assumed between skill in the use of contraceptives and economic status, this finding suggests that there is no inevitable and immediate association between the use of contraceptives and abortion. With increased efficiency of contraceptive methods and with more exact application of the knowledge of the menstrual cycle to the rhythm method, the proportion of abortions due to faulty methods will probably decline.

The relation of contraceptives to abortion should, however, not be dis-

missed so lightly. Certain implications of the statement by Dr. Bourne point to the psychological significance of the use of contraceptives in our civilization. It was, in fact, a revolutionary change in the mores that transferred from Nature to Reason the determining of the number of children in the family, and that substituted for the age-long stress upon the reproductive duty of women, the emphasis upon planned parenthood.

The change in the mores sanctioning the use of contraceptives took place only against great resistance. Less than a generation ago Mrs. Margaret Sanger went to prison for the crime of disseminating birth control information. Even at that time, however, contraception was in the folkways of large elements in the population. This contradiction between the emerging folkway of birth control and the sanction of the mores upon unrestricted fertility—reinforced with the precepts of religion and the penalties of the law—was only another instance of cultural lag. *The folkway of contraception was a reaction to the transition from a rural to an industrial civilization.* The enactment of laws against child labor changed the child from an economic asset into an economic liability to the family. Certain other changes were in progress which, it is alleged, also cooperated in weakening the sanction of the mores upon the duty of human fertility. Among these were the decline in religious sanctions, the emancipation of women, and the increased individualization and secularization of human values. These trends are not, it is evident, exclusive of each other; they represent only somewhat different aspects of what may be called the urbanization of life. They are, however, convenient terms by which to examine further the role of social and economic factors in abortion.

If the weakening of the religious sanction upon conduct were in and of itself an important factor in abortion, it would seem reasonable to expect a higher rate of abortion among adherents of those religious faiths which placed less stress upon fertility, and a lower rate among those affiliated with a church, such as the Roman Catholic, which has been emphatic in its opposition to family limitation. Studies of small groups of clinic cases, however, show little or no difference for the three large religious groups; the Catholic, the Protestant and the Jewish. For example, a study of 4,500 clinic histories of unmarried and married women of low economic status in New York City (maximum income of single women \$900.00 and of family income of married women \$1,400.00) by E. K. Brunner and K. Newton (9) report 12 per cent of Catholics, 14 per cent of Protestants, and 13 per cent of Jewish patients had had induced abortions. In a later study, Brunner (10) gives findings for a group of 979 clinic histories of women of a higher economic status with an average income of \$51.70 per week, nearly half of whom had

had some college training. Their distribution by religious affiliation did not greatly vary from their relative numbers in the population of New York, namely, 41 per cent Catholic, 35 per cent Protestant, and 25 per cent Jewish. The induced abortion rate was not greatly different for the 3 groups, being 27.1 per cent for Catholics, 23 per cent for Protestants, and 26 per cent for Jews.

The large-scale study by Raymond Pearl, based upon carefully kept hospital records of 25,316 white and 5,633 Negro women, apparently revealed rather striking differences. Pearl, at any rate, concludes, "The Jews stand at the top of the list in the proportion of total reproductive wastage caused by resort to criminal abortion. Next in order comes the No Religion group. The Catholics as a group resort least often to this dubious practice. These results suggest that the sanctions of the Catholic church still have some statistically demonstrable effect upon the every-day effect of even its more sophisticated communicants . . ." (11).

An examination of his data for the more sophisticated Catholics, namely the multipara, who use contraceptives, revealed that they differ very little from the same type of Protestants, the former having 2.35 as compared with 2.42 criminal abortions per 100 pregnancies, or only 3 per cent less.

It is clear that *the differences between induced abortion rates by religious affiliation are relatively small, and therefore the decline in religious sanction in and of itself is perhaps not an important factor in influencing the abortion rate.* Nevertheless, this conclusion should not be accepted too uncritically. The findings of these and other studies are from clinical and hospital records which make no distinction between those who are active in their religious duties and those whose identification with a religious faith is merely nominal.

The *Study of One Thousand Engaged Couples* does provide data which affords indirect evidence upon this point. The degree of religious activity of the parents (12) of the engaged couples is reported together with the number of children of the parents. This makes it feasible to determine the association, if any, between birth limitation and devotion to religion as indicated by the extent of church attendance of the mother and religious faith of the parents and in relation to their economic status.

Of the 1,850 families, both parents were Catholic in 207 cases; both parents Protestant in 789; both Jewish in 367; and Mixed or No Religion in 487. In the families in which both parents were Catholic, the average number of births was 4.2; both Protestant, 3.5; both Jewish 3.4; and both Mixed or both No Religion, 3.3.

Where both parents were Catholic, there was a marked difference in average number of children between "good" Catholic, i.e., where the mother

was reported as regular in church attendance and "nominal" Catholics who irregularly attended. Those who were poor varied from 5.2 to 4.3; those

TABLE 1

Average Number of Children According to Religious Faith and Economic Status of Parents Classified by Regular and Irregular Church Attendance of the Mother

Religious Faith of Parent, Economic Status and Church Attendance	Number of Cases	Average Number of Children
Both Catholic.....	207	4.2
Poor: Regular Attendance.....	24	5.2
Irregular Attendance.....	10	4.3
Comfortable: Regular Attendance.....	102	4.2
Irregular Attendance.....	49	3.6
Well-to-do: Regular Attendance.....	16	4.9
Irregular Attendance.....	6	3.5
Both Protestant.....	789	3.5
Poor: Regular Attendance.....	74	3.8
Irregular Attendance.....	65	4.0
Comfortable: Regular Attendance.....	287	3.5
Irregular Attendance.....	257	3.3
Well-to-do: Regular Attendance.....	60	3.6
Irregular Attendance.....	46	3.3
Both Jewish.....	367	3.4
Poor: Regular Attendance.....	6	6.2
Irregular Attendance.....	63	3.8
Comfortable: Regular Attendance.....	26	3.8
Irregular Attendance.....	169	3.2
Well-to-do: Regular Attendance.....	21	4.0
Irregular Attendance.....	82	3.1
Mixed or None.....	487	3.3
Poor: Regular Attendance.....	18	3.4
Irregular Attendance.....	85	3.6
Comfortable: Regular Attendance.....	69	3.5
Irregular Attendance.....	224	3.3
Well-to-do: Regular Attendance.....	21	3.7
Irregular Attendance.....	70	2.9
Total.....	1,850	3.5

in comfortable circumstances from 4.2 to 3.6, and the well-to-do from 4.9 to 3.5. With Protestants the differences in average number of births between the mothers who were regular and irregular in church attendance

was for poor families 3.8 and 4.0; for the families in comfortable circumstances 3.5 and 3.3 and for the well-to-do, 3.6 and 3.3. In Jewish families the variation in average number of children, according to regular and irregular church attendance of mothers, was for poor families 6.2 and 3.8; for families in comfortable circumstances 3.8 and 3.2; and for well-to-do 4.0 and 3.1. In families of Mixed and no Religion, the corresponding difference for poor families was 3.4 and 3.6; for those comfortably situated 3.5 and 3.3; and for the well-to-do 3.7 and 2.9.

The outstanding conclusion to be derived from these figures is that Catholics, and particularly those with a report of good performance of religious duties, have a much higher average number of children than the other groups classified by religion. The second conclusion is that in all religious faiths (with 2 minor exceptions in the group of poor among Protestants and among those with Mixed or No Religion) regular church attendance is associated with a higher average number of children. Presumably, therefore, religion and especially affiliation with the Catholic church appears to be an important factor in the prevention of family limitation either by contraception or by resort to induced abortion.

The emancipation of women is, according to many observers, a factor responsible for the limitation of offspring. Over 25 years ago Leta S. Hollingworth stated this viewpoint clearly and forcefully: (13)

"They (the social guardians) have made use of all possible social devices to insure not only child-bearing, but child rearing. Belief, law, public opinion, illusion, education, art, and bugaboos have all been used to re-enforce maternal instinct. We shall never know just how much maternal instinct alone will do for population until all the forces and influences exemplified above have become inoperative. As soon as women become fully conscious of the fact that they have been and are controlled by these devices, the latter will become useless, and we shall get a truer measure of maternal feeling.

"The natural desire for children may, and probably will, always guarantee a stationary population, even if child-bearing should become a voluntary matter. But if a surplus population is desired for national aggrandizement it would seem that there will remain but one effective social device whereby this can be secured, namely, *adequate compensation*, either in money or in fame. If it were possible to become rich or famous by bearing numerous fine children, many women would doubtless be eager to bring up 8 or 10, though if acting at the dictation of maternal instinct only she would have brought up but 1 or 2."

Dr. Hollingworth assumed that the maternal instinct would be satisfied

with the bearing of 1 child or 2 children and implied that the paternal instinct was entirely lacking or of no significance for child bearing. According to this theory of the satisfaction of maternal desire with 1 child or 2 children, a declining population would result if other factors were not relied upon. What are the facts which have a bearing upon the theory of the alleged weakness of maternal desire for children as a factor in limiting their number.

In Table 2 are presented data from Frederick Osborn's estimate (14) of the number of children required per 100 married women in the population

TABLE 2

Comparison of Osborn's Estimate of Number of Children Required to Replace Present Generation and Number of Children Desired by University of Wisconsin Men and Women Students

Number of Children	Osborn's Estimate		Wisconsin Women		Wisconsin Men	
	Per Cent Married Women	Number of Children	Per Cent Women	Number of Children Desired	Per Cent Men	Number of Children Desired
0	17	0	4	0	1	0
1	15	15	1	1	2	2
2	16	32	26	52	35	70
3	18	54	39	117	40	120
4	19	76	23	92	16	64
5+*	15	85	3	15	4	20
6+†			4	24	2	12
Total	100	262	100	301‡	100	288‡

* 5, 6 or more for average of 5½.

† 6 or more children.

‡ The actual totals were 303 and 286.

to maintain a stationary population, in comparison with the number of children desired by a group of women students in a representative Mid-western State university (15). The number of children per 100 married women which Osborn estimates as necessary to reproduce the present generation is 262 (16). The number of children desired per 100 University of Wisconsin co-eds is 301 or 39 in excess of Osborn's estimate. The paternal desire of the men students, possibly somewhat dampened by the realization of the economics of child bearing, is 288, or 26 above the required number of children to replace the present generation.

These figures from a representative group of students indicate that the desire for children by young men and young women at the college level is sufficiently strong, if not checked by counteracting factors, to provide

not merely for a stationary but for an increasing population. Certainly *these findings are not consistent with a theory that the increasing disinclination of modern women to bear and rear children is a major factor in the restriction of the size of the family* by induced abortion or otherwise. This finding is the more significant since the group with college education has small families.

The point may, however, be made that young people in the University of Wisconsin study were not faced with the imminence of marriage or with the reality of marriage. It may be quite another thing to indicate the number of children desired when one is about to marry or 3 years after marriage, when wishes are likely to be limited more or less by economic

TABLE 3
Number of Children Desired by Husbands and Wives Before and After Marriage

Number of Children Desired	Men				Women			
	Before marriage		After marriage		Before marriage		After marriage	
	Per Cent	Number of Children	Per Cent	Number of Children	Per Cent	Number of Children	Per Cent	Number of Children
0	3	0	1	0	1	0	1	0
1	3	3	3	3	2	2	3	3
2	54	108	45	90	50	100	46	92
3	30	90	41	123	35	105	37	111
4 or more*	10	45	10	45	12	54	12	54
Total children per 100 married women.....	100	246	100	261	100	261	99	260

* An estimated average for this group of $4\frac{1}{2}$ children.

actualities. Table 3 shows the number of children desired by over 300 couples before marriage and 3 years after marriage. These data are from the studies of engaged and married couples.

These findings indicate that the number of offspring desired by the wife both before and after marriage about equals the number necessary for replacing the present by the next generation and the same is true for the husband only after 3 years of marriage. Before marriage the number of children desired by the engaged man is less by 18 of the 262 per 100 married women proposed by Osborn, although only 4 less than 250 per 100 married women as indicated by Whelpton as the probable number required at the present time to maintain a stationary population.

The data from these and other studies of parental desire for children

before and after marriage appear to show that some factor other than this one should be relied upon for the chief explanation of family limitation and abortion.

The data presented by Raymond Pearl (17), and in other studies, that the criminal abortion rate rises with education is corroborated by our indirect evidence of the declining number of children with higher educational status of parents, as shown in Table 4.

Where both parents have college training the average number of children is 2.9, where both have high school education 3.2, and where both have only grade school experience 4.0. Education and economic status are so closely associated that it is difficult to disentangle them. They belong together in the wider concept of socio-economic status.

TABLE 4
Average Number of Children in Family by Education of Father (F) and Mother (M)

Educational Level of Parents	Average Number of Children	Number of Cases
Both College.....	2.9	188
Both High School.....	3.2	177
Both Grade School.....	4.0	396
F College and M High School.....	3.0	132
M College and F High School.....	3.1	55
F College M Grade.....	3.3	58
M College F Grade.....	2.7	28
F High School M Grade.....	3.2	95
M High School F Grade.....	3.2	138
Total.....		1,267

The findings of a number of studies indicate both a higher birth rate and a lower illegal abortion rate in rural than in urban communities. Our data upon the parents of engaged couples permitted classification by size of community where they resided during part of their married (18) life, as shown in Table 5.

There is a fairly regular decline in the average number of children per family by increasing size of community with one striking exception, the sharp decline in the case of the city of 50,000-99,999. Since the majority of parents are living in the Chicago metropolitan region there is no doubt but that this type of community represents the residential suburbs of Chicago, particularly Evanston and Oak Park, which were in that population category in the 1930 census.

Size of community bears some relation to economic status but not so much in size of income as in standard of living and in type of civilization. The open country still retains to a considerable extent the culture and mores of old-time rural America. In the large cities of 500,000 population and over, particularly in their residential districts and suburbs, are to be found urbanized America with its more sophisticated residents.

Practically all the factors influencing family restriction and a declining birth rate that we have examined—effect of contraceptive methods, the influence of religion, the emancipation of women, educational level, size of community—all seem to lead more or less directly into the economic factor broadly rather than narrowly conceived.

