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THE SECOND GENESIS

by ALBERT ROSENFELD

and

THE **LIFE** POLL

by LOUIS HARRIS

Radical new techniques in biology promise (or threaten) a near-future world of reproduction that is artificially assisted or even sexless and of babies grown in glass wombs in the laboratory. The new facts of life raise questions about the attitudes people have toward

Science, Sex and Tomorrow's Morality

Do we really want to predetermine the sex of our unborn children?

Will we accept the efficiency of genetically "designing" offspring for special jobs and environments?

Can we accept the idea of preserving eggs and sperm in cold-storage banks, to be used even after the death of the donors?

What is the future, if any, of marriage and the family?



Challenge to the Mirac



by ALBERT ROSENFELD

of Life

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Wrenching changes in the nature of the ties that bind one human being to another. Radically different meanings for old words and acts—sex and love, for instance. Perhaps even the end of institutions such as marriage and the family. Startling advances in the science of reproductive biology may bring about a sweeping transformation in the style of man's life on earth. We have lived so long with our traditions, it is hard to realize how much of our morality—at least that part of it concerned with sex, marriage and the family—rests solidly on the basic and unarguable facts

of reproductive biology. Long before the study of obstetrics and gynecology began, people understood that a man and a woman must unite sexually in order to produce a child; that the embryo develops on its own during the long, dark, quiet months before it is ejected into the shock of life outside; and that the helpless human infant requires an unusually prolonged period of parental protection and training before it can cope, on even a minimal basis, with its environment. An infant horned toad bursts forth from the maternal sac all ready to fend for itself. A newborn giraffe or zebra can run beside its mother within a very few hours. But the human baby is helpless.

All this being so, it was inevi-

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table that certain sets of conventions would evolve. Thus grew our institutions of marriage and the family, buttressed by religion, law, politics, philosophy, education, commerce and the arts—an interdependent social edifice endowed with an aura of self-evident immutability.

For the rearing of the young there had to be some continuity of place and the assignment of responsibility. The mother could not give her baby the care and attention it needed to survive and, at the same time, be the one to fight and protect, to feed and clothe and shelter. So the father had to be discouraged from straying. Society channeled sexual urges toward one goal—procreation—devising complicated systems of prescriptions and proscriptions.

Everyone in the family, from infants to uncles to grandmothers, had his assigned role and was aware of his rights, duties and privileges. Courtship was ritualized, wedding vows were solemnized, family support was enforced. Parents were to be obeyed, elders respected, children protected. Spouses were to be the exclusive sexual property of one another. Theologians labored to inculcate in man and woman alike a deep sense of sin regarding the pleasures of the flesh. But if religious taboos were insufficiently inhibiting, more practical fears were at hand: the fear of impregnating or of becoming pregnant, the fear of contracting a venereal disease, the fear of losing a spouse's devotion, the fear of earning the disapproval of one's friends and the condemnation of society.

Exceptions to convention were never uncommon, human powers of self-discipline being what they are, but such departures have, on the whole, fared rather badly. Romantic love and other cultural variants have influenced people's attitudes from time to time and from place to place, yet at no time and in no place—not, at any rate, un-

til modern times—has there existed for very long a widespread belief that a stable society of responsible citizens could be maintained without marriage and the family.

TTrue, these institutions clamped undeniable restrictions on individual freedom (or at least on individual license), but they also served the individual's essential needs. For a man, they served his need for sex, his need for a mate who would provide progeny to carry on his name, his need for status, his need to be needed, his need for a physical and psychological base of operations. For a woman, they served her need for security during her periods of maximum vulnerability—pregnancy and child-rearing—her need for a man and a mate to provide her with children, her need for status, her perhaps even greater need than a man's to be needed.

The system was never perfect, but it worked better than any other that men had been able to devise—and most of us have been raised

in the belief that things would always go on more or less the same way. It was possible to believe this—almost impossible to believe otherwise—because there was no reason to doubt that the facts of life on which the whole moral structure rested would also remain essentially unchanged forever.

