

THE SEVENTH OLIVER BIRD LECTURE  
SEX, SCIENCE AND SURVIVAL\*

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In 1921, when I began the practice of gynaecology, medicine had precious little to offer infertile wives. Therefore I chose to devote what time and effort could be spared from earning money to the study of human reproductive functioning that I might get as many of these unhappy women as possible pregnant. Primarily to that end, I have studied and researched for 40 years, and tried to solve problems in Man's pervasive sexuality, the biological requisite for species survival.

SEX, FEAR AND RELIGION: 'THE NATURAL LAW'

Some form of sex is common to most animals. A few species reproduce by fission, like the amoeba, or by budding, like jellyfish in cold water, or by parthenogenesis, as in the water flea. There are also a few animals, including some of the worms, in which sex functions in two different organ systems, but in a single organism. In most species, however, sexual function involves two separate and different individuals—male and female. For propagation, male and female germ cells must unite, and in the mammals this is accomplished by some manner of copulation. Hence it is that Man is equipped (we cannot in our present dilemma unqualifiedly say 'endowed', and most of us are not yet willing to say 'cursed') with a powerful urge to copulate.

The gynaecologist has much to do with Man's copulatory urge. Inevitably analysis of it has led to consideration of the family, to sociology, and thence to population. Being a Roman Catholic, dealing medically and scientifically with sex and its social implications, I became involved, understandably I think, with theology. None will deny the interrelationship of sex with morality, nor of morality with religion and, thus, theology.

In addition to his sex instinct, Man, in his ascent from bestial ancestors, took with him, also, the strong emotion, fear. This is so vital a part of the instinct to survive, that often we hear of 'the basic instinct, fear', as we do of 'the instinct, hunger', another component of the survival complex. Elaboration of the anthropoid nervous system blessed Man with his peculiar attribute, intellectuality. Gradually, his apperception expanded into imagination; and instinctive fear spread from things seen, felt, heard, tasted or smelled, into the immaterial world about him. He became aware of himself as a human being, but also of some outside Force pervading the universe that deep within him he felt ruled over all, including himself.

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Primitive Man, overawed by what little his mentality could interpret of the manifold external manifestations of this Force, feared it. To protect himself, he constructed religion, the frame of his beliefs about it, on which he could build principles of behaviour, so that his acts would conform to its laws as he was able to discern them. His realization of the universal Almighty, and of his subservient dependence upon Him, marks the indefinable particular spirituality of Man. Indeed, may not this spirituality be in Man the evidence, perhaps even the essence, of the universally intrinsic Force of which Man (of all animals) is aware, and, in our language, calls God? Those of Judaeo-Christian culture attempt to know His law by interpretation of Revelation in the light of science when this is available, and by speculation when it is not.

Science is but the product of the careful application of the intellect (with which God endowed Man that he might know Him, love Him, and serve Him) to that which his senses present to him. His religion gives Man a moral code by which he aspires to obedience to God's law, and particularly to that aspect of God's law, the eternal law, which determines in Man the nature of his every part with due regard for its proper use. Man therefore strives by science to know his own nature. If his doings were utterly controlled by the physical, chemical or electronic qualities of each component of his structure—as are the acts of a robot, of a computer, even of all his distant relatives, the unintellectual mammals, and, to a large extent, of his nearer kinfolk, the anthropoid apes—he would have no choice but to act like one of them. As yet, psychology has not proved to all of us that he has no choice. It still appears that, within his species-particular intellect, he has Reason and Free Will, the latter of which is strongly influenced by his utterly peculiar spirituality. By Reason and Will he can select actions in conformity to, or in defiance of, what we call 'natural law'.

The Christian concept of this derives from St. Thomas Aquinas, a Dominican friar of the thirteenth century. He was the theological giant who produced the *Summa Theologica*, and in Question XCI, Second Article, defined natural law as the "participation of the eternal law in the rational creature". Man applies his reasoning intellect to learn the nature of all his parts; and, then, if he would exist in comfortable submission to God, he wills to act only in conformity to the natural law which governs these parts.

Thus must the biological and medical scientists, including the gynaecologist, when dealing with human sex, deal also with religion. They strive to discover the exact nature of human sex in order to supply the scientific facts that will enable moralists correctly to interpret what God has often enigmatically revealed of His law that governs sex. It is these gradually accruing facts that moral theologians use to rectify whatever erroneous interpretation of Revelation or tradition, to meet the needs of the times, has been built into religion in lieu of the appropriate scientific insight, contemporaneously missing—as Pope John might say, to achieve 'aggiornamento'.