TABLE 5
Average Number of Children in Family by Size of Community where Parents Resided

Size of Community	Average Number of Children	Number of Cases
Open Country.....	4.3	72
Under 2,500.....	3.9	61
2,500-9,999.....	3.6	90
10,000-49,999.....	3.5	115
50,000-99,999.....	2.9	111
100,000-499,999.....	3.6	61
500,000 and over.....	3.3	740

There can be no doubt about the importance of the economic factor. In the *Abortion Report* made by an Interdepartmental Committee for the British Ministry of Health, this primacy of the economic factor is asserted (19).

“There is overwhelming evidence that an economic reason is predominant. In cases of poverty and unemployment it may be felt that the task of maintaining another child would be intolerable. Among people of moderate or comfortable means the desire for abortion may arise from the feeling that to bring up another child would lower the standards to which the family had become accustomed. Often the condition of the health of the woman cannot be separated from her economic circumstances. Some pregnant women (not, from the evidence submitted, a large number) desire abortion because they are afraid of the danger of childbirth. The position of the unmarried mother who becomes pregnant is attended with peculiar difficulty in view of the social stigma. Almost any circumstance which makes life more difficult or the future more uncertain is reflected in disinclination to carry a pregnancy to term. The committee is satisfied that purely selfish motives predominate in only a small minority of cases.”

This statement, while stressing the economic motive, actually redefines its meaning in terms of a satisfactory standard of living and security against the uncertainties of life.

This use of the term in a broader sense requires some examination into nature of the economic motive which operates in family restriction either by contraception or by illegal abortion.

First of all, it is not economic necessity in terms of an income insufficient to provide for a minimum standard of living. Our data on the average number of children in the family by present income of the father correspond with the findings of other studies. The number of children declines with rising income from 2.4 children with income under \$1,000 to 2.9 with income of \$9,000 and over.

TABLE 6
Average Number of Children in the Family by Present Annual Income of Father

Present Annual Income of Father	Average Number of Children	Number of Cases
Under \$1,000	4.2	107
\$1,000-\$1,999	3.9	256
\$2,000-\$2,999	3.3	294
\$3,000-\$4,999	3.2	260
\$5,000-\$8,999	3.0	181
\$9,000 and over	2.9	107
Total		1,205

Studies in Sweden (20) and in the United States (21) indicate that poverty and malnutrition are in great part the result of the large size of the family. In other words, one way to raise, or at least maintain, a given standard of living is to limit the number of children. For that reason it seemed desirable to supplement the data on size of family by present income of its head, by the data shown in Table 7 on the average size of the family by its economic condition during the childhood of the engaged person.

These data showed a marked relation between poor circumstances and a higher number of children. The range from poor to wealthy is 5.1 to 3.1. A significant finding in its bearing upon the nature of the economic motive is reported by Dorothy G. Wiehl and Katharine Berry (22) on the basis of a house-to-house canvass in New York City. They reported the highest proportion of pregnancies terminated by induced abortion (5.4 per 100

pregnancies) in the group of families not on relief but with incomes under \$1,000. The rate was almost twice as high as for families on relief (2.9). Evidently limiting the size of the family kept certain low-income families above the relief line, while too many children of low income families not practicing contraception or illegal abortion forced them to apply for relief. In this group of low economic status, a declining induced abortion rate was found by these investigators to accompany increasing income (\$1,000-\$1,499, 3.1; \$1,500-\$1,999, 2.7; and \$2,000 or more, 2.2 per 100 pregnancies).

The available evidence points more and more definitely to the standard of living of modern urban society as the central factor in planned parenthood, and induced abortion as a resort taken to avoid the consequences of the non-use, or, more often, the unsuccessful use of contraceptives.

TABLE 7

Average Number of Children in the Family by Its Economic Condition During Period of Childhood of Child Reporting

Economic Condition	Average Number of Children	Number of Cases
Poor.....	5.1	829
Meager.....	3.7	212
Comfortable.....	3.3	908
Well-to-do.....	3.4	205
Wealthy.....	3.1	43
Total.....		1,397

The standard of living, especially in the city, becomes one that is planned for and budgeted. A baby becomes a part of the budget, much the same as an electric refrigerator, a radio and an automobile. Significantly, with the modern couple, each of these commodities generally has priority over a baby. Delay in arranging for the first baby is in fact stimulated by the provision in hospital insurance plans providing a stipulated waiting period before confinement care will be given an expectant mother. Finally, the standard of living includes provision for the rearing and education of the child according to the expectations of the different economic classes in the community.

The economic factor, as it affects family restriction and abortion, is not to be defined as the necessities of existence. It is rather the socio-economic factor which we call the standard of living. But the standard of living turns out to be the values of persons and families and these values are those

of the social class to which the family belongs or to which it aspires to belong. And these are influenced by the values of society.

The material presented in this paper has been drawn from the available literature and from certain unpublished studies. Much of the data is circumstantial and indirect rather than conclusive. It is highly desirable to plan research projects that will give clear-cut answers to questions on the operations of the economic factor in relation to other factors. Particularly desirable is a study that would show the relation to induced abortion of contraceptive practices by religion, by education, and by type of community, while holding economic status constant. The economic factor needs to be carefully defined and to be broken up into its component elements, including occupation of father, economic class, working or non-working mother, nature of life values, and private and public provision for child care, support and education. Important also is research upon marital happiness and upon personality differences in relation to family limitation. But to be of value these studies must be carefully planned and should include enough cases so that the effective influence of each factor can be studied holding the others constant.

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- (4) CLIFFORD KIRKPATRICK: *Women in Nazi Germany*, London, Jarrolds, 1939, pp. 126-129; 155-157.
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- (6) "Social Aspects of Abortion," *British Medical Journal*, 1, Feb. 25, 1939, p. 408; from address by Aleck W. Bourne at Edinburgh Obstetrical Society, Feb. 8, 1939.
- (7) "Fertility and Contraception in New York and Chicago," *Journal of the American Medical Association*, 108, 1937, pp. 1385 ff.
- (8) Op. cit., p. 122.
- (9) "Abortions in Relation to Viable Births in 10,609 Pregnancies, A Study Based on 4,500 Clinic Histories," *American Journal of Obstetrics and Gynecology*, 38: 1939, p. 85.
- (10) "Outcome of 1,556 Conceptions, a Medical Sociologic Study," *Human Biology*, 13: 1941, pp. 159-176.
- (11) Op. cit., p. 239.
- (12) The parents are preponderantly residents of the Chicago metropolitan region, living together at the time of the marriage of their children. The mothers are typically 45-55 years old, which means that with few exceptions their reproductive period has been completed. The parents, as will be seen from later tables, are somewhat below the average in economic status.

- (13) "Social Devices for Compelling Women to Bear and Rear Children," *American Journal of Sociology*, 22: July, 1916, pp. 28-29.
- (14) *Preface to Eugenics*. Harper and Brothers, New York, 1940, p. 205.
- (15) REUBEN HILL: "A Study of Campus Codes with Regard to Mate Selection and Courtship Behavior, at the University of Wisconsin." Paper presented at the Mid-west Sociological Society Meeting, Des Moines, Iowa, April 17, 1942.
- (16) In a communication to the writer P. K. Whelpton writes, "Osborn's figure was obtained from an article which Dublin and Lotka published in 1925 in which were used mortality rates of the United States Registration States of 1920. These rates are considerably higher than those of the present time, hence the present figure is somewhat under 2.62, probably about 2.50.
- (17) *Op. cit.*, 225-234.
- (18) The question asked of the engaged couples about residence of parents was "Where did you live during your early childhood?"
- (19) From abstract of report in the *British Medical Journal*, 1939, 1: p. 1248.
- (20) ALVA MYRDAL: *Nation and Family: the Swedish Experiment in Democratic and Population Policy*, New York, Harper and Bros., 1941.
- (21) FRANK LORIMER AND HERBERT ROBACK: "Economics of the Family Relative to Number of Children," *Milbank Memorial Fund Quarterly*, 181: 1940, pp. 114-136.
- (22) "Pregnancy Wastage in New York City," *Milbank Foundation Quarterly*, 15: 1937, p. 247.

DISCUSSION

The discussion of the paper by Ernest W. Burgess was conducted by Dr. Frederick J. Taussig, Chairman of the 3rd session of the Conference.

Frederick J. Taussig: Dr. Burgess' paper is open for discussion.

P. K. Whelpton: I would like to call attention to some data, which I presented yesterday morning, which are in conflict with some that Dr. Burgess presented this morning. I understood that the same percentage of abortion was found to be in the higher income groups, and twice as high in the upper income level than in the lower income brackets.

Ernest W. Burgess: I think I stated that Pearl's studies showed that abortion rate.

P. K. Whelpton: This is illegal abortion? I thought you spoke of criminal abortion being higher in the lower income group. I wished to clear the point whether the illegal or criminal abortion rate was higher.

Ernest W. Burgess: I stated results from different studies. Certain studies show it is higher in the higher income groups. I think the one study that shows the rate falling with the higher economic status is the one by Wiehl and Berry.

Regine K. Stix: I think I can add something about Wiehl and Berry's study. Their series consisted of a pretty highly selected group which included a number of people on relief. Actually I did some work on that study myself. The rise was questionable, and it was confined to a very small income range which has to be taken with a grain of salt.

I think all of the studies that have disclosed real facts on this question have been pretty well limited. Probably Dr. Whelpton's population study is the first study of unselected individuals with special interest for fertility. Wiehl and Berry's group was a selected series in which the women gave history of a birth within the year, and therefore it is difficult to compare these studies. I would say that the Indianapolis survey is going to be the first material that has no bias in it from the point of critical view of case selection.

I would like to add further that the question of the tie-up between the use of contraception and the abortion incidence is something which we found also in our studies. However, our studies were made on a highly selected group of women who visited clinics for contraceptive advice because they

had trouble controlling fertility. The psychology of the situation is perfectly logical, that once a couple has decided this is not a time to have a baby they will start to use contraception. If the contraception does not work, they will quite logically take the next step if there is the definite step insofar as, in their mind, an abortion is indicated.

Abraham Stone: May I ask, Dr. Taussig, whether in view of your later studies you would say that the percentage of premarital abortions is still 10 per cent of the total number of induced abortions? Dr. Burgess quoted you as saying that the proportion of abortion before marriage constitutes about 10 per cent of the induced abortions.

Frederick J. Taussig: I have no studies on which to base such a statement other than what I had originally in 1935. I think it is an important thing to try to ascertain more information regarding that subject, but I have, on the other hand, seen some information which makes me feel that that statement is wrong.

I think this presentation of Dr. Burgess is very interesting in relation to population growth. The figure, as to the number of children in families, does not mean that 2.5 or even 3 children are sufficient to maintain the population of a country. The studies made in Scandinavia are most illuminating on that subject. It is not the number of children that a particular family has. It is the number of children for the entire population. In other words, the average number of children in the married group may be 2.5 children and you would think that that would mean a stabilization of the population. It does not. The studies from Scandinavia show that an average of approximately 4 children is necessary for those couples that are able to have children because there is a considerable number of sterile married couples and of course a considerable number who are not married.

P. K. Whelpton: May I refer to that point just a minute? I was doing some very rough figuring while Dr. Burgess and Dr. Taussig were talking. In this country out of 1,000 newborn girl babies, roughly 90 per cent will live to childbearing age. Of these, again very roughly 90 per cent will marry and of those who marry 90 per cent will have one or more live births. Multiplying these figures together, 729 out of each 1,000 girl babies in one generation must bear when they grow up the 1,000 girl and 1,050 boy babies needed in the next generation if the population is to continue stationary. Dividing 2,056 by 729 to 648 gives 2.8 to 3.2, the average number of live births needed per married woman to maintain the population.* Dr. Mrydal's

* Exact figures for the whole population of the United States computed from data of the Bureau of the Census are as follows:

figure of four live births per married woman having a live birth, which Dr. Taussig quoted, is 25 to 30 per cent higher than is necessary to maintain a stationary population when death rates, marriage rates, and the proportion of childless married women are as they have been in the United States during recent years.

There is one other fact I would like to call to your attention. Dr. Burgess' data shows a rather continuous and sharp decline in the average number of children per family as income goes up. I think it should be pointed out that an increasing number of studies are showing that in the top income group, say \$10,000 and over, the average number of children is higher than in the two or possibly three income groups below the top. Gradually in this country a change is taking place in the long standing inverse relationship between the average number of children and family income. However, this is occurring only in the high income group, and not because the birth rate in this group is rising but because the birth rate in the middle income groups has kept on declining and has now become quite low.

Fred L. Adair: We have talked about maintaining the population. That may be true and desirable in one country but it may not be true in another. I don't know whether anybody ever established for the United States whether it was desirable to increase, maintain or possibly decrease for a temporary period of time the population. Of course, it is obvious that continued decrease would lead to extinction. I wonder if sociologists and economists agree on a common answer whether it should be increase, maintenance stabilization, or perhaps temporary decrease.

P. K. Whelpton: I am sure that sociologists and economists do not agree as to what is the best size of the population or the best course of population

	1919-21	1929-31	1939-41 estimated
a. Per cent of girl babies living to age 15.....	88.71	91.89	93.9
b. Per cent of girls aged 15 who will marry before age 45 (or before death if dying between 15 and 45).....	87.64	89.37	89.5
c. Per cent of married women having 1 or more live births.....	88.0	76.9	82.5
d. Per cent of girl babies of 1 generation who will contribute to the next generation ($a \times b \times c$).....	68.4	63.2	69.3
e. Total births per 100 girl births.....	205.8	205.8	205.8
f. Number of live births per married women having 1 or more live births, which is necessary to maintain a stationary population ($e \div d$).....	3.0	3.3	3.0

growth in the future for the United States. As far as I am concerned, I am one of a probable minority which thinks it can be shown conclusively that, from the standpoint of economic optimum, if we could chose the size we wanted for a stationary population we should choose a smaller population than we now have. I have written some on that point. But we do not have the opportunity merely to choose between stationary populations of different size. Our economic system has been and still is predicated on future growth. If that future growth were interrupted sharply the harmful effects surely would outweigh greatly the advantages that might be achieved through having a stationary population smaller than the present rather than larger.

Speaking from the economic point of view, and leaving out religious and other sociological factors, it seems to me that the desirable course for future population growth in this country is a continuation of recent trends. This would mean a further slowing up of the rate of growth, the reaching of a maximum population not too much above the present size, and then either the maintenance of that size, or at most a slow decrease.