But in the sciences forever has a way of turning out to be not so everlasting after all. We are now entering an era when, as a result of new scientific discoveries, some mind-boggling things are likely to happen. Children may routinely be born of geographically separated or even long-dead parents, virgin births may become relatively common, women may give birth to other women's children, romance and genetics may finally be separated, and a few favored men may be called upon to father thousands of babies.

What has been far less widely discussed, however, are the implications of this approaching revolution, particularly the fact that traditional morality will experience a far more severe and far more pro-



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found shaking up than most people have yet imagined. If the biological foundations of present-day morality are removed, can it not logically be argued that this morality, every last time-honored shred of it, has become nothing but a useless anachronism?

Consider, as an indication of the current rapid pace of change, the matter of birth control. The potentialities for control are better understood than ever before. In addition to techniques for the prevention of conception, techniques are now available for the encouragement of conception. Where other therapies have failed, the doctor can intervene directly in two ways to promote conception. He can implant in the wife the hus-

band's own sperm or that of an anonymous donor—a commonplace procedure these days; or he can implant an egg taken from the tubes or uterus of another woman—a technique so far applied only in animal experiments. The further refinement of freezing techniques will, moreover, permit the establishment of sperm banks and egg banks. Long-term storage would mean that proximity in space and time of donor, recipient and middleman (doctor) would no longer be required.

Beyond artificially assisted fertilization, there could be (and has been, experimentally) fertilization *in vitro*—i.e., in laboratory glassware. An egg thus prefertilized could be implanted in any woman. Furthermore, it might well be possible eventually to grow babies entirely *in vitro*, with the protecting

and nourishing presence of a human mother nowhere in evidence.

There are also other variations to be played upon this theme, variations which nature has already played spontaneously, at least with the lower orders of animals, and which biologists can now duplicate in the laboratory. There is, for one, the phenomenon of parthenogenesis or virgin birth, in which, without the presence of a male sperm, the egg spontaneously doubles its supply of chromosomes, thus in effect fertilizing itself. When parthenogenesis takes place, all the child's genetic traits are maternal and there is only one true parent. And a bit of microsurgery could easily make the father the one true genetic parent. In that case the resulting child would have no genetic mother at all.

Among other controls bestowed by medical science will be the power to determine in advance the sex of one's offspring. There are two kinds of sperm—one (androsperm) that produces males, the other (gynospem) females. Several scientists have claimed success in separating the two—and, after artificially inseminating animals with the separated sperm, getting a significantly higher proportion of the desired sex.

Finally, there is the distinct possibility of raising people without using sperm or egg at all. Could people be grown, for example, in tissue culture? In a full-grown, mature organism, every normal cell has within itself all the genetic data transmitted by the original fertilized egg cell. There appears, therefore, to be no theoretical reason why a means might not be devised to make all of a cell's genetic data accessible. And when that happens, should it not eventually become possible to grow the individual all over again from any cell taken from anywhere in the body? A number of scientists believe so.

Even more startling would be the production of human beings whose characteristics can be specified in advance. Breakthroughs in genetic knowledge make such speculations anything but prepos-

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terous, and when this kind of biochemical sophistication has been attained, man's powers will have become truly godlike. Just as he has been able, through chemistry, to create a variety of synthetic materials that never existed in nature, so may he, through genetic surgery, bring into being new species of creatures never before seen or imagined in the universe—beings better adapted, if he wishes, to survive on the surface of Jupiter, or on the bottom of the Atlantic Ocean.

If, then, the so-called facts of life are going to be subject to change in these startling ways, we can expect a chain reaction of related changes in social attitudes and institutions. This means, of course, that if we are to manage the new controls that scientists will soon be handing us, the nature of human relationships must be thoroughly re-examined—and, some think, radically reconstructed.