What things are and how they work, in our universe, comprise the essence of eternal law. As Aquinas put it: "all things subject to divine providence are ruled . . . by the eternal law". It is from this "they derive their respective inclinations to their proper acts and ends". Regarding Man, he says, you remember: "this participation of the eternal law in the rational creature is

called the natural law". As the light of science extends and grows brighter, we ever more accurately recognize this law to which all creation is subject.

#### THE STRUGGLE FOR HUMAN WELFARE: INTERPRETIVE THEORIES VERSUS SCIENCE

When science pertinent to any aspect of religion is unavailable, the imaginative mind of Man speculates on what he reads in revered texts and on what little he is able to perceive in the world about him, and evolves interpretive theories which, historically, have been made to serve as facts. These theories, perforce, are then used to direct his desired conformity to natural law as he interprets it. In primitive and much later cultures, as even in our own, theories in lieu of facts have sometimes acquired majestic, dogmatic authority.

Against entrenched theories, great benefactors of mankind—St. Paul, Copernicus, Galileo, Galen, Aquinas, da Vinci, Columbus, Pasteur, Darwin, Jenner, Newman and many, many others—were forced to contend. They resembled Sisyphus in their uphill struggles against the boulders of theories—theories habitually, yet mistakenly, attributed to a celestial origin by men truly dedicated to human welfare and trying hard to improve it.

Humanitarianism far antedated scientific medicine and therapeutics. It called for action in the face of need; so pestilences that decimated or wiped out whole populations were attacked by religious theories. Long after science provided truer insight into the nature of disease, these futile concepts were zealously upheld, and only after unremitting exposition of science were they reluctantly relinquished.

#### THE TRIUMPH OF MEDICAL SCIENCE: POPULATION INCREASE

Were it not for our efficient humanitarian application of what science has been able to discover about the causes of death and how to avoid or neutralize them, we would not be so perilously numerous, and, with confounding speed, becoming more so. During untold centuries before the last few, science laboriously, and against great odds, struggled to discern the actual nature of disease, its causes and their susceptibilities to discoverable means of removal—to learn the eternal law that must govern the multitudinous factors of disease, just as it does all the attributes of Man and their functional interplay.

Happily, during the last three centuries, in spite of obfuscated tradition, the common sense of the people in the civilized world, awakened perhaps by desperation, brought them gradually into allegiance with the medical sciences. Death rates began their still-persisting, increasingly steep decline. More, more, and yet more persons survived into and during adulthood, to exercise their copulatory urge. Conceptions soared. Babies lived. Population growth, which is but the difference between births and deaths, rose sharply throughout the world. The Population Reference Bureau in Washington (1963) reports that not until after untold hundreds of thousands of years did the human race number its first billion—in about 1850. But merely 80 years later, in 1930, it reached two billion; in the next 30 years, the third billion was attained. In only 15 years more, in 1975, the fourth billion will be on hand. In the year 2000, only 36 years from now, according to United Nations (1958) estimates,

there will be not only the fifth billion of people in the world, but probably at least six billion—unless *we* apply immediate stops.

## DANGERS OF POPULATION INCREASE

### PHYSICAL ASPECTS

I doubt if any ecologist will deny that theoretically this planet could feed, clothe and house a population twice the size of today's—but not before the year 2000, only 36 years from now. Time is what is running out—not plankton in the vast reaches of the ocean, not nitrogen in the air about us, nor usable minerals in the earth, nor atomic energy to run enormous distilleries to furnish fresh water for the multitudes, or to run fertilizer factories, or to make agricultural machinery, etc., etc. No, too large a part of earth's peoples cannot now produce enough to feed, clothe and house their present numbers adequately, much less to supply surplus wealth to invest towards a rapid increase in national products.

Stephen Enke, a former professor of Economics at Duke University, has again called attention to the fact that "High birth rates cause a very high proportion of the total population to be children, who naturally consume, but are too young to work" (Enke, 1963). If there were fewer children than must now live (for short or perhaps longer periods) in hunger and squalor and spiritual stagnation, what those properly unconceived would consume could be invested "as capital, for irrigation, transport and education". Real economic development might result, so that surviving children and their parents would not be obliged to live miserably and with little chance of any spiritual uplift for them and their successors.