If one wants to worry about the future growth of population in the United States he should consider whether or not we will be able to check in time the decline in the birth rate which has gone on at least 103 years in this country. A declining birth rate is not a new thing here. We speak of a rapid decline from 1920 to 1930 as though there had not been such a change before. Actually we had declines nearly as large on a relative basis 100 years ago. The thing which can give us cause for worry is whether this long time decline can be and will be checked before the birth rate reaches a point which is much below the level necessary for maintaining a stationary population. Personally, I think it can. Our Indianapolis study indicates that the majority of married couples want some children. I think there are reasons for not fearing too much that a continuation of the decline in the birth rate will put us so far below maintenance levels that we will have difficulty in achieving a stationary population in the future.

THE CONTROL OF THE ABORTION PROBLEM

FOURTH SESSION: SATURDAY AFTERNOON

June 20, 1942

Introductory remarks made by Dr. George W. Kosmak, Chairman of the 4th session of the Conference in introducing the Honorable John Harlan Amen to the Conference.

It is a great privilege to have been asked to open this fourth session on "The Control of the Abortion Problem." I feel that the magnitude of the abortion problem has been very well shown by the catholicity of the papers and discussions which have developed by the occasion. It is to be hoped this discussion will result in some constructive measures which may alleviate what has grown to be a most unfortunate situation. It is quite evident from all that has been said in these past 2 days that we cannot concentrate on any one measure and that there are medical, legal, social, economic and many other problems involved.

I do not personally like that term "Control of Abortion." I think we should have a term that is somewhat better adapted to the subject that we are really discussing. The commonly used term confuses the rights and wrongs of the picture and is not very illuminating, and I hope that soon we will find a term better adapted to what we would like to do.

As the program is a long one, I am not going to waste any time in extended introductions. I think all of you know the gentlemen who have been kind enough to favor us this afternoon with their presence, and I will begin by calling on Mr. Amen.

Mr. Amen has been identified with one of the outstanding reports developed in recent years in this city on what I might call the abortion evil. He is so well known to all of you that it is needless to say anything more about his career. I take great pleasure in welcoming to this assemblage the Honorable John Harlan Amen, Assistant Attorney General of the State of New York, in charge of Kings County Investigation.

CHAPTER XI
SOME OBSTACLES TO EFFECTIVE LEGAL CONTROL
OF CRIMINAL ABORTIONS

JOHN HARLAN AMEN, A.B., LL.D.

May I first express my admiration of the completeness with which your program covers the various phases of this ever-present problem and thank you for the opportunity you are giving me to discuss with you that phase which has to do with law-enforcement.

We all know that public opinion plays a large part, not only in placing laws on the statute books, but also in their enforcement. When the moral and common sense of the community are in accord that some particular kind of behavior is wrong, the problem of enforcement becomes relatively simple. Violations are infrequent since there are few who wish to commit them. When committed, the violators are dealt with promptly, vigorously and efficiently.

On the other hand, when public opinion is lukewarm or *divided*, the problem of law enforcement is tremendously increased. Perhaps the best instance of this was Prohibition. I have had another example in the Kings County Investigation where the conduct of certain police officers was under examination in relation to the enforcement of the gambling laws. The public at large does not view gambling as a serious vice, and, not unreasonably, finds difficulty in making a moral distinction between a bet made on one side of a fence, which is legal because it is in a race-track, and a bet made on the other side of the same fence, which is illegal because it is outside of a race-track. This feeling is so widespread that I found not only policemen and bookmakers, but even some judges, sitting in criminal courts, unable to look upon violations of the gambling statutes as serious matters. There follows, naturally, lax enforcement and light sentences. Bookmakers continue to operate freely and a situation is created in which it is only too easy for certain policemen to convince themselves that it is permissible to accept protection money from professional gamblers.

The human equation also presents itself as a factor which tends to encourage corruption in protecting abortionists from criminal prosecution. Varied forms of such official corruption were found in the course of my investigation. A former Assistant District Attorney in Kings County was indicted for accepting a bribe to interfere with a prosecution for a criminal

abortion, and pleaded guilty. Another former Assistant District Attorney was disbarred upon proof that he had taken money from 2 abortionists to see to it that they would suffer no interference with their practice. Conduct of this sort is obviously a formidable obstacle to effective legal control. The disclosures following upon the prosecution and punishment of corrupt officials have brought the situation into the open and undoubtedly have had a salutary effect; but a more complete solution of the problem lies in a still further aroused public opinion.

Therefore, I think it is safe to say that the greatest obstacle so far encountered to the legal control of abortions is public indifference. So long as there is a widespread public feeling that under certain circumstances an induced abortion should be permissible or justified, certain results inevitably follow. There will be a large market for the services of the criminal abortionist. This practice will remain a profitable field of medical activity. These facts will aid certain doctors in convincing themselves that they are performing a useful public service. The enormous number of abortions performed and the secrecy naturally surrounding them, will impose an insurmountable burden upon the State's investigative and enforcement agencies.

The enforcement of the laws governing criminal abortion presents three main difficulties:

First, how to get the evidence. This is a real difficulty. Except in the infrequent cases in which something goes immediately and drastically wrong, the patient will not complain. Since the doctor, the nurse and his patient are usually the only ones who know anything about what has happened, it is obvious that the possibility of securing any evidence in such a case is slender. If the patient dies, there have been instances in which prompt and efficient intervention by the police and the District Attorney has resulted in convictions of manslaughter. Such cases, however, are the rare exceptions.

The second difficulty is to set the enforcement machinery in motion with the same vigor and efficiency which is displayed in the prosecution of crimes of violence. Where the moral or common sense of the community looks upon criminal abortions with complacency or toleration, it is most difficult for prosecuting officials and courts to extend themselves to the utmost in an effort to secure convictions. Also, as in the gambling situation, it is easier for officials to convince themselves that there is nothing morally reprehensible in accepting bribes or protection money from abortionists.

The third difficulty lies in securing punishment sufficiently severe to act as an effective deterrent.

The statutes governing criminal abortion in this State are found in both the Penal Law (involving criminal penalties) and in the Education Law (involving suspension or loss of license) and I now propose to discuss certain specific enforcement problems raised by these statutes—problems which I have met and with respect to which I may be able to offer some suggestions for improvement. First, let us briefly review the statutes themselves.

The Penal Law of the State of New York contains provisions making a criminal abortion, that is to say an induced abortion by instrument or drug not necessary for the life of the parent or child, a felony. The female who submits to the abortion is also guilty of a crime under the present provisions of law. There is another section of the Penal Law which makes it manslaughter in the first degree to cause the death of a woman in the course of a criminal abortion and yet another section which makes it a misdemeanor to sell or offer abortion instruments or drugs.

In addition, the Education Law of the State of New York contains provisions which make the performance of or offer to perform criminal abortions a ground for the revocation of a physician's license. Another section provides the procedure whereby charges of professional misconduct, including criminal abortions, are tried and punishment inflicted.

Thus you will observe that the criminal abortionist faces two kinds of legal penalties—the criminal penalty under the Penal Law and the penalty of suspension or loss of license under the Education Law. Let me deal first with some of the additional obstacles relating to criminal enforcement of the Penal Law and later take up the difficulties surrounding disciplinary punishment under the Education Law.

Although an offer to perform a criminal abortion constitutes grounds for disciplinary action under the Education Law, the Penal Law is silent on the subject. In other words, at the present time there can be no criminal prosecution except on proof of an abortion actually performed or attempted. An offer does not constitute an attempt. An attempt is an act performed in an effort to accomplish the actual abortion. It is obvious that the difficulty of securing evidence of attempt is not appreciably less than the difficulty of securing evidence of a completed abortion. I therefore recommended to the Legislature, that a new section be inserted in the Penal Law making it a misdemeanor to offer to perform an abortion. This bill, had it been passed, would have had 2 distinct advantages. Such a violation would be prosecuted in the Court of Special Sessions where misdemeanor charges are tried by 3 judges—a simpler and speedier form of prosecution would therefore follow. Secondly, since this type of criminal prosecution would be based on substantially the same evidence regularly used in disciplinary

proceedings against physicians under the provisions of the Education Law, the burden now placed on the Department of Education would be materially lessened. The proposed bill was introduced and although I understand it had the backing of most of the medical societies, it failed to pass. I suggest that an effort to secure passage of this bill in the next session of the Legislature would be a proper matter for your consideration and support.

One of the serious problems which existed until recently in the prosecution of a criminal abortion case but which is not present in a disciplinary proceeding for the same offense, was the reluctance of women patients to give testimony. A woman who submits to a criminal abortion is herself a violator of the Penal Law. You are, of course, familiar with the constitutional privilege against self-incrimination. The patient of a criminal abortionist could scarcely give any testimony incriminating the doctor without at the same time incriminating herself, and this she could not be compelled to do. Defense attorneys found in this situation a ready means of suggesting to patients that they should keep their lips closed. The law cannot, of course, remove a psychological reluctance to testify, but it can remove a privilege to refuse to testify by granting immunity from prosecution to one so testifying. Such a statute compels the witness to testify and in return provides that the witness may not be subject to any prosecution as the result of testimony so given. It appeared to us that abortion prosecutions should properly be covered by such an immunity statute. Accordingly, a bill was introduced in the Legislature at my instance, adding a new section to the Penal Law providing immunity and compelling testimony in criminal abortion investigations and prosecutions. The bill passed the Legislature and was signed by Governor Lehman. So much for the difficulties of enforcing the provisions of the Penal Law.

Now as to disciplinary proceedings. Prior to the 1942 session of the Legislature, the Education Law made it a ground of revocation of license "that a physician did undertake in any manner or by any ways or means whatsoever to do or perform any criminal abortion." It was the feeling of the grand jury that in one respect at least, this statute lacked vigor. Its language did not indicate with any degree of clarity whether punishment could be imposed on the corner druggist, the solicitor, or on a physician who declined to perform the criminal abortion himself but sent his patient to another doctor for the operation. All were agreed that effective control of the problem required the imposition of some such punishment. To subject the corner druggist, the solicitor and the forwarding physician to the risk of drastic punishment would moreover have an obviously deterring effect upon the performance of criminal abortions since the evidence shows

that vast numbers of criminal operations resulted from recommendations of this kind.

In order to remove the existing doubt, I recommended the passage of a bill which would amend the Penal Law to provide that the corner druggist, a solicitor or any person who gives information as to where or by whom an abortion could be performed would be guilty of a misdemeanor, and a further bill which would amend the Education Law to provide that the forwarding physician be subject to disciplinary proceedings. The bill amending the Education Law was introduced, passed and became law on May 8, 1942, but oddly enough, the bill amending the Penal Law aimed at the corner druggist and the solicitor was permitted to die in the Legislature.

The last, and to my mind the most important, question to be considered is the efficacy of the procedural provisions of the Education Law under which disciplinary proceedings are carried on, and the ultimate answer to this question rests not with lawyers but with doctors.

I must first give you a brief survey of the state of the law as I found it when I commenced my investigation. At that time, and presently, the Education Law provided for a committee on grievances within the Department of Education to consist of 10 physicians; 4 of them nominees of the Medical Society, 2 of them nominees of the Homeopathic Society, 1 of them a nominee of the Osteopathic Society and 3 independent nominees of the Board of Regents. This Committee is charged with the entire responsibility of hearing evidence in proof of any charge of professional misconduct filed against a physician, of making a determination whether or not the charges have been sustained, of recommending punishment where they find that the charges have been sustained, and of forwarding their recommendation to the Board of Regents which has the ultimate power of deciding guilt or innocence and of imposing punishment. More particularly the procedure is like this:

Any person may file a charge that a physician has been guilty of professional misconduct. In practice, most charges are filed by the Department of Education itself on the basis of evidence secured by investigators employed by the Department. The chairman of the Grievance Committee is authorized to appoint a subcommittee of 3 members to hear evidence of any charge which the committee decided was substantial enough to warrant trial. A copy of the charges must be served on the accused and a hearing is held and the evidence under oath is produced. Proof in support of the charges is offered by an Assistant Attorney General who is assigned to the Medical Grievance Committee. The subcommittee makes its determination, which is reported to the full membership committee at its next full

meeting. If the full committee is unanimously of the opinion that the accused has been found guilty, its finding and its recommendation for punishment is forwarded to the Board of Regents which in turn reviews the matter and has authority to accept or reject the finding or recommendation of the committee. The action of the Board of Regents is final and subject only to review in court.

Such is a brief picture of the procedure provided by the Education Law as it presently exists. My investigation soon discovered that in actual operation the system was woefully inadequate to cope with the abortion problem. In spite of an estimated total of more than 100,000 criminal abortions performed annually in New York City alone, the records of the committee showed that during the 3-year period, from 1936 to 1939, proceedings were completed against only 77 doctors on charges of abortion. Fifty-two of these cases were dismissed; 4 doctors were censured; 4 were suspended and the licenses of 7 were revoked. Decidedly not an impressive record. It is doubtful whether even this record, however, accurately reflects the real number of cases in which no proper disciplinary action was taken. The former practice (now happily abandoned) was that all complaints were referred in the first instance to the Executive Secretary and through him to the Assistant Attorney General. If for any reason at all, or even without reason, these 2 individuals decided to do nothing further about a complaint, it went out the window and nothing more was heard of it. Where a complaint was dismissed without ever reaching the Medical Grievance Committee, it was obviously impossible to find any record of it, and only by chance did we discover the existence of the practice and succeed in putting an end to it. If the Executive Secretary or the Assistant Attorney General decided that the complaint warranted action, investigators were sent out in an effort to secure sufficient evidence to make a case. These investigators were employed by the Department of Education on a per diem basis. In abortion cases, a pair of female investigators were often sent to the office of the suspected doctor with the purpose of discovering whether the doctor would offer to perform an abortion. If sufficient evidence of an offer to perform an abortion were secured, charges were prepared on the basis of the investigators' reports and the proceeding was started on the basis of such charges.

The actual trial of the charges before a subcommittee of 3 is conducted in general as all judicial hearings, with the questioning of witnesses, presence of counsel and the taking of a stenographic record. At one time there was a practice of having a preliminary hearing before a sub-committee in order to determine whether formal charges should be filed. There was no sanction

in law for this practice and it was discontinued shortly after my investigation started.