All this may sound unduly alarmist to those who assume that people would automatically resist as bizarre the idea of subjecting themselves to bio-engineering. But would they really? Take *in vitro* embryology. While it is not likely to be available to us soon, the technical obstacles to its attainment are surely surmountable. And when they are surmounted, someone somewhere is going to produce *in vitro* offspring. Once the first full and safe success has been achieved, it will not be long before some couples in special circumstances start raising babies in this fashion. Imagine what the reaction must have been to the first outlandish suggestions that human beings might one day be conceived through artificial insemination. Yet, today husbands and wives by the thousands collaborate in this manner with doctors and anonymous sperm donors to produce progeny.

So would it be with *in vitro* babies. Research in this direction will undoubtedly be accelerated by the new interest in prenatal medicine—doctoring the fetus while still in its mother's womb. Many medical scientists believe they could do much more than they now can, perhaps preventing hundreds of thousands of birth defects, if the embryo and fetus could be developed *in vitro*, as visible and accessible to diagnosis and therapy as any other patient is. Hitherto reluctant parents might opt for *in vitro* babies to increase their chances of having a normal, healthy child. Some mothers, too, might simply find it more convenient to skip the whole process of pregnancy and child-bearing. There would, of course, remain staunch, old-fashioned

types who consider this more a deprivation than a convenience—but have very many women ever turned down labor-saving devices? Besides, sex as recreation, as opposed to sex as procreation, is not exactly a new idea.

A quick look around confirms that a startling transformation is already taking place in our attitudes toward sex—long in advance of most of the techniques we have been talking about. In fact, where sex is concerned it is hard to say any more what is "normal" and what is not. All sorts of behavior which only a few years ago were considered wrong, or at least questionable, now seem reasonable. Playwrights and novelists do not hesitate to describe any kind of sexuality they can imagine in whatever terms seem suitable to them. Books once available only by mail in plain brown wrappers now flourish on paperback racks in card shops and at your local pharmacy. Sex in the movies leaves little to the imagination. And if sex is talked about much more openly these days, there is no reason to doubt that it is practiced much more uninhibitedly, too. On the college campus, where a goodnight kiss at the dormitory door was once considered a bit wicked, premarital sex—while not indulged in universally—is now taken for granted. (It is difficult to remember that as recently as 1960 the University of Illinois fired a biology professor for suggesting that premarital sex might be ethically justifiable.) Around a few campuses free-sex clubs featuring nude parties have sprung up. In the scientific laboratory sexual activity is studied clinically, recorded and measured by instruments and photographed in color by motion-picture cameras, and many people already accept this as logical: men and women of various ages, alone or with partners, with or without the aid of artificial devices, are willing to perform sexually and even earn a modest fee for their contribution to scientific knowledge.

If all this has taken place in the context of the familiar facts of life, essentially unaltered by science, what even greater change will occur when the new facts of life take over? Chances are we haven't seen anything yet.

Even before the current sexual revolution, there were problems aplenty in interpersonal relationships. Today, however, the problems are more evident than ever. The divorce rate is high and would be even higher if many couples did not work hard to "make a go of it." Unfortunately, the "go" they

make of it frequently amounts to nothing more than a borderline accommodation to a minimally tolerable arrangement. Under the best of circumstances the chronic failure of communication that besets so many marriages creates a nagging sense of discontent and insecurity. Add an ingredient—the prevailing liberalized attitudes toward sex—and you compound all the existing confusions and insecurities. Dependable standards of fidelity are getting harder to come by. How are married couples to fix them, even for themselves, with convincing validity, let alone articulate standards that apply to other people? And in their own state of uncertainty, what standards do they fix for their growing children—and how do they make their criteria credible? It is difficult enough even for confident parents, in a stable era, to impart what is traditionally assumed to be their superior, experience-based wisdom. In a chaotic time like ours, how do you persuade teen-agers to “behave”—or even that they ought to?

The moral sanctions of religion once served as a sufficient guide for most people. But those sanctions, and the grounds on which they are based, have been increasingly called into question, even by theologians, so that more and more laymen have come to feel that sexually they are on their own.

But if the wrath of God is no longer to be feared, what then? We may soon reach a time when venereal disease is no longer any threat, and when contraception is so cheap and easy as to remove any risk of an unwanted pregnancy. Once physiological immunity is thus assured, we can suppose that, with changing attitudes, there may be social immunity; that is, if the disease is found out, no one will care. In fact, there would be no point in secrecy at all.