Nor, experts tell us, have we, of the comparatively rich nations, sufficient excess of money, goods, brains and facilities adequately to augment our efforts to help the underdeveloped emerging nations to increase their rate of national production so as to meet the enormous requirements made by their explosive growth rates. Lester R. Brown of the U.S. Department of Agriculture writes: "Although the projected flow of food from North America to the less developed regions in future decades will be much larger than at present, it will be rather small when compared to the growing needs of these regions" (Brown, 1963).

Our humanitarianism, as yet gloriously viable and even becoming stronger, forbids our increasing the death rates that it has sent tumbling down. Calmly judicious and practical scholars see no alternative to an immediate slash in the birth rates.

### PSYCHOLOGICAL FACTORS: STRESS

The appalling danger that threatens mankind may be even worse than one of far-and-wide starvation and an abysmal decline in standards of living. Our very humanity may be at stake.

Man has moved up the steep, tortuous, obstructed incline of civilized humanitarianism by use of his divinely bestowed Reason applied to his divinely permitted, but only indirectly empowered, perceptiveness. Apperception is left to his freedom to use his mind without duress. It is apperception and Reason that we will sacrilegiously destroy if we inadvertently or stupidly allow such crowding as will surely subject us to an invincible degree of disruptive stress.

Stress is that demonic state of being disorganized. By it, our finely articulated, species-specific mental processes are thrown out of gear, so that we think and act irrationally. It also unbalances the natural proportionment of the grosser biochemical agents, including the hormones, that render our physical parts able to function cooperatively. One or another debilitating form of stress reaction has been scientifically observed and described in a great many species of vertebrates.

Hoagland (1963) has recently recalled studies of the jack rabbit population in Minnesota. When their numbers rose to a certain point, and in spite of plenty of food and the absence of predators, a high death rate, associated with hypoglycaemia and convulsions, ensued. While no specific disease entity could be diagnosed, autopsy revealed abnormal adrenals, along with liver damage, atherosclerosis and other signs of acute stress. The same has been found among deer. Sometime during the 1920s, one buck and one doe were placed on an island in Chesapeake Bay. When, after some years, their descendants had reached a density of more than one deer per acre, and "in spite of adequate food and care", the animals began to die off. Again autopsy disclosed the classic signs of the stress syndrome.

Widely reported are the frequent, aperiodic mass migrations of the Scandinavian lemming. In mad desertion of overcrowded feeding grounds and living quarters, about every 7 to 10 years, they rush to their deaths—if not under the wheels of automobiles in the streets of Swedish cities and towns, then by drowning in the cold waters nearby. Kessler (1963) has cited numerous other examples of self-regulatory mechanisms in the control of vertebrate populations.

Somewhat slighter, but similar madness is commonly evidenced, temporarily, by human crowds in our larger cities, as by university students who, instead of studying, indulge in pantie raids and other ridiculous if not shameful stunts, sometimes even wanton destruction of property. Only after dispersion of the irrational mob does each member realize the silliness of his behaviour. In too many lands, dispersal—freedom from rubbing elbows—is becoming rapidly impossible.

Comparative biology also suggests that, if the highly developed mentality of Man is not to be disorganized by the stress of crowding, human populations might spontaneously decrease—as eventually do those of some other vertebrates—simply by stressful loss of sexual potency, or marked lowering of fertility. Even by the tiny minority who would welcome it, the breeding out in Man of such deeply implanted qualities cannot be expected, at present levels of real harassment, in the few years allotted to us before disaster overtakes us. It were well for us to anticipate that the informed and aspiring, but increasingly congested and stressed, 'have-nots' of the world may be impelled, perhaps even martially, to express their not surprising or unexpected covetousness. Stress may move them madly to grasp for that which we, the 'have' nations, will be unable to protect in their interest and ours, unless, in practical and charitable common sense and sacrifice of unessentials, we prepare ourselves.

Cass Canfield, the distinguished editorial chairman of Harper & Row, has stated: "The nations of the world live today in an historic intimacy. To an

unprecedented degree, the richer countries are putting their skills and substance at the disposal of the newer nations. The tragic irony of the present situation is that, despite all this investment of wealth and effort, population growth will in many areas abort plans for economic and social development.

"In nation after nation, the anticipated economic gains resulting from carefully planned programs have brought little, if any, rise in the standard of living of the individual family. Gains are being drained off into the job of maintaining existing standards for more and more people. Few of the newer nations have been able to keep ahead of population growth. The rising hopes of their people for a life free of want are being frustrated" (Canfield, 1963).