So far as those cases actually presented to a sub-committee on sworn testimony were concerned, the principal obstacle to efficient procedure was the factor of delay. The accused physician who was not suspended from practice and therefore free to continue his operations, had a natural interest in securing as many adjournments as possible, and long adjournments were frequently given. Where the sub-committee finally determined the case against the accused doctor, the determination could not be acted upon by the full committee until its next semi-annual meeting which might be as much as 6 months after the determination of the sub-committee. The full committee, in turn, rarely examined the record, relying almost entirely on the recommendation of the sub-committee. It followed that the cases did not receive the careful consideration which the Legislature intended. Furthermore, a recommendation for punishment could not be made to the Board of Regents unless each member of the subcommittee voted on the case and the finding of guilt was unanimous. If a member were absent or did not vote, the proceedings were almost entirely on the recommendation of the sub-committee. Furthermore, a recommendation for punishment could not be made to the Board of Regents unless each member of the sub-committee voted on the case and the finding of guilt was unanimous. If a member were absent or did not vote, the proceedings were void. If the accused was a member of a minority school he could be protected from punishment by the vote of a single member of his own school despite the statement of evidence and the views of the remaining members.

These loose and defective proceedings before the Medical Grievance Board obviously called for many reforms as soon as they were brought out into the open. Some reforms could be and were effected by means of new regulations enacted by the Department itself. Thus, the Attorney General directed that no determination as to the sufficiency of complaints should be made by his assistant assigned to the Education Department and that function was returned to the Executive Secretary of the Education Department itself, where it belonged and should have remained at all times. A new regulation was adopted providing that no complaints should be dismissed without investigation, with the permission of the Associate Commissioner of Education. This was a substantial and much needed reform and has accomplished a great deal of improvement in the functioning of the Medical Grievance Committee.

But the statute itself obviously needed overhauling in many respects. There was substantial agreement on the part of all who were interested in

the matter that the hearing of charges by sub-committees of 3 physicians serving without pay, on time taken from their ordinary professional occupations, was not calculated to afford a properly thorough consideration of the cases. This consideration was reinforced by the fact that a tremendous backlog of undecided cases was found to exist in the files of the Grievance Committee. The necessity of a report by the sub-committee to the full committee, of theoretical reconsideration by the full committee and a unanimous vote by the full committee were also undesirable and presented formidable obstacles to efficient procedure. A serious question was also presented whether it was advisable to have the proof of the charges submitted by the Assistant Attorney General who was simultaneously charged with the function of advising the committee on points of law.

Careful consideration was given by various agencies to a solution of this problem. The best methods of reform were debated by the Board of Regents, by the medical societies, by Moreland Commissioner Benjamin and by my office. As a result of my deliberations a bill was prepared containing these salient features:

1. A full time medical grievance committee, consisting of 5 physicians, serving for compensation to be paid by the State.
2. Elimination of the requirement that different groups or schools of practice be represented.
3. Hearing of each case by the full committee upon evidence presented by an employee of the Department of Education and with an Assistant Attorney General delegated to advise the Committee on the law.
4. A majority vote by the committee to constitute sufficient basis for a recommendation to the Board of Regents.

This proposed bill was not introduced in the 1942 session of the Legislature although it was backed by various responsible medical societies.

On the contrary, an entirely different proposal was introduced in the Legislature which left the present system substantially unchanged, except that it provided for the hearing of charges by a trial commissioner and for a recommendation by the Grievance Committee on a vote of two-thirds of its members, provided that the majority vote should be concurred in by a member of the same school of practice as the accused. It was obvious that this bill fell far short of accomplishing the needed reforms and had every indication of being a face-saving device designed to placate certain members of the Grievance Committee. The substitution of a two-thirds vote for a unanimous vote on the part of the full committee was only an illusory change in view of the requirement which remained that a member of the school of the accused must concur with the majority. This in fact preserved the

veto power of minority schools on the basis of which Governor Lehman had already vetoed a similar proposal a year or so before.

This alternate measure passed the Legislature. While it was before the Governor for signature, there was communicated to him substantially what I have already told you. The Governor subsequently vetoed the measure, a result which should be gratifying because it leaves the way open for ultimate enactment of a really thoroughgoing reform such as that embodied in the bill which I proposed. I commend this bill to your consideration and suggest that your support of it at the next session of the legislature would be extremely helpful in removing some of the serious obstacles to effective legal control of criminal abortions.

I have only one thought to add and that relates to the human element in the enforcement of the Education Law. Just as the situation lent itself to corruption in the enforcement of the penal provisions against criminal abortions, so it left open the door to the payment of much protection money in order to secure physicians against proceedings by the Medical Grievance Committee.

On the whole, our progress in the law enforcement field of criminal abortions has been far from discouraging. Quite aside from exposing a corrupt system and terminating a flourishing racket, 2 statutory reforms have been accomplished—both of major importance—2 others have not as yet been accomplished but with the assistance of responsible groups such as yours, I think there is every reason to hope that they can be secured. When all is said and done, Gentlemen, the Legal Profession is only summoned after the laws have been passed, the procedure established, and violations proven. In the last analysis, therefore, it is your consideration of these vexing problems, your careful exposition of the evils involved, and your determination to eliminate them which alone can bring ultimate success.

DISCUSSION

The discussion of Mr. John Harlan Amen's paper was conducted by Dr. George W. Kosmak, Chairman of the fourth session of the Conference.

George W. Kosmak: This very illuminating presentation is now before you for discussion. I think there should be some remarks both from the legal and from the medical men present. Judge Kross, have you anything to say?

Anna Kross: As I said this morning, you are fortunate to have the benefit of Mr. Amen's remarks. He made a real contribution to the community, the medical and legal professions, and I think we ought to look to your group for the needed support and study of abortion problems on the fundamental educational and social aspects.

Harry Aranow: The fact that that first amendment was defeated need not be discouraging. That started an urgent outcry. Laws are hardly ever passed on their introduction, but go through a period of filtering.

As to the third amendment, as I told Mr. Amen at our meeting here at the Academy, I brought it up before one of the outstanding medical groups in the city and they were opposed to it. There are physicians who believe that a woman should be aborted even if not in immediate danger of death, if she has a heart disorder which might shorten her life, or a mental disease, or is threatened with tuberculosis. These physicians feel they have a right to refer such cases to other men. Under the new law they would be liable to arrest, and accordingly, they failed to support the bill. It would be a good thing to punish the druggist who does it for remuneration, or the doctor who does it for a commission, but a law to make it all-inclusive would be difficult to pass.

Harvey B. Matthews: I would like to express my appreciation for what Mr. Amen has done, not only in Kings County but for the entire City of New York and the State, and we hope the nation. As the Honorable Anna Kross said this morning, our problem is first to educate the doctors and later the public to appreciate the gravity of the abortion "racket;" if we are honest and sincere with ourselves, in every respect, we may then have laws which will help clear up the situation. If the doctors continue to condone the present system of criminal abortion, how can we expect laws to be enforced? I hope this group will get behind Mr. Amen's law, because personally I think it is a good law. I do not agree with Dr. Aranow's interpretation of it because he is speaking of lawful or therapeutic abortions,

which are perfectly legitimate. Mr. Amen's law ought to be passed in the State, and I hope this organization will lend a helping hand in its passage.

Harvey L. Daiell: I would like to ask Mr. Amen, after his wide experience in dealing with these problems, whether or not he believes that the passage of these laws, which are probably desirable, would result actually in the reduction of the incidence of criminal abortion in the City of New York?

Robert L. Dickinson: I would like to ask what the law is concerning legal liability in a case of virgin rape, whether our laws are similar to the laws in Switzerland and Scandinavia where it is legal to interrupt such a pregnancy.

Fred L. Adair: What Dr. Dickinson has said just now brings up an incident which happened many years ago. A young girl in the early teens was raped and became pregnant and the judge in the Juvenile Court sent her to me with the idea that I would terminate the pregnancy. I sent her back and said if he would give me legal permission I would be very happy to do it. He said that he could not do it. In other words, I could commit an illegal act and he could not. Since then I have wondered how it would work from a legal point of view to have certain permissive legislation which would make it legal to perform an abortion under certain conditions which would be reviewed by some sort of a tribunal, consisting of perhaps a doctor, lawyer, and a sociologist. I wonder whether something of this kind would make it possible to control the situation more effectively. I realize that it would be very difficult, if not impossible, to secure such legislation at the present time. It could be made possible in the future by an educational campaign. Even such a plan could be misused until the public conscience is more highly developed than at present.

Frederick J. Taussig: We are much interested, of course, in the situation here in New York State. There is a large representation of New York here at this meeting, but we must bear in mind that this is a meeting called by the National Committee on Maternal Health and the purpose of this Conference should be primarily directed to drafting a model abortion law which could be accepted by all the states of this country. As we look at the laws in the 48 states of this country, we must realize the tremendous diversity and illogical character of the wording of these laws.

Clair E. Folsome: There is one question upon which I would like to hear Mr. Amen comment. Speaking from the point of view of a research organization, organized on a national scale, is there any way, under the existing statutes, by which a research organization could study the problems of abortion but still maintain a certain degree of immunity while devoting its effort to establishing accurate and scientific studies of incidence?

Robert L. Dickinson: We were once invited here, in the Academy of Medi-

cine, to consider therapeutic operations as related to the techniques and methods used by the leading abortionists. A committee was appointed by the Academy, which was unwilling to consider the matter. Dr. John Polak, Dr. Fred Holden, and, I might incidentally say, myself, once expressed willingness to study methodology, but we did not dare do it without legal sanction, which constitutes a serious block to our investigations.

George W. Kosmak: It seemed to me, while Mr. Amen was presenting his report today, and I have also noticed it in his more complete presentation—and I do not wish to be misunderstood—he leaned rather lightly on the lawyers and pressed rather heavily on the doctors. I was impressed in reading his report, that had it not been—I don't like to use this word—for the “connivance” of his own profession, a great many of these delays and other things concerning the trials of the abortionist might have been avoided. I would like to ask him whether any effort will be made to extend the same type of restrictions which he wants to impose upon the doctors to the lawyers.

John H. Amen: I would heartily endorse any such move, but the point is, and I have said that perfectly deliberately, the medical profession belongs to the doctors. What I am complaining about all the way along is that the situation which exists, by which I mean the machinery set up in the Medical Grievance Committee and these statutory provisions, is what makes it easy for the abortionist to go around and pay money to the lawyer. I am not defending the lawyer in this situation at all. It is a problem corresponding to ambulance chasing in the legal profession. There have been prosecutions for that and there have been laws passed against it, and that, of course, is about as far as you can go. In the medical profession my complaint is that you have not got the necessary legal setup to be able to take proper action and to clean house. In other words, you have an open invitation to misconduct which, it is true, extends also to the lawyers, to the druggists and everybody else.

Many of your questions suggest that if you have stringent laws of any kind they are going to be directed against respectable members of the profession. Of course, in some odd situation, some law might be abused. They are always abused once in a while, but I think if you will read the cases, you will find that almost never has any person, any reputable member of your profession been brought up on charges under any of these statutes. In other words, what we are after is the crooked and the cheap, the uneducated and careless abortionist, who runs nothing except a mill, where the injuries which he does to many of his patients are not known to any one until some investigation comes along which discloses things you would not otherwise believe.

Now all of you gentlemen would like me to say, "I can grant you immunity." It is the same in the rape case. In the rape case, the answer is of course, would the abortion be construed by a court or jury to be necessary to the life of the patient? I would say that in 90 cases out of 100 it would be, but of course there is the occasional case where it would not. In other words, I do not believe you would ever get a jury on a case such as was described which would find the doctor guilty unless there were other circumstances which were not present in the example stated.

Neither a lawyer nor a judge, and I am sure Judge Kross will bear me out, can lay down the law that you have immunity for this or that and that nothing is going to happen to you. You have to take a little chance, and if you have such an important problem as this, I do not think the medical profession ought to just sit around and say "Unless we can be granted immunity we cannot deal with the situation."

Answering your question, Dr. Folsome, you can do research about legitimate things but I do not think you can sit in and watch the illegal operation and be assured, if the circumstances were known, you would not go to jail. I cannot guarantee that and neither can anybody else.

You ought not just say that because these are the laws, and because they might be construed so as to put you in jail, you are going to let the whole inquiry go to pot. That is not done in other professions. We lawyers have similar situations but this "hands-off-business" is the thing which, to my mind, creates a situation which permits the evil part of the abortion situation to go on. I am not saying that if there were only a few cases, not thousands, this attitude might not be justified. It might be if you had a setup enabling you to pass on the merits of a particular case. That would be a step toward giving you this complete immunity but I doubt that you could ever get such legislation through.

With regard to Dr. Taussig's question, if State laws are passed in Albany outlining a constructive program relating to a particular problem such as abortion, in most cases that program is rapidly adopted by all of the other important states in the country. Therefore, I feel if you worked out something which would solve or alleviate these problems you would quickly find that program of law enacted in practically every other state in the Union, because that is the history of all such legislation.

Anna Kross: I wonder if this group cannot evaluate the abortion problem from its fundamental standpoint. I think Mr. Amen's explanation indicates that you have not, even in your own mind, decided what is the evil. Is the evil the fact that a group of practitioners, for whom you have no respect or regard as medical practitioners, are reaping a harvest from this, or

is the evil the fact that you have on the statute books laws that limit your doing it? I heard today that reputable physicians recommend patients to disreputable abortionists, while we in the community are surprised that the racket is growing up and making millions of dollars. That is the first conflict. If you are not fundamentally decided, once and for all, on whether abortion is essential from a medical standpoint, you will get nowhere. After that decision you must decide what kind of laws can protect the decent citizen and decent practitioner. The problem we are after, from the national standpoint, is criminal abortion.

I would like to say to Dr. Taussig that this is one legal field in which there is less divergence throughout the states. They have criminal codes for prosecuting criminal abortion. There is less conflict in this area than anywhere else. The important thing for a scientific group studying the problem is to get down to fundamentals. You will then find that the best lawyers will know most about it, but to solve this problem you must go beyond the law to reach the roots.

CHAPTER XII
MOTHERHOOD AS AN INSURANCE RISK

LOUIS H. PINK, LL.D., L.H.D.

New York, New York

I realize I am before a technical audience and that I have only the layman's point of view and knowledge, and in so far as having any statistics which directly affect the problem of abortion, the insurance group hasn't any. However, we do offer some facts and beliefs with regard to maternity and the insurance of maternity and I take it that anything which helps to make motherhood easier financially or makes for a better economic world, has some bearing on the problem of abortion with which you are concerned.