We must keep ourselves strong without the least decrease in our humanitarianism which, for our integrity as humans, demands among other things that we give all possible aid to the despairing 'have nots'. This is a tough but imperative task. Survival of our culture, if not of ourselves, clarions us to action at once. As Lawrence Lowell is said to have observed, when he was President of Harvard, "What must be done today, should have been done yesterday". I pray that we have not delayed too long.

#### PROPOSALS FOR ACTION: RE-EVALUATION OF RELIGIOUS AND SPECULATIVE CONCEPTS

How can we do it? We of the technologically advanced nations must immediately move to hold our own birth rates, especially but not only in urban areas. There has been enough talk. It is time for action. In addition to food, there must be available space, including ample areas for stress-preventing recreation. Our numbers must not be more than can be respectably housed, and be afforded superior educational facilities. In the present, as in the years ahead, we must hold our births within the requisites mentioned: food, space, housing, schools. We must move fast—boldly, but accurately—to insure them to our present population. This job in the larger cities of our country is of enormous proportions.

What have I to offer—a Catholic gynaecologist with some knowledge of the scientifically demonstrated facts of human sex, facts now well recognized by biologists and sociologists? I can call them to the attention of others with the fervent hope that scientific facts will immediately supplant the theories concerning human sex which were doubtless of use in times past. The cruel delay in the Middle Ages of such substitution of fact for speculation in the case of astronomy, of disease, of even commercial practices, I believe is unwarranted in the matter of imperative birth control. Several speculative assumptions are even today so firmly ingrained in the minds of numerous influential teachers as to make the effective change-over very difficult.

I am convinced that the time has come when, if there are obscurities in the natural law of human sexuality, as it has been inferred and then extrapolated from sacred texts, that impede proper and utterly necessary lowering of birth rates, these texts must be re-examined in the light of what is presently known of human sexual physiology. These facts our God-given perceptiveness has made evident long after pertinent speculations were necessarily employed by ancient moralists. Careful application of our also divinely derived Reason and common

sense to physiologic and sociologic facts will bring Prudence. This is the practical wisdom that will furnish our consciences with directives more nearly in accordance with the facts of our created nature. Thus we will know the Good we are to do, and the Evil we are to avoid.

#### SUPPORT FROM THEOLOGY: GOOD VERSUS EVIL

One of the brilliantly able young Catholic philosophers, Fr. Eric d'Arcy, in his good little book, *Conscience and its Right to Freedom*, has this to say anent the necessity of recognizing what is good (page 214): "the good in question is indisputably supreme: the sovereign end of the human person. One of the conditions for attaining this is substantial fidelity to moral duty; and this . . . consists in following one's conscience".

Later he translates and paraphrases some authoritative comments of St. Thomas Aquinas in these words (page 215): "A man's moral fulfilment and stature is measured above all by the performance of his will; . . . But the proper object of the will is not the good as it exists objectively, or as it is known to some moral genius with a skill and an insight superior to one's own: it is the good as apprehended and presented to a man by the judgement of his own reason".

Then, perhaps, with what I would call, not a bow, but a respectful glance at his clerical superiors, Aquinas continues, according to D'Arcy (page 216): "Of course, one of the elements of the decision [as to what is good] which one's reason ultimately makes will be the guidance of authoritative and skilled moralists whose standing we accept; (however he went on to say:) but it has to be the individual's judgement of conscience that this *is* an authority which we may safely accept" (D'Arcy, 1962).

#### MAN IN THE IMAGE OF GOD

Constantly, in this question of birth control, we hear repeated God's words in Genesis (Chapter 1, v.27): "And God created man to his own image", that is (as explained in a footnote in my Doway-Rheims version), "This *image* of God in man, is not in the body, but in the soul; which is a *spiritual* substance, endued with understanding and free will". And then follow the words, very significant to our subject, "And God blessed them, (Adam and Eve, who, we are told, were endued with understanding and free will) saying: Increase and multiply, and fill the earth and subdue it".

It is clear to most ecologists that we have filled the earth, at least to the limit of our present capacity to fulfil the second command, "to subdue it". As I said before, given time, we may increase our subjugation and utilization of earth's resources. It would seem that only after we have done this, may we in conscience resume *procreation*, with certitude that we can, by commensurate rearing and education, also '*multiply*' ourselves.