There is nothing more fundamental in projecting a sound economy for the future than the encouragement of motherhood and the birth of sound and happy children. There are many ways in which maternity can be protected. We have advanced a long distance already through our clinics, our health and milk stations and our hospitals. We can reasonably hope that after the war there will be a much smaller proportion of poor people. The higher standard of living which we expect should make unnecessary much of the charity which has been prevalent in the past. However, there will always be people who for one reason or another are indigent and who are unable to take care of themselves and their offspring. For these the state must provide.

It is the people in between—the bulwark of our nation—with which we are concerned today. The great majority is composed of families with an income of from \$1,000 to \$4,000 who are self-respecting, self-supporting and who desire to be fully independent but who find it difficult to get along and secure a fair share of the necessities of life, including those former luxuries which have become so common. How is maternity to be protected in this largest and most important group? Is it necessary for the state to provide a compulsory health program such as already exists in some of the nations abroad? Can we continue to depend entirely upon the individual medical practitioner? Is there some other method which is better than either?

Insurance is the greatest cooperative force on earth and the United States and other democratic nations have proved its happy hunting grounds. It protects not only the individual and the family but business as well and makes possible a high standard of living and of culture. It is the thought

of some people that insurance offers the solution for this middle group. We already have on our statute books provision for non-profit hospital associations and non-profit medical indemnity corporations in addition to the vast coverage supplied by our life and accident and health companies, which are sometimes loosely designated as "commercial." People do not realize that some 95 per cent of those who have life insurance are insured in companies which are "non-profit" organizations.

The experience that we have had with all types of companies undeniably proves that *maternity taken alone is not properly insurable*. It can, of course, be assisted through grants or subsidy, but that is not insurance. Insurance is a joining together of many people to pay for the unpredictable and unforeseen things which may happen to some of them. While death is certain enough, the time of death is not, and the majority of us get through life without serious accident. Maternity is neither unforeseen nor is it unpredictable. If insurance for maternity alone is provided, only those would take it who expect pregnancy so that there would be no adequate spreading of the risk and no underlying insurance principle. It is as easy for an individual family to budget for an expected child as it is to pay money into a central fund and have it redispensed.

It is interesting that the percentage of maternity claims, as shown by the Associated Hospital Service's experience, is greater in small groups than in large where there is greater spread and less opportunity for selection. This same tendency is apparent in what is known as group conversions—that is, the individuals who, when the group coverage is over, are given the opportunity to continue the insurance on an individual basis. The percentage of maternity claims in converted cases is 20 per cent higher than in the group. It was also found that when a claim has been paid in a maternity case there is greater tendency to cancel the insurance than after the payment of other types of claims.

A study of the experience of the Metropolitan Life Insurance Company shows similar results. Gilbert W. Fitzhugh, Assistant Actuary of the company, comes to the conclusion that if group hospital expense and surgical coverage is intended to provide benefits for unpredictable and unforeseen contingencies, maternity should not be included. He states, however, that where there is sufficient spread, payment of a limited pregnancy benefit does not materially affect the experience.

This all goes to show that there is a stronger urge to take out insurance when a pregnancy is expected than for general protection. It is possible to insure maternity on a sound basis only when women who presently expect to become mothers are part of a general group. Experience shows that even

in a group, those who receive maternity benefits obtain a larger portion of the common assets than the average member, but that is not fatal to the plan if the difference is kept within reasonable bounds. While the rights of the general members of a group plan must be protected against undue favoritism to maternity claimants, there is no good reason why maternity should not be included in a general plan, and in the public interest there are convincing reasons why it should.

The Associated Hospital Service of New York, the largest non-profit hospitalization plan in the United States, has approximately 1,500,000 members, so that about every seventh person in the city belongs to it. When it started there were issued not only group policies, which now prevail, but many individual policies as well. Some 200,000 individual contracts were written outside of the group plan. The large surplus which the company built up in the first year or two of operation began to disappear and it was found that the chief reason for this was not primarily inadequate rates but claims against the Association on the part of expectant mothers and families expecting to have children. In order to build up the surplus it was necessary not only to restrict the maternity benefits but to cancel individual contracts and insist upon the group plan.

Group insurance has proven successful not only in the non-profit organizations but also in our life and accident companies because the risk is spread over a large number of people of all types and ages and there is little selection against the plan. It is more economical than industrial insurance or even savings bank life insurance, and is primarily adapted for people who are employed in large establishments. It offers a wide variety of coverages, and maternity benefits are often included in a comprehensive plan. To the growth and extension of group insurance we must look particularly for adequate and low cost protection for maternity.

Hospital plans have been successful not only in New York City but up-state and in many cities and states throughout the country. But the medical care plans have almost invariably proven disappointing and none of them as yet has had any marked success. In New York City we have licensed 8 medical indemnity corporations and none of them has made more than a slow and uneventful beginning. Some have become discouraged and have submitted to voluntary liquidation. Even the corporation which received assistance from the medical organizations, despite the zeal of Dr. Elliott, made little progress. Community medical care which is affiliated with Associated Hospital Service has 55,213 subscribers, more than any other plan in the state, but still inconsiderable when compared with the number of hospital subscribers.

The chief difficulty with the medical plan seems to be that while it has had some support from the medical societies and the profession as a whole, the idea has not made a serious impression. Apparently while medical men realize the danger of state medicine if something is not done, they are fearful of these cooperative ventures and, in any event, so far have failed to back them with sufficient enthusiasm, force and strength. The medical societies wish to prevent those types which they do not like, but they are not willing to sacrifice sufficiently of time, effort and money to make those which they do countenance successful. Some of the plans have not succeeded because the doctors expected to make money out of them and those plans are not intended to be profit-making nor are they susceptible to it. Some are too complicated and lack sales appeal. In other cases the physicians did not fully realize that business backing, business judgment and also some real money are necessary to start a successful venture. While the results to date are anything but encouraging we in the Department have not given up hope or expectation. We believe that there is a real need for the medical plan and that eventually one will show the way to success.

From the very beginning it has seemed to me that medical care is very closely bound up with hospitalization. It is not a thing apart. The care of the patient before he goes into the hospital, during hospitalization, and after he leaves, is, or should be, continuous. It would seem logical that hospital plans should be permitted to provide medical and surgical service. Organized medicine feels differently and organized medicine has prevailed. It wants a strict separation of something which, it seems to me, is not easily or properly separable. The result is that when the Associated Hospital Service of New York finds that it needs to provide surgical care in order to give proper service to its members, an affiliated medical organization is created. This means additional red tap and unnecessary expense. We have the same situation in the very strict dividing line between our fire and casualty coverages. The companies insist that we must not have comprehensive coverages in a single company and the result is that the number of companies is needlessly multiplied because fire companies establish casualty affiliates and vice versa.

While it seems to me that this tendency is shortsighted, I realize that while the mechanics are important, they are far less so than the intelligence, spirit and character of management that go into the effort. If the doctors insist that medical care be separate from hospitalization, let us have it that way, provided the medical fraternity is willing to make it a success. The professions of law and medicine have done a great deal for this country and for the world and we must look to them for leadership in their respective

fields. We do not want to make hired men of the doctors nor do we wish in any way to lower their professional standards. On the other hand, the medical societies must realize that they must serve, first, the public and only secondarily the interests of their members. They must not be too strenuous in opposing new thoughts, new ideas and new experiments.

The recent decision of the Court of Appeals of the District of Columbia in affirming the conviction of the American Medical Association for conspiracy to violate the Sherman Anti-Trust Law points out that professional people enjoy a monopoly which in itself is a restraint upon competition and aptly says: "They are restraints which depend upon capacity and training, not special privilege.—The people give the privilege of professional monopoly and the people may take it away."

If the medical societies fail in broad and constructive leadership and are unwilling or unable to provide adequate medical and maternity care, there is undoubtedly more than a threat of state medicine. Only recently the President of the United States recommended the extension of the social security plan to include federal health insurance which would provide for both permanent and temporary disability and also for hospital benefits. Even the states are getting restless and Rhode Island established a state health insurance plan known as the Cash Sickness Compensation Act.

We are constantly recognizing wider responsibility for the maintenance of the health and well-being of the public and the tendency is to exercise that responsibility through government. In this country I think most of us are agreed that private initiative and cooperation should be tried and found wanting before government is resorted to. We are not as fearful of government as we used to be, but it is not the part of wisdom to lay all our burdens on government or to make any government, no matter how beneficent and well meaning, too powerful and all-embracing.

DISCUSSION

The discussion of the paper of Honorable Louis H. Pink, Superintendent of Insurance, State of New York, was conducted by Dr. George W. Kosmak, Chairman of the fourth session of the Conference.

George W. Kosmak: I think Mr. Pink has opened up an interesting field for possible discussion, insofar as we have heard so much about the economic matters which underlie the abortion problem. Are there comments on this subject?

Howard C. Taylor, Jr.: Mr. Pink talked about problems which are of great importance to all physicians. I am ready to concede that his criticism of the medical profession's refusal to consider many of its economic responsibilities is probably quite correct. I am anxious, however, to get the discussion back to our more specific subject of the day. Would you, Mr. Pink, discuss the possibilities of economic support for the pregnant woman who is faced with the apparent necessity of abortion for financial reasons? It seems to me if anything is to be done to eliminate the economic factor in abortion, there should be some mechanism by which a pregnancy could be subsidized and the mother, or her family, could repay a loan by subsequent instalments. The woman who seeks an abortion for economic reasons is obviously not the one who is apt to have taken out insurance in advance of pregnancy. If economic aid is to be supplied, it clearly must take the form of a loan with some system of delayed payment.

A social experiment on the effectiveness of such an institution could be set up without too great expense. It could be based upon a revolving fund of moderate size to which patients coming to private offices and asking advice about this problem could be referred. An agency having \$50,000 or \$100,000 at its disposal which could advance \$500 or \$1,000 to a woman upon her promise to repay it in 3 or 4 years, might be able, in the course of a few years, to save a material number of pregnancies which would otherwise end in the abortionist's office.

George W. Kosmak: There have been certain economic developments in other countries, but I do not know whether the incidence of criminal abortion has been diminished or not. It seems we might have insurance for and not against pregnancy.

Clair E. Folsome: I would like to ask Dr. Daily if he will enlighten us further about the experience of the Children's Bureau regarding subsidiza-

tion of pregnancy problems in some of the counties wherein that program has been active.

Edwin F. Daily: I would like to go into the details but I could not possibly cover all the aspects of the medical care programs which are being subsidized by this program of the government today. Dr. Taylor's remarks make me wonder if we could not reach the same objective some other way. If, in each community in the United States, every woman who became pregnant could receive good medical care throughout her entire pregnancy, good hospital care, and at least adequate medical and hospital care for her child during the early years of its life, would this method of subsidization be necessary? Steps have already been taken in this direction, in medical care programs, and all the various groups of this country are trying to feel their way for practical solutions as to the methods. Certainly the local, state and federal governments, of various types, are carrying on nationwide efforts to solve the problem of providing good care for the maternity patient. I wonder, therefore, if the type of program suggested, insurance or loan funds, is necessary.

George W. Kosmak: Are there any further comments? Mr. Pink, will you present your closing remarks?

Louis H. Pink: About 75 per cent of the pregnancies covered by these plans might be called normal and the other obstetrical cases are of various forms.

I think my recollection is that abortions, of one kind or another, constitute about 10 per cent. I do not think that what you want to accomplish—prevention of abortion through economic security—is really insurable. I believe this aspect has to be subsidized by a grant or some kind of a fund. If people find they are to have children, the fact they could get economic aid would perhaps, have some effect in preventing abortions. However, I think group insurance, if made much larger and more important than it is today, could have a considerable effect on this entire problem.

CHAPTER XIII

SUGGESTED PUBLIC HEALTH PROCEDURE FOR THE CONTROL OF ABORTIONS

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Any needless waste of life, such as death from abortion, always commands the attention of leaders in the fields of medicine, sociology and economics. The mere fact that, when our country is engaged in the greatest struggle of its history, leaders in these various fields have taken the time so sorely needed in other directions, to arrange for a conference aimed toward the solution of the abortion problem, indicates how vitally important the problem is.

In the light of our present knowledge—or better, lack of knowledge—we can only guess at the *number of abortions* that occur in the United States each year, since reliable figures are not available. We do know that their number is legion. There are, however, some figures available on abortion deaths, the reliability of which appears acceptable. For example, a survey made by the Children's Bureau in 1927 and 1928, in 13 states, showed that there was an average of 912 abortions deaths a year in these 13 states, which comprised 26 per cent of the birth registration area of the United States. On this basis there would be approximately 3,500 abortion deaths annually in the United States. If this figure is corrected further to embrace the fact that abortion deaths reported to the coroner and classified as homicides were not included, and still further to embody the fact that these 13 states had a greater rural population than most of the United States, it brings the recorded abortion deaths for the entire country to not less than 4,000 per year. Dr. Taussig in his talk yesterday estimated not more than 5,000. Since this survey was made 15 years ago, (in the years 1927 and 1928), there would definitely appear to be need at this time for further and more extensive investigations to determine accurately just how many abortion deaths do occur each year in our country.

The recorded figures of the United States Census Bureau show that 25 per cent of all maternal deaths are due to criminal abortion, and it is estimated that 50,000 women every year in the United States become sterile, or otherwise invalided, as a result of such abortions. According to Dr. Morris Fishbein: "Ignorance is at the root of most harm that comes from abortion.

Every mature woman should know its dangers. The time has come for serious consideration of this widespread sociological and economic problem."

There does not seem to be any available evidence that public health officials have contributed much toward the solution of the abortion problem. In general, they account for this with such statements as, "The laws are inadequate to cover the situation; the problem of abortions is one for the sociologists and economists; the public health officer does not have the necessary authority to give any aid in the solution of the problem; the health officer does not know who is to have an abortion, so he can do nothing about it." Yet abortions do account for needless destruction of fetal lives and for unnecessary maternal deaths. Dr. Dunn told us yesterday that "abortion is evidently still one of the greatest problems in lowering further the maternal mortality rate of the country." So its control *is* one of the health officer's most urgent problems.

There are other problems, also, which the health officer once thought outside of his province. Not so long ago, public health officials, in general, believed that the prevention of death in premature infants was not directly within their field of endeavor; that the control of newborn nurseries in hospitals was not directly their duty; and that neonatal and maternal deaths were not the concern of the health officer. At present, however, in many communities, these very problems take a great deal of the health officer's time and attention. In Chicago, these problems have long claimed much of our effort, with worthwhile results.

We feel that the success which the Chicago Health Department has had in attacking them has been based, in great part, on the application of 3 fundamental principles. First, the facts must be collected, and I mean facts, not figures. Secondly, these facts must be dispassionately and scientifically analyzed; and thirdly, there must be put into operation control measures based on the result of this analysis.

Concerning the unsolved abortion problem, we have as yet but few statistically reliable figures on which to base any conclusions, although figures have been presented from a number of sources. And without facts, the most effective control measures cannot be formulated. We could not have attacked successfully the problem of neonatal mortality without first obtaining statistically reliable figures.

Previous to 1935, the evidence available showed that the causes of most of the neonatal deaths in the United States were not known. Therefore, in Chicago, in 1935, we instituted a program to secure, wherever possible, *efficient* necropsies in infant deaths, so that we could ascertain the true cause of death. After a period of some months, we were able to secure such

necropsies in more than 75 per cent of all infant deaths and, after consideration of the evidence presented by these necropsies and the clinical findings, we were able to determine the true causes of many of these deaths.

Although up to the time we made our investigations it was believed that the chief causes of neonatal mortality were conditions not amenable to correction, our impartial analysis of the facts collected showed that many deaths of newborn infants were due to improper obstetric practices, to improper practices in the care of infants in newborn nurseries, and to the lack of proper care for premature infants born at home and in many hospitals. As soon as we were in possession of the facts, we were in a position to assure the best possible medical and nursing care during delivery; to improve the practices in newborn nurseries, and to assure proper care for the premature infant by formulating rules and regulations for the control of maternity hospitals, with the result that infant and maternal mortalities have been materially reduced.

Until we adopted a Board of Health regulation, making premature births reportable within an hour after birth, with confirmation in writing within 24 hours, we could not know where many of the premature births were occurring and what kind of care the premature babies were getting. But, knowing the location of such infants, we could see to it that they received the kind of care which would do most to assure their survival.

When this measure for the reporting of premature births was first being considered, we were told that it was revolutionary; that it could not be enforced, and that the physicians would not cooperate. But today, with every infant death investigated, we can be sure that the reporting of premature births in the City of Chicago is universally followed. Not only do physicians and hospitals in general cooperate, but they appreciate the service rendered by the Health Department in aiding them to carry out the necessary measures to save the lives of their premature infants. Now, all over the country, communities are adopting and enforcing a program along the lines of action pioneered by Chicago, and the public health department in many cities and states has adopted measures to provide for better care of premature infants, and regulations controlling practices in newborn nurseries and maternal care.

I particularly stress the matter of early reporting of premature births because I believe that the early reporting of every pregnancy would be a key factor that would aid in the control of abortions, just as early reporting is an important factor in saving the lives of prematures.

Is it not logical, too, to assume that if some of the principles of epidemiologic control that are applied to many other problems confronting the public

health official are also applied to abortions, a solution of this latter problem may be forthcoming? No epidemic disease can be controlled without proper epidemiologic study; and it is a foregone conclusion that no proper epidemiologic investigation of an outbreak of a communicable disease, such as typhoid fever, can be made without first recognizing and locating the cases. This, in turn, depends on prompt re-reporting by physicians and others having knowledge of the patients with the disease. The control of abortions hinges in great part, on finding the source, and obviously that source is the pregnant woman. Every pregnant woman is a potential candidate.

Then why not make pregnancy reportable, just as are epidemic diseases, venereal diseases, and prematurity? It has been claimed by some that such reporting would violate the relationship which must exist between the physician and patient, and might interfere with the inalienable privileges of the citizens of a democratic country. However, Lord Riddell* states, "Everyone recognizes the necessity and importance of medical confidences. Everyone recognizes that they are sacred and precious, but we must recognize, also, that the rules regarding them exist for the welfare of the community. We must recognize also that they must be modified to meet the inevitable changes that occur in the necessities of the various generations. As Cicero said, 'Let the good of the people be the paramount law'."

Reporting could be handled in such a way that medical confidences would not be violated and the patient's name and address would not be divulged to any one other than the proper public health officials. The law could be made similar to the one requiring the reporting of communicable diseases which states, "Every physician, dentist, other practitioner, hospital, attendant, nurse, laboratory, parent, householder, school authority, local registrar, or other person having knowledge of a known or suspected case of communicable disease, should report it promptly."

Insofar as maintaining the confidential relationship between physician and patient is concerned, the reporting of venereal diseases, as it is set up in Illinois and many other states, makes it necessary that "all information and reports concerning persons infected with venereal diseases shall be confidential and shall be inaccessible to the public. No names and addresses shall be divulged except on order of the court or by authorization of the patient."

In reports of this kind the physician makes the report by number. He keeps a record in his office of the patient's name and address. This, of course, is accessible to the proper public health officials who may use the

* The Journal of Obstetrics and Gynecology of the British Empire.

information for necessary purposes. Why not follow the same procedure in reporting pregnancies? Already in many states there are laws requiring the taking of a serologic test for syphilis in every pregnant woman as soon as her pregnancy is diagnosed by the physician. This is a wedge, opening the way toward the reporting of pregnancy.

Although opposition to reporting may come from some sources, we have found, in our experience, that physicians as a group, live up to these laws, particularly when they realize their purpose. Since, in this case, the primary purpose of reporting is to place the pregnant woman under *the care* of her physician as soon as possible, it can be expected that physicians will be enthusiastic about this procedure. For, once the pregnant woman is under the care of her physician, the guidance needed for her protection and health is more likely assured. As Taussig has so ably stated, "In daily office routine, a physician frequently has opportunities of discussing pregnancy with his patients. He is not worthy of his calling who does not take the necessary time to do the work of *education*."

"More than this, the physician often has the chance of directly preventing an abortion by a bit of friendly advice. The first reaction of the mother who unexpectedly finds herself, contrary to her plans, to be pregnant, is that something must be done about it at once. Often no substantial reason is present why an additional child would be a calamity, but at that particular moment emotions are stronger than common sense. Here, the tactful physician can be of the greatest help. A frank explanation of all the reasons involved, immediate and remote, will deter many patients."

The reporting of pregnancy could, in most places, be established by Board of Health regulation. In that case, then, how would the public health official fit into the picture? There are 2 important things he could do. First, as stated previously, he could help get the pregnant woman under the care of a physician as early in pregnancy as possible. Secondly, he could bring home to women the danger of abortion through the establishment of an active corps of well-trained, sympathetic nurses, closely cooperating with the physicians, and through a program of education. The nurses, constantly on duty, would visit the pregnant woman soon after the report of pregnancy was received. They could discuss her problem with her sympathetically, and call into action the social agencies needed to solve economic or social problems, and, above all, insist and urge that the patient secure the necessary medical services.

We believe a program of this type would help in attacking the factors which scientific investigation indicates are involved in abortions, although there is some popular misconception concerning them. For example, we

often hear the statement that abortions occur most often among the ignorant, the poor, the unmarried, and the foreign-born.

The following figures, given by Dr. Endre Kopperl Brunner of New York, seem to contradict this idea. He found that of 1,073 women, taken from all walks of life, 475 had induced abortions; the average income was \$51.70 a week; 83 per cent of the women and 73 per cent of the husbands were American born; one-half of the women were housewives and one-half were wage earners; 27 per cent were college graduates; 22 per cent had some college training, and 67 per cent had completed high school.

On the other hand, it would appear to be true that poverty, unemployment, low standards of living, domestic troubles, the fear of childbirth and illegitimacy all play some part in abortions, but many of these problems seem to be over-stressed and can be solved. The woman who turns to abortion feels that there is no other pathway open; that there is no other way of meeting the situation which confronts her. But, if she would discuss her condition frankly with a competent, sympathetic, and understanding physician, surely some solution could be worked out in almost every case. Fear is a potent factor in the abortion problem, but it can be overcome by personal contact of the pregnant woman with the public health nurse, and, above all, the family physician.

There are other things, too, which would aid us in working out a program along this line. Our figures, based on a study of over 300,000 births in Chicago, show that, on the average, almost 54 per cent of the births in any one year occur in multiparae. Since births are reportable (and in Chicago a survey has shown accurate reporting in more than 98.5 per cent of the cases), the names and addresses of over half the potentially pregnant women would be available at a moment's notice. Under the doctor's direction, visits at intervals, by nurses who can discuss their problems with them, would be of value.

Educational material could be sent to all women who are reported as pregnant, as well as to the 54 per cent who have already had one or more children and are quite likely to be pregnant again. Such educational material could also be distributed at prenatal clinics.

Marriage records are available to the public health official. Since newly married women constitute a group of potential pregnancies, this by no means small group also could be sent the proper educational material. Not only could it be sent to these newly married couples, but discussions with them by physicians and nurses could be arranged. There are many who believe that education of adolescent girls and young men has not been given the attention it deserves.

Too often, all that a woman knows about abortions she learns through gossip with her neighbors. Perhaps one of these was fortunate enough to have "gotten by" with an abortion. As a result she begins to believe that an abortion is perfectly safe. Unfortunately, the disasters, usually so well hushed up by the unscrupulous abortionist, escape her attention. It is such women who must be taught that through early diagnosis of pregnancy and proper management by the experienced, well-trained physician, hazards to life and well-being are reduced to a minimum.

In public health work, prevention is the key to success, and so it must be in attacking abortions. Pre-conceptual discussions with physicians should be encouraged in every possible way. The married woman, after a careful examination by her physician, could secure his advice. If she has had previous miscarriages, the physician could instruct her concerning treatment to prevent, if possible, similar occurrences in the future. A thorough examination could be made to determine whether pregnancy and labor would follow normal channels. She could then secure advice and guidance which would aid materially in assuring her future health and happiness. Just as early treatment has brought outstanding results in venereal disease control, so also should pre-pregnancy consultations with the physician help to abolish the abortion evil.

Any ignorance which may be at the root of much of the harm which comes from abortions could be eliminated by frank and free discussion. Two or three years ago, the same sort of situation existed in regard to venereal diseases which are now discussed with as much freedom as any other communicable disorder.

Scientific groups have been aware of the abortion problem for many years. In Chicago, when the death of any pregnant woman occurs, the case history and circumstances surrounding the death are reviewed by a sub-committee from the Joint Maternal Welfare Committee of Cook County. The physicians on this committee fix the responsibility, which is often placed on the abortionist, or on the carelessness and lack of knowledge of the patient. For some years we have inquired into the death of every woman in the child-bearing age to determine whether pregnancy was involved. These activities not only have brought to light many criminal abortions, but they have also added to our knowledge concerning the number of abortions which are occurring.

The laws now in existence which prohibit the sale or advertising of ecbolic and abortifacient drugs, the statutory and common law on abortions, do not seem to solve the abortion problem. It is hard to believe that radical alterations in these existing laws would be of any particular moment. An

attempt to enforce the laws may only serve to increase the activities of the unclean, incompetent abortionists who seem to thrive even under the most adverse conditions.

If, on the other hand, reporting could be established by Health Department regulations (and this kind of law would seem to be more workable than laws now in force), the public health officer, who is endowed with the power to do all acts conducive to the public health, would have in his hands powerful weapons for combatting the needless waste of lives through abortions, without having to resort to the almost endless and usually unsuccessful process of action through the courts. There can be no doubt that abortion constitutes the greatest single factor in puerperal mortality. Dispassionate analysis indicates to us that the pregnant woman should be placed in sympathetic hands as quickly as possible if lives are to be saved and invalidism reduced.

The establishment of an extensive, intensive program along the lines set forth would, it is true, require vigorous action, courage, and the ability to face opposition from whatever source it might arise, but the results to be obtained would be so worthwhile that there should be no faltering in carrying out such a program.

In health departments throughout the United States, successful drives of one type or another have been initiated to combat the menace of various communicable diseases. The expenditure of funds has been great, and yet, abortions, which take a tremendous toll in morbidity and mortality among women in the prime of life, have received but scant attention. We cannot, with free conscience, delay any longer in taking militant action. The problem is clear—expose it to the cleansing light of universal knowledge, since it maintains itself almost entirely on public ignorance and official indifference—now is the time to act. *It's up to us. Let's make pregnancy reportable.*

CHAPTER XIV

THE POSSIBILITIES OF A STATEWIDE PROGRAM ON ABORTION CONTROL

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On receiving the invitation to participate in this program, I wrote to 9 specialists in obstetrics and gynecology in our State. Each one of these men enjoys a large practice in his section, with the exception of one qualifying obstetrician on our own staff who for the last 2 years has taught postgraduate courses in obstetrics to physicians in connection with the Duke Hospital and Medical School. I received almost immediately a letter from each one of them, going into considerable detail and evidencing profound thought on the subject of abortion and its problems. Eight of the nine responses contained sufficient information and suggestions to form the basis for this paper.

One of these men, who has had several years' experience in New Orleans and who for the past 18 months has had an important connection in North Carolina, said I have a most difficult task in suggesting possibilities of a statewide program on abortion control, and reminded me that abortion control is an urban problem. I was surprised when he stated that since he came to North Carolina 18 months ago he has been astounded to discover how rarely in his present location they encounter septic criminal abortions. Of course, he speaks from the standpoint of the specialist in a hospital and medical school. To me, his most surprising statement, coming from a city such as New Orleans or any other larger place in the deep South, is his observation that illegitimacy carries less stigma in North Carolina than it does in such a city as New Orleans. This is probably true for the larger cities even in the South, but I feel sure that the rural problems in all the southern states are about the same, and that illegitimacy makes little difference among the Negro population. For that very reason the criminal type of abortion is seldom encountered among a large class of Negro girls and women who give birth to illegitimate children. At the present time, at least, the problem is mainly for the big cities to deal with, but, as so well publicized in the case of Russia some 20 years ago, there can be no doubt that sooner or later even in the rural sections of the South the problem is going to be one of serious difficulty. I quote directly some of the statements from this highly competent and intelligent teacher because it is indicative

of the critical thinking now going on among the most competent members of the medical profession. To quote:

"There is one additional point I believe to be of some importance. Few families realize the importance of and give sufficient sex information to their children. Almost all young women reach sexual maturity with information obtained from hearsay and other children of their own age. I think that an intelligent, organized program of sexual information for teen-age girls in high schools, colleges, nurses training schools and other places where these girls are available in groups would go a long way toward saving heartbreaks for many of them. I realize that some effort has been made to carry out such a program in isolated instances and that it has met the same type of opposition which would meet dissemination of contraceptive information; however, the advantages in this instance also outweigh the disadvantages which this criticism offers."