I would call your attention to the critical difference between *procreation*—bringing forth, begetting—and *reproduction*, that is, making a copy, a likeness. My Bible suggests to me that the words, "God created man to his own image", mean that man and woman were created with the endowments of "understanding and free will". It was such, He said, that were to be increased and multiplied. Intellectually mature human beings do not reproduce, do not

multiply themselves, when they merely beget. The job is not done, nor can it be done, until such parents have produced sons and daughters with understanding and free will.

#### WELFARE OF PROGENY

The human infant has but the potentiality of understanding and free will. In good health he must be educated in order to make kinetic this potentiality. Roman Catholics, at least, should look to Canon 1013 of the Code of Canon Law which defines the primary purpose of marriage as "the procreation *and education* of children". I wonder if anything but the fusion of these obligations constitutes 'reproduction', the primary end of the sacrament of matrimony, as it is also one of the two ends of coitus.

In his book on family planning, the eminent Jesuit, Fr. Stanislas de Lestapis, the professor of family sociology at the Catholic Institute in Paris, wrote (page 179): "the Catholic Church . . . teaches that there is, in principle, a right, or better, a duty, to practise a form of birth regulation based on careful thought". Earlier in the same chapter, he stated (page 161): "Every couple owes it . . . to God . . . to itself, to the community, to procreate those children whom it will be able to bring up and to prepare adequately for life. There is an optimum number for each family and each family alone can judge what it is" (de Lestapis, 1961).

Statements of another authoritative moral philosopher, recently deceased, Dom Gregory Stevens of the Catholic University of America, are similarly instructive: "Indiscriminate procreation is no moral ideal but mere irresponsibility, for the family must make prudent provision for the future welfare of the children both spiritually and physically. The Church considers the primary goal of the natural institution of matrimony to be that of responsible parenthood" (Stevens, 1961). In other words, reproduction should be our goal, not mere procreation; rather, multiplication of able adults, equal to what the good of the times demands.

#### SCIENTIFIC ASPECTS: BIOLOGICAL BASIS OF HUMAN SEXUALITY

Contemplation of the social significance of population growth rates, as proved by demographers and ecologists, forces the gynaecologist into thoughts of human sexuality, for surely the copulatory urge is a positive factor in population growth. If that comprised all of the indomitable sex instinct of Man, there would be no hope for mankind but to breed himself into crowded degeneration. But the sciences of psychology and social anthropology discover that this coital urge is not all of the *human* sex instinct.

To adjust sexual forces to true reproduction and not animalistic begetting, the mature adult should know the actual forces in Man's inborn sexual nature. The more clearly he knows these, the more able he is to recognize that aspect of eternal law which participates in the natural law to which his expression of sexuality must submit; for natural law is but the inclusion, the participation—as Aquinas puts it—of eternal law, the Mind of God. It is the job of scientists to expose the true nature of human sex. Only by knowing this, can improvement be made in what perforce formerly had to suffice, namely, the patristic,



speculative nature of sex. Science evolves from scrupulous observation of what happens under known conditions affected by known factors.

#### THE COITAL URGE

After a rather intensive study of pertinent zoological and anthropological scientific literature, and filtering what I had found through the screen of my years of dealing with human sexual behaviour, I wrote the following, about a dozen years ago, and in substance would write the same at present:

"The sexual core of the human primate today is, in all probability, quite as it was among our very remote human ancestors, who preceded by eons even the most primitive races of our times. Therein is the fundament from which students of today derive comprehension of human sexuality. The basic normal male, stripped of social, experiential and, shall we say, spiritual repressions, is as sexually promiscuous and dominative as any ape; and, like the ape, he is only very temporarily satiated. He is physically superior, and is ever desirous and potent. For untold centuries, moralists have used whatever social pressures they could bring to bear on the human male's coital urge in efforts to restrict its expression outside of marriage. Current news media clearly reflect the degree of their failure. Basically the normal woman, if similarly bereft of social, experiential and spiritual inhibitions, weaker physically, has deep within her an ever present willingness—and often, like the male, an urge to copulate.

#### LOVE OF MATE AND LOVE OF YOUNG

"To temper the savage anthropoid core of sexuality described above, sex, in the human being of *today*, has a very strong, very significant peculiarity. It consists of that indefinable but no less actual human attribute called 'love'.