Another one of my consultant friends suggests that "probably the best way to control a bad situation is to prevent it and this applies to abortion by application of contraception." Further, he says "I feel strongly that abortions done subrosa are a great menace to the health of young and middle aged women and, therefore, to the happiness and economic stability of many families."

He says further that "sterilization should be applied for the most part only upon justifiable physical or mental indications and not as a resort when a woman has perhaps given birth to 2 or 3 babies and would be able to have and support an additional number." He thinks that the American Medical Association should take the lead in clarifying the laws on sterilization in order to have model laws enacted throughout the country. The same man believes that sterilization should be legalized in selected economic cases especially where there are as many as 4 children in a family. This position is somewhat contrary to the opinion of the obstetrician just quoted above who says that he has "long advocated postpartal sterilization on purely social grounds, and I believe that any couple who have had 5 or more children and are anxious not to have more, should be given the benefit of such procedure if they desire it."

One trouble with the sterilization law in our State is that it cannot be done in the case of illegitimate births without orders from the State Sterilization Board because of the absence of a husband to agree to the procedure. Exceptions, of course, apply in purely medical indications when the woman's life is in danger.

Another member of the group consulted, and who is in a position to speak with authority, offers the following suggestions:

"My idea to prevent abortions is first a sensible, open, honest program for dissemination of birth control. You cannot legislate sexual intercourse, and so long as sexual intercourse goes on, in or out of wedlock, we are going to have demands for abortion.

"My second sincere feeling is that any country, which calls itself intelligent or civilized, should have an agency for proper care and protection of the unmarried mothers.

"This agency should have the power to subsidize the mother for the last two months of pregnancy in such a manner that hard work is not necessary for the mere existence of the mother. She should also have the right to trained medical attendants at her delivery and she should have some allotment of funds to care for her for 2 months after the lying-in period."

An additional member of the group observed simply that "the question of abortion is one which is becoming more acute as the years go on. Something will eventually have to be done about it. I do not believe that any program of contraceptive advice or clinics will aid in the control of this condition for the simple reason that those patients who submit themselves to abortion will not make use of the contraceptive advice given."

This physician says further that he believes that "sterilization is the only method of benefit." This man observes further that "one of the first procedures which I believe will be of benefit will be that of cleaning house in our own profession." This is the opinion of one of the younger members of the group who has, of course, had several years' experience as a competent man of high standing already, but it will be noted that he was the only one of the group that expressed skepticism as to the value of an open and above board, simplified contraceptive program.

Another of the most competent of the younger group of specialists states emphatically that "our State-wide contraceptive clinics are a step in the right direction. The next step should be the prosecution of the abortionists in the various localities." This physician continues: "For the group of unmarried girls who become pregnant, many of whom possess many fine qualities, I should like to see a home established. This home could be operated by the state, and the professional care of these young women should be of a high order. I suggest this because I do not believe the homes we have available meet the needs adequately. We should practice, and we should teach, that the baby in utero is something to be guarded and protected just as well as the child after it is born."

The following is a clear cut product of an obstetrician fully qualified but who has not had the opportunity to do private practice. You will note he packs a lot into few words. As would be expected he emphasizes the educa-

tional requirements: "It seems to me that the first cause of illegitimate and undesired pregnancies is ignorance. Consequently the cure of prevention must lie in education. I believe that the education should start in grammar school or at least during the first year in high school, and that all girls should receive thorough, intelligent, scientific instruction in what constitutes the menstrual cycle, what it means, and so on. The physiology of pregnancy should also be taught, and the dangers of promiscuous intercourse—namely the various venereal diseases—could be stressed. Later in high school, probably the third or fourth year, the physiology of pregnancy could be again reviewed, the dangers of a abortion emphasized, such as infection particularly, and the sterility which often follows. At the same time a thorough detailed description of various venereal diseases should be introduced, with pictures to emphasize the seriousness of the risk to which casual intercourse exposes the individual. I believe that at this time contraceptive information should be given to all girls. It is certainly true that a large proportion of women will not go beyond high school in their educational training. If it is not given at that time, a great many will not be able to avail themselves of the advice. I think the contraceptive instruction should be complete in all details."

Another one of my friends says that "abortions can be controlled best by contraceptives and sterilization."

Finally, I want to quote some clear cut statements coming from one of the most experienced members of the group consulted, a man with a wide practice and highly respected by the profession for his leadership and high standing, and with whose statements I am personally in full accord:

"First of all, the problem of abortion, in its moral, its ethical, and its vital statistics attitude is a serious one.

"Second, its solution properly belongs in the hands of the medical profession, where its implications and sequelae are most clearly appreciated.

"Third, exhaustive State-wide effort should be made to discover and punish the criminal abortionist who possesses a medical license, and equal zeal in the same direction should be exhibited toward the non-professional abortionist. This will require some additional legislation of enabling nature, but not of fundamental change in the present laws. (By 'enabling' I mean provisions for financing the hunting down and prosecution of these blood suckers.)

"Fourth. Fundamentally, the problem of abortion can best be solved by wide-spread contraceptive information. This means, first of all, that we should agree among ourselves as to what constitutes the best technique of birth control, and then, in unstinting fashion, impart it to the interested

layman. My own vote, of course, is the condom or the contraceptive diaphragm and jelly, together with attempts at determining the ovulation period. This information should, as stated above, emanate from the medical profession, and be disseminated through Women's Clubs, civic organizations and educational institutions. It should naturally accompany, and be associated with, every maternity and obstetrical clinic in the land. This implies the selection and training of intelligent public health nurses and teachers.

"Fifth. With regard to sterilization, I unhesitatingly recommend it in those cases in which there exists definite cardiac, renal, mental and hereditary diseases which render their victims unfit for reproduction, either in their own interest or that of the offspring. I think the final decision for sterilization must lie in the hands of the attending physicians, and should be arrived at through competent consultation with an obstetrician, internist, or other specialist. The methods of sterilization are varied, as well as the date on which it should be done, but there has accumulated a wealth of statistical information which would indicate the practical safety of the various procedures, and one need not long hesitate as to which should be adopted.

"If the profession itself undertakes to carry the responsibility in this matter, a deserving public will be properly served and the criminal abortionist be robbed of his clientele as well as his income."

SUMMARY AND PLAN

I have presented the foregoing comments on this subject by some of the ablest members of the medical profession in the State of North Carolina. I do this because I want to make the point that it is a problem for the medical profession's leadership, and also to emphasize that the medical profession in our State is wide awake to its duties and responsibilities.

To go back to the first physician quoted, the establishment of a State-wide plan of abortion control is a most difficult problem. I believe that a plan eventually may be worked out which will meet most of the difficulties involved and eventually go a long way toward solving the problem.

A summary of the comments from the physicians quoted may be contained in one phrase: education and frank, open discussion of the problems involved by the medical profession, educators and the creative thinkers among the general population.

Five years ago, we assumed responsibility for a so-called effort at a birth control program recommended to local health departments and sponsored by the Maternal and Child Health Service Department of the North Carolina State Board of Health. The principal effect of that movement can be clearly stated at the end of the first 5 years of effort: it has unshackled the

medical profession and has brought the subject of human breeding and human planning and human welfare out into the open and put it on a par, in our State, at least, with the breeding of dogs and horses.

More than thirty years ago, while I was engaged in the active general practice of medicine in a small town, I had occasion to criticize a young man of the community for abuse and neglect of his babies and for the meticulous care of the bird dogs which he was breeding, and breeding at the expense of the care which his babies ought to have had. He listened to my lambasting, in which I gave him everything I had, with some impatience. At the conclusion he simply stated, "You can't understand. These bird dogs are worth money. I breed them to sell."

I leave the inference of his statement to you. This same man came to the Legislature that year and was very active in his opposition to the establishment of a vital statistics law in North Carolina for the purpose of registering newly born babies, and yet he went to any extreme of expense and trouble to register his bird dogs. The attitude I have personally held through the years has been that we should pay at least as much attention to the breeding and birth and care of babies of the human species as we do the puppies of the bird dogs.

The suggestions that I would like to offer are suggestions only: some might work and some might not:

First, the widespread educational activities in the high schools in which "yes" and "no" information can be plainly taught by competent people, the teaching to be completely removed from any element of emotionalism or salaciousness.

Second, the establishment of contraceptive clinics for the poorer class of women, each clinic manned by a competent and sympathetic physician and trained nurse.

Third, and very important, better teaching in all the medical schools on all these subjects.

Fourth, for our own State and many parts of the South, increasing the availability of hospital beds, and particularly in communities that have no hospital facilities at all.

Fifth, increase in sterilization of one partner or the other when medical indications and economic conditions justify.

Sixth, make all hospital records tell the truth. Years ago it was common practice in hospitals to require the physicians to make a diagnosis and to state it in writing on the hospital blank before an operation of any kind, this to be followed after the operation was completed to show whether or not the operation confirmed the diagnosis or otherwise.

Seventh, make the law require a definite consultation between 2 or more physicians before any abortion is done. This rule should apply to clinics, private practice, hospitals and everywhere else. By doing this, the life of every woman would be safeguarded.

Eighth, run the abortion racketeers out of the medical profession. There are not many of them in our section, but the few that are there are doing a lot of damage according to all available information.

Ninth, make every effort to put the quack abortionists, particularly the know-it-all type of midwives, out of business.

Tenth, encouraging early marriages, with proper contraceptive protection to the young couple, will go a long way toward eliminating promiscuous sexual intercourse among the large group of boys and girls in the late teens and early twenties. If the universal rule of early marriage can be arranged with the legitimate practice of contraception, it will do more to eliminate illegitimate births or illegitimate extra-legal abortions by the quacks than any other one effort.

Eleventh, as stated by several of my consultant friends, another urgent need is for institutions to take care of many of the girls of both races who slip for the first time, such institutions to provide adequate medical care, complete protection from publicity in their home communities, and satisfactory adoption of the babies later on. Such institutions would have to provide also, as suggested by one of our consultants, for the economic rehabilitation of such girls and their restoration back to their families. In this way most of them would profit by their mistakes and would not ever again depart from the straight and narrow, sexually speaking.

Finally, it should never be forgotten that *any plan to promise success should be set up on sound medical principles, and to be permanent must be administered through and by a responsible public agency such as the State Board of Health.*

DISCUSSION

The discussion of the papers of Dr. Herman N. Bundesen and Dr. George M. Cooper was conducted by Dr. George W. Kosmák, Chairman of the fourth session of the Conference.

George W. Kosmak: These 2 interesting contributions are now before you for discussion.

Claude C. Pierce: I would like to make a comment on Dr. Bundesen's paper and Dr. Cooper's paper. I think Dr. Cooper's paper has given us one of the best answers to abortion we had in this Conference. He referred to the fact that North Carolina is giving contraceptive information through the Health Department Clinics. This was done in accordance with the wishes of the State Medical Association and the medical profession of North Carolina.

Dr. Bundesen referred to the pre-pregnancy and the pre-consultation service. There is the ideal place to furnish advice to the woman who seeks either to avoid a pregnancy, or to delay pregnancy. There is where contraceptive advice has its greatest value, where the health department can advise the indigent patients and have the doctors consult with the pregnant women how to hold the child and complete the pregnancy.

Raymond Squier: Dr. Bundesen and others have stressed the need to educate people to the *danger* of induced abortion. I think that an appeal to fear is unsound, ineffective, evasive, and indeed paradoxical since therapeutic abortion, by well trained physicians having good technical facilities, is a relatively safe operation, not to be feared.

Thus danger is not necessarily inherent in abortion. The important thing is the *circumstance*. Hence our attention and effort should be concentrated on improving the circumstance. Specifically—and this, I think, is the answer to Judge Kross' and Assistant Attorney General Amen's insistence that physicians state concretely their objections to the past and present situations comprising the "abortion problem"—physicians in general, at least those who are really deeply interested in this problem, want liberalization of sanctions for the performance of abortion by skilled and accredited surgeons.

The present lack of such right constitutes the chief complaint of competent and conscientious doctors, for 2 reasons:

1. At present, women are virtually driven into the dangerous care of incompetent abortionists beyond the pale of the law.

2. Most physicians are convinced that no amount of writing or tightening of punitive laws will ever be effective in reducing the number of women who want interruption of pregnancy, in fact demand such interruption and will be deterred by no legal obstruction.

We cannot reform or discipline women to welcome and continue every pregnancy. We must realistically adapt our legal structure and medical philosophy to fit our patients, just as in any other field of legal and medical practice.

Regine K. Stix: There is one item which requires mention, possibly as a part of the public health program, and that is the prevention of abortion through the availability of a pregnancy urine test such as the Friedman or the A-Z. Women who think they are pregnant in many cases may not be. You can reduce abortions perhaps by 50 per cent by determining whether or not a woman is pregnant in a given case. This is one place where the public health facilities could be made most useful, where these tests could be relatively inexpensive, as compared with cost of an abortion.

George W. Kosmak: I think Dr. Stix' point is important. A lot of women skip a period by 6 or 7 days and then rush immediately to the abortionist, although a great many of them have seen the light and go to the corner druggist to get the test, though I do not mean that this is conclusive invariably.

Howard C. Taylor, Jr.: There seems to have been a rather too ready assumption that the universal application of contraceptive knowledge will eliminate abortion. Perhaps that is true, but I do not believe we can yet assume it to be so. Indeed it is quite as probable that unwarranted confidence in contraceptive measures may result in more pregnancies than are occurring at the present with the same individuals exercising some restraint or abstention from intercourse. I think that Dr. Burgess made some comment on this point which perhaps he will repeat.

Ernest W. Burgess: I quoted the statistics from Pearl. In his series, in which he found the use of contraceptives, the abortions increased. That was true up to the group with the highest economic standards. Those he reported had slightly lower income levels, but were not statistically different in extent. I think most studies have indicated that the abortion rate rises with the use of contraceptives.

Abraham Stone: I hesitate somewhat to say anything because I recently wrote a short editorial in "Human Fertility" on the control of abortion. I received a very critical letter from Dr. Kosmak, in no uncertain terms, which made me rather unhappy.

The point which I emphasized was that the legislation alone, and I was

referring to Mr. Amen's report, would not be sufficient to control abortion. The general experience has been that legislation alone will not rule out the abortion problem, and that the most effective and sanest method of approaching abortion control is by making planned parenthood a reality. I believe I quoted Dr. Taussig. Only by making every pregnancy a wanted pregnancy can we eliminate abortion.

As far as Dr. Taylor's statement is concerned, that contraception might lead to greater abortion, it seems to me that we consider only a type of contraception when we speak of "contraceptive methods." It is perfectly true, we do not have as yet the best, most efficient, absolutely reliable method, but I think we do have methods which are fairly reliable. With the improvement and development of contraception it seems to me, from what Dr. Cooper has so well emphasized in his paper, that it is still the sane attitude toward the abortion problem.

P. K. Whelpton: I would like to speak very briefly to the point which Dr. Taylor raised. It seems to me that as the practice of contraception increases and as better methods of contraception are used, the number of unwanted pregnancies will decrease and the desire for illegal abortions will also decrease. Dr. Taylor mentioned continence. Our case histories are for nearly 1,100 women, married 11 to 15 years. Continence or abstinence has been relied on to prevent conception during a very small part of their married life. They have not used it as a birth control measure to an important degree.

Some couples do not practice contraception because they like to have children, others because they think it is a woman's role in this world to become pregnant, and others because they would rather take a chance. With nearly all of these couples whenever the wife becomes pregnant, she will carry the child through to term rather than have an illegal abortion. But when the analysis of our data is completed, I am sure it will show that an increase in the practice of contraception and an improvement in the type of contraceptive used will mean a substantial decrease in the number of unwanted pregnancies and of illegal abortions among married couples.

John H. Amen: I just want to disabuse some doctors here that I have an idea abortions can be legislated out of existence. That was not the purport either of my report or of what I said to you today. My efforts about legislation have been directed simply toward tightening the bands, tightening the laws against the illegal and unqualified abortionist. I have no thought that I could solve the problem of criminal abortions by legislating them out of existence and I would not want anyone to have that thought.

I also want to say, with respect to what was said by Dr. Stix that our

evidence showed that almost 50 per cent of the abortions performed by illegal abortionists were cases where the woman was not, in fact, pregnant at all. So I think her suggestion is an extremely good one.

Regine K. Stix: I would like to clear up one misconception which is common. The association of illegal abortion is linked to and with the use of contraception. The statistics reported, including ours, simply say that of the pregnancies which occur accidentally a larger proportion are aborted than of those which do not occur accidentally. Obviously, fewer pregnancies occur when contraception is used. Therefore, the actual number of abortions is very much smaller than when there is no contraception used. This I think must be kept in mind. Because of the reduction in pregnancy, even though the proportion aborted is higher, the actual number of abortions is much smaller.

George W. Kosmak: The hour is growing late, so I will now call upon our General Chairman of the Conference, Dr. Howard C. Taylor, Jr., to summarize the transactions of this interesting conference.

CHAPTER XV

SUMMARY AND RECOMMENDATION OF THE CONFERENCE

HOWARD C. TAYLOR, JR., M.D.

New York, New York

I had intended to sum up in some detail the principle features of each presentation, but in view of the lateness of the hour I shall content myself with stressing 4 points that the Conference appears to me to have brought out.

1. The importance of the abortion problem to society and to the individual was, I think, thoroughly emphasized by the first 4 papers. The single fact that 30 per cent of the maternal mortality follows abortion is sufficient to make it a problem of major significance.

2. During yesterday afternoon the results of several distinguished programs of research, in embryology, endocrinology and serology, were reviewed. From these reports it seems clear that investigation on the causes of unintentional or spontaneous abortion is in good hands, and that an approach is being made to the discovery of the causes of this type of abortion, and perhaps to its prevention on a physiological basis.

3. This morning's session served to prevent us from forgetting the religious and philosophical implications of the abortion problem. Most of us here are thoroughly disciplined in the objective and biological methods of thought. We have to recognize that the great majority of the people in this country, and the world in general, certainly are not and that we cannot arrogantly claim for ourselves the right to deny the existence of such factors in the problem. Nor am I convinced that it would be either right or wise not to recognize something peculiar, something in some measure sacred, in human life even in the 2 weeks old embryo. Belief in the destiny of the human race, as well as revealed religion, requires that even fetal life has a special significance that neither individual materialism nor biologic detachment should ever be allowed to obscure.

4. The conclusions from this afternoon's session seem to suggest that increased severity of the law, or attempts at its more universal enforcement, are not liable to produce much diminution in abortion frequency; that unless public opinion, perhaps medical opinion in particular, is solidified against the practice of abortion, little more can be done by the actual legal agencies.

If any definite conclusion can be reached, as to the direction in which

efforts should be made toward the elimination of illegal abortion, it is the reiteration of the necessity of further education, particularly of young people, but also of the population in general.

It is, however, all too easy for us to say that what we need is more and better sex education. I doubt very much that we know just what facts can be given to young men and women which will produce the desired result of reducing abortion. Each person here has probably her or his own idea of what should be taught under the general head of sex education.

There are, however, some points which most of us would probably agree on. The physiology of pregnancy should certainly be a part of any high school course in biology and physiology. Contraceptive information will probably soon be universally available to married persons, and I personally think that is a proper and inevitable development. The dangers of abortion should, I think, be taught in premarital clinics rather than in the schools. In this respect, I think it important to maintain and strengthen the concept that human life is sacred, even many months before birth.

Finally, and perhaps of most importance in future sex education, is that at the time when the student is taught the means of controlling his fertility there be an attempt made to instill some sense of the individual's reproductive responsibility to society.

This, I am afraid, is only my own summary. It certainly cannot be taken as official, or necessarily the consensus of opinion of this group.

The Conference might now spend a few minutes on open comments from the floor. The committee is anxious to receive any suggestions which you may have in regard to research which should be supported. The floor is also open to any one wishing to offer any definite statement which the Conference might see fit to vote.

DISCUSSION

Robert L. Dickinson: Mr. Chairman, as the apparent senior in this group, I venture first to congratulate the Committee on so varied, effective, and outspoken a series of addresses. I sincerely hope that the proceedings will be published and that they will not be too much edited by their authors. Under those conditions we have taken a pioneer step.

I move that it is the sense of this meeting that an adequate investigation of the interruption of pregnancy be undertaken, particularly from its medical aspects, such as indications, techniques and results, and that this be coupled with original research. (The motion was seconded by Dr. Squier.)

P. K. Whelpton: I would like to add to the Resolution that research on the extent of abortion also be supported.

Harvey B. Matthews: I would like to comment about the substitution of the word "interruption" for "abortion." This represents one of the difficulties with this abortion problem. We do not come right out and say what we are thinking about. While I do not entirely disagree with Dr. Dickinson, I think we ought to use the word "abortion" since that is what we are talking about.

Robert L. Dickinson: I would prefer to leave the word "interruption."

Howard C. Taylor, Jr.: The motion was made by Dr. Dickinson, seconded by Dr. Squier, amended by Dr. Whelpton, and passed. In its amended form it reads: "RESOLVED, that it is the sense of the meeting that an adequate investigation of the interruption of pregnancy be undertaken, with regard to its extent, and its medical aspects, such as indications, techniques and results and that such investigation be correlated with original research." (This motion was put to a vote and adopted.)

Robert L. Dickinson: I move that this meeting request the National Committee on Maternal Health to plan for such an inquiry. (This motion was seconded by Dr. Frederick J. Taussig.)

Howard C. Taylor, Jr.: Is there any discussion on this motion?

Robert L. Dickinson: Is there any other body, Mr. Chairman, that would undertake this? Would the American Medical Association or the American Gynecological Association?

Howard C. Taylor, Jr.: I think not. (The motion as originally made was then placed before the meeting for a vote and adopted.)

Frederick J. Taussig: Dr. Dunn was unable to stay for this entire meeting, so he asked me to present the following resolution:

"WHEREAS, the "Conference on Abortion Problems" sponsored by the National Committee on Maternal Health, Inc., has concluded that hundreds of thousands of women undergo abortions each year in the United States and that these abortions result in thousands of deaths and in much social misery; and

"WHEREAS, the solution of these problems is greatly hampered by the prejudices which sharply limit the democratic process of public discussion, open forum debate and the freedom of press and radio in the consideration of these matters; therefore be it

"Resolved, by the Conference that it dedicate itself to the establishment of free and open public debate of the problems of abortion to the end that a true solution might be found."

Howard C. Taylor, Jr.: This is a resolution suggesting, or rather urging, that this topic be made one for general public discussion. Is that seconded?

P. K. Whelpton: I will second that.

Howard C. Taylor, Jr.: Is there any discussion?

Hazel Corbin: I think we have spent so much time discussing the control of the abortionist that we have not considered the real people who have the abortions. One of the points someone made was that 30 per cent of the women who have abortions are not pregnant. There is an attitude about abortion which makes it difficult for a woman to go and talk to her private doctor or a clinic. The doctor pushes them right out of the office as do most clinics.

Another important aspect of this whole problem is the importance of public opinion. We cannot have public opinion upon a subject about which the public knows nothing. The public knows little or nothing about human reproduction, and abortion is but a part of that process. If we are going to try to have a forum discussion for the public, public discussion should not be a negative topic such as abortion, but should be tied to the more wholesome story of total human reproduction.

I think it unwise to discuss abortion problems, which are not pleasant subjects, and tie them up with birth control, which is in poor taste to some, and not tie them at all to the story of human reproduction, which has been a neglected subject but could easily be made a respected one.

Howard C. Taylor, Jr.: Have you a suggestion? Do you wish to add the words "human reproduction"?

Robert L. Dickinson: "Process."

Frederick J. Taussig: If we were to change the resolution: "Therefore Be it Resolved by the Conference that it dedicate itself to the establishment of free and open public debate on human reproduction and on the problems of abortion to the end that a true solution might be found."

You do not object to the problems of abortion?

George W. Kosmak: I do not think the 2 topics are connected. I think you should leave out the abortion part and concentrate on the human

reproduction. That is what we are lacking. Abortion is but a side issue in the process of human reproduction.

Abraham Stone: Why use the words "public debate"? After all, this is not a question for debate. It is a question for public discussion.

Frederick J. Taussig: "Discussion" instead of "debate"?

Abraham Stone: Yes.

Frederick J. Taussig: That seems a wise suggestion.

Frederick J. Taussig: I think the resolution should include, "the discussion of the problem of abortion," because it is a definite problem.

At this point in the discussion some attention was given to the phraseology of Dr. Halbert L. Dunn's resolution. The discussion was resumed, viz:

Howard C. Taylor, Jr.: The last paragraph of the resolution as amended now reads:

"Therefore be it Resolved by the Conference that it dedicate itself to the establishment of free and open public discussion of human reproduction and the problems of abortion."

(The resolution as amended was then placed before the meeting which voted its passage.)

Frederick J. Taussig: It seems to me that it is rather important to consider whether we should not meet again in the course of approximately a year in the hope that by that time there will be additional information for a further discussion of all these other problems.

Howard C. Taylor, Jr.: It is possible that not enough new data might be assembled within a year.

Robert L. Dickinson: There could be a further meeting without the date stated, at the call of the National Committee.

(A motion was then proposed, seconded and passed, instructing the National Committee on Maternal Health to call another meeting at a date which it considered appropriate.)

Howard C. Taylor, Jr.: The question of publicity for this meeting has again been raised and I think it necessary to explain the Committee's position. In the invitations to the Conference it was stated definitely that no publicity was planned. Now it has so happened that one or two of our guests have, on their own responsibility, released their intended remarks to the press without our knowing it. We have, as a result, received inquiries from several newspapers. Following the terms of what we believed to be our contract with the people invited here, we have refused to give the names of guests or to give any statement except the fact that a conference was being held which has lasted 2 days. It has been our intention, however, to attempt the publication of the papers and the discussions. The transactions in the

form of stenographic notes will be circulated to the speakers. They can then eliminate anything that they wish excluded from the relatively small circulation I am sure these transactions will have. It is quite possible we made a mistake in not attempting to get publicity for this subject. On the other hand, we did not foresee this possibility in advance and promised there would be no publicity.

Frederick J. Taussig: Would there be any objection to having this resolution given out to the press as part of the conference?

Howard C. Taylor, Jr.: I think there is no objection except for the fact that there have been speakers here who were told in advance there would be no publicity. We cannot contact those who have left to see whether they consider such a release contrary to our agreement with them. Is there any opinion of the Conference on this point?

George W. Kosmak: I feel we should adhere to the original agreement. A great many people came here with that idea in mind and I think their wishes should be respected. The Conference has not proceeded far enough to make public any definite recommendations in regard to its labors here. For the present it should not be given wide publicity. I do request a brief account of this very important gathering for publication in the American Journal of Obstetrics and Gynecology. I think medical men should be informed, for the doctors do need education along these lines. At the same time I feel that great care should be taken in allowing the representatives of any organization, or medical group, to make public any recommendations which may appear to them to have been made here.

Frederick J. Taussig: The purpose of the resolution we have passed is for publicity. It seems rather contradictory for us to pass this resolution and then refuse to give it out to the press.

Howard C. Taylor, Jr.: I am perfectly aware of that but I did not suggest to Dr. Dunn that he write the resolution. The statement in the invitation antedates the resolution.

P. K. Whelpton: Mr. Chairman, I accepted the invitation with the understanding that the discussion at the Conference was going to be confidential and as far as the data that I had is concerned, I would have to get clearance from the Committee sponsoring that study before those data are released. I certainly did not understand from your invitation that the fact that a conference was being held was a confidential matter. It seems to me that could be given publicity and that an innocuous resolution such as we have passed could also be given publicity.

Howard C. Taylor, Jr.: If someone will propose a resolution that it is the opinion of the conference that nothing in the original invitation would be

violated by the submission of that resolution to the press, then we would probably send it to the press.

P. K. Whelpton: I will be very glad to make that motion.

Claude C. Pierce: I second that.

F. Bayard Carter: I do not think we have gone far enough to warrant any publicity at the present time. That is my personal feeling.

Howard C. Taylor, Jr.: The motion was that it was the opinion of this conference that the statement in the invitation would in no way be violated by the submission of this fact to the newspapers.

On a standing vote the motion was passed.

Howard C. Taylor, Jr.: I have nothing else to say beyond my thanks to the guests for coming, and particularly thanks to Dr. Clair Folsome, the Executive Secretary, whose work accounted for the greater part of the effort needed to produce the Conference.

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