"In the evolution of the hominid from his ape-like progenitors, and to a large extent directing his development, there arose from the complex of bestial impulses and emotions not only the powerful coital urge but also the utterly particular emotional quality of love. I daresay there are few, if any, of us who would dare try to define what Christ taught is the greatest of the three virtues: faith, hope and charity—which is love. Yet we are all aware that, in various forms, it characterizes us as human beings.

"Inseparable from our *human* sexuality, because it is an integral part of it, however obscured, is love: love of mate and love of young" (Rock, 1951).

Only when love of mate suffuses coitus does orgasm reach its natural fullness of ecstasy. And it is the love of young which motivates informed, intelligent, responsible, mutually loving parents to reproduce instead of merely to procreate. Forethought, directed by Reason, and utilizing science, will enable them to do this in the kind of good conscience defined by St. Thomas Aquinas.

#### MONOGAMY: THE MODAL SOCIAL UNIT; THE MORAL MEASURE OF SEXUAL BEHAVIOUR

I would suppose the inherency of love within the human sex instinct is responsible for the near universality of monogamy. The archeologists, the anthropologists, the sociologists report the recognizability of the essentials of this mating form in practically all races, in all places, and all times. It seems quite clear

that monogamy is the modal social unit of the human race (Zimmerman, 1947).

Could it not be that, through long ages, intelligent Man learned that monogamous marriage of loving mates offers the best opportunity for perfect expression of the peculiarly human qualities of the sex instinct? In monogamous marriage of loving mates, they can both best find full gratification of the two inseparable components of their instinct—the coital urge and the love that unites them and that impels them healthfully to rear and productively to educate their offspring (Miller, 1931; Rock, 1963a).

Believing as I do that, except for those who can and do become willing celibates, only monogamy suffices for full expression of the human sex instinct in conformity to the natural law, as we are permitted to know it, I wonder if monogamy cannot be used as the test by which to judge the goodness of any sex act. If a manner of sex expression conduces to, is compatible with, and strengthens monogamy, it would be considered good; if it is not favourable to this natural as well as fundamental social format, it would be adjudged bad. By this standard, may one not measure masturbation, homosexual behaviour, prostitution, premarital coitus, adultery, divorce and—what is powerfully involved in the sufficiency and promptness of birth limitation, our immediate obligation—intramarital continence, as well as several other effective methods of contraception?

#### PROLONGED INTRAMARITAL CONTINENCE

It has been pointed out that responsible, intelligent parents will have a child only if and when they feel they can bring it to healthful physical and mental adulthood. Clearly the frequency of coitus which is evoked by and nourishes love has biologically resulted, and would continue to result, for most parents, and for society, in more children than is good. Yet prolonged intramarital continence does not conform to monogamy, except in the exceedingly rare marriage of two who are both graced with an unusual degree of spiritual fortitude. I would question, therefore, if, for the vast majority of married mates, this is not for them an unnatural and, if so, a sinful practice.

We must not fail to realize that there are, usually among older couples, some whose mutual love, supplemented by God's grace, can, when fully accepted and sound reasons motivate them, force mutation of their carnal natures into a kind of angelic companionship. The infrequency of such couples in our time excludes extended intramarital continence from any list of practical methods for the immediate reduction in births that is our inescapable obligation.

#### SHORT-TERM INTRAMARITAL CONTINENCE

Short-term intermittent intramarital continence, for one reason or another, is usual in practically all cultures, even the most primitive, and does not militate against monogamy. As a contraceptive measure, it is useful and harmless, but only to those couples who can define accurately, and willingly respect, those few days of the ovulation phase that would require only short-term sexual restraint (de Bethune, 1963; Rock, 1964).

It may become more generally applicable when science supplies us with a

true indication of just when the egg will emerge from the follicle. Massive effort should be made immediately by money and brains to resolve this uncertainty. Spermatozoa cannot fertilize much more than 48 hr after placement at the entrance of the womb; and the egg is fertilizable only about 12 hr after escape from the ovary. Five days of continence would preclude conception if only the couple knew which were the 5 days. We have not the time to wait for this knowledge.

#### DIRECT ATTACK ON THE GERM CELLS THE ONLY SOLUTION; 'INHUMANITY' OF THE GAMETES

In the meantime, we should note a few other details of reproductive physiology which science offers as possibly helpful towards reformation of older speculations that have given rise to some of the restrictive stipulations against effective contraceptive measures.

The egg, once it leaves the ovary, is in fact a foreign body. It cannot even reproduce itself. It has only potential value to either the female or society. It disintegrates within a day or two, unless it happens to be invaded by a spermatozoon. In such event, what were nonentities individually become in unity a human being. Although a parasite in the mother, it is entitled, as a human being, to full benefit of our humanitarianism which makes repugnantly forbidding the destruction of human life. It must be remembered, however, that as a human being it is a member of society; and, like all human beings, it will owe allegiance to the good of society which humanity's experience has recognized as for the welfare of all.

One may wonder if spermatozoa, likewise, have any clearer title to humanity than the separated unfertilized egg. They, too, are but cast-off cells—all but a few are doomed to die promptly, like desquamated cells from other tissues. In fact, even during the few hours the egg or the spermatozoon lives, neither can be regarded as wholly human, for each has only one-half the nuclear chromatin material which specifically characterizes normal human cells.

#### RECAPITULATION

But procreation depends on the union of one of the numberless non-human spermatozoa with the non-human egg. It is coitus which makes this possible, but certainly does not decree it. Those who can believe that simple procreation—begetting—is the indispensable natural end of coitus, cannot, in deference to this much debated concept of natural law, tolerate wilful prevention of this effect. Yet, by the nature of Man, unimpeded conception is comparatively rare in comparison to the frequency of coitus, although now much too common for the welfare of mankind. It is worth while to note that, according to scientific studies, normal coitus of normal mates, when the egg is free and available, results in conception in probably not much more than 25% of instances (Hertig, Rock, Adams & Menkin, 1959). Nature seems not to have recognized fertilization as an indispensable end of coitus.

If we believe that natural law stipulates, not begetting, but reproduction of

able adults, as one purpose of coitus, and the expression and enhancement of marital love as an equally valid end, we are bound, by the natural law that commands us to do good and avoid evil, to approve of intramarital coitus that is evoked by and embellishes love and that will result, however often love calls it forth, in only the number of children proper to the particular family.

Many informed parents honestly foresee the likelihood that, instead of strengthening the family, the final product of conception will but weaken the family and thus society. Because of the frighteningly precarious condition of humanity today, it has become quite clear to most informed and reasoning adults that such parents, when their properly formed and free consciences approve, are not only permitted but obliged to do their best to prevent conception.

The vast majority of informed and intelligent men and women think it to be the humanitarian duty of such parents to allow the only potentially human but dangerous egg to give back to the woman, as do the numberless other ova, its molecular borrowings—perhaps even while within the ovary. This is where thousands of other usually immature eggs do this. When the body of a disabled female is made aware, by internal evolutionary mechanisms, that danger threatens it, even mature eggs are reabsorbed while confined in the ovary. When the internal mechanisms are, by their nature, incapable of sensing danger to mother, family or society, from an ill-advised conception, the human intellect, provided for protection of parent and mankind, must act as best it can (Rock, 1963b).

An increasing number of moralists and lay scholars agree with this. These scientifically up-to-date non-Catholic mentors are well aware that to advise prolonged continence is but a pious evasion. They teach that right-minded parents should be instructed in how to prevent escape of the potentially dangerous egg from the follicle. They hold, also, that, if justified mates lack the means or the ability to do this, they are entitled to know how, by one method or another, which does not disturb coitus, they may permit all desquamated sperm cells in any ejaculate to undergo intravaginal disintegration. This is the natural destiny of all of them anyway, with the only occasional, but possibly disastrous exception of one.

To most wise leaders, the now urgently required restriction of births inescapably calls for the more general use, by loving, monogamous mates, of effective, harmless, acceptable contraceptive methods. These would have to conform to the normal pattern of coitus, and be used when temporary continence would not suffice, when extended continence would be disruptive of loving equanimity, and when properly formed *untrammelled* consciences approve. Only by religious adherence to the natural law pertaining to sex, as our God-given intellect makes it evident through science applied to theology, can married mates today express their true sex nature, while fully meeting their responsibilities as parents.

Like the best-informed ecologists, demographers and agriculturists, I can see no other way to avoid the impending hunger and stress which will turn our humanitarianism back to bestiality. Only by the good use of sex, can Man escape stress and insure the survival of his kind, so that healthy, educated descendants may grow in the wisdom that will more surely enable them to know, to love, and to serve God.

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Dr Rock's paper is somewhat different from the usual run of material published by this *Journal*, but we are glad to give Dr Rock its hospitality and to keep intact the published series of Oliver Bird Lectures.

A.S.P.