Any man or woman living in this changed moral environment will clearly have greatly increased opportunities for sexual adventures—though enhancing the opportunities may diminish the adventure. For any husband or wife so inclined, the temptation to philander may be overpowering. The man or woman who is not personally tempted, but who is subject to jealous apprehensions, is bound to become more uneasy with the awareness that the second party may not be resisting temptation with equal success. A jealous person traditionally has at least had the sympathy of his friends. But he might find that most of his friends think it absurd to expect anyone to be faithful. The effect of all these pressures would vary with the individual, of course, but in the case

of a marriage already precarious these added concerns could easily finish it.

With old fears replaced by new freedoms, do the foundations of fidelity then fall? Does fidelity become an outmoded concept? And if sex outside the marriage bed is O.K., what happens to marriage itself? Do we marry for love, companionship, security? And are these lasting? Should we be prepared to change partners whenever there is a feeling on the part of either one that it's time for a change? Are the legal bonds of marriage nonsense? Is the ideal to be a purely personal arrangement without law or ceremony, a companionate arrangement such as those that are becoming increasingly common among college students?

Dr. Margaret Mead, an anthropologist who has long studied the folkways of marriage, underscores the relevance of such questions by pointing up the enormous obstacles to staying married for life, especially in the U.S. where marriage undergoes extraordinary strains because of the romantic expectations it must uphold. “The ideal is so high,” says Dr. Mead, “and the difficulties so many . . . that a very rigorous re-examination of the relationship between ideals and practice is called for.”

But what about the rearing of children? Is it not vital to maintain marriage and the current family structure for that reason alone? Not necessarily. Many observers have raised serious questions about how well children fare under current circumstances anyway. They may fare considerably less well as biology begins to displace tradition. That tradition has been to regard a child as a product of the marriage bed—and therefore, in some way, sacred. “Moved by the force of love,” Père Teilhard de Chardin, the priest-scientist, once wrote, “fragments of the world seek out one another so that a world may be.” The fragments of the world he was talking about were the sperm and the egg—the sperm fresh-sprung from the father's loins, the egg snug in its warm, secret place; the propelling force being conjugal love, the new world being the child itself.

But the force of love may henceforth have little to do with the process. The crucial fragments of the world may simply be taken out of cold storage on demand. Even if the scientist or technician who brings the fragments together in the laboratory managed to maintain an attitude of reverence toward the life he was thus creating, love in the old sense would

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no longer be a part of the pro-creative process.

Assuming that the father's own sperm and the mother's own egg were used, the mere fact of conception outside themselves—conception in which they did not personally participate—might make a vast difference in their later attitudes toward their children. If the sperm or egg—or both—belonged originally to someone else, it would add to the impersonality of the transaction. How much of any mother's feeling toward a child is bound up in the physical fact of having carried it inside the womb for those long months, providing nourishment with her own body, fulfilling herself physiologically and spiritually as a woman? With this gone, would her maternal feelings be the same?

There are, of course, some people for whom this question is quite irrelevant: those who are capable of giving genuine love and affection to a child who has been adopted, who is not their genetic product at all. Might the answer—or a partial answer—then be to restrict childrearing privileges to couples who really want them? "People brought up without parental love," A. S. Makarenko, the Soviet counterpart of Dr. Spock, reminds us, "are often deformed people."

When family units were larger—in older, less urbanized days, when there were grandparents in the house, or even aunts and uncles—a child had alternate sets of adults to turn to, and therefore a wider chance of getting the kind of love and attention he needed, at the time he needed it. Even when there was not a large family under one roof, people used to stay put longer in their communities, so that lots of long-time friends, who were almost like relatives, were in the immediate neighborhood during the years when a child was growing up. Among the many peoples she has studied, Dr. Mead believes the Samoans are by far the best adjusted sexually and maritally, for the very reason that "the relationship between child and parent is early diffused over many adults."

... He is given food, consoled, carried about, by all the women of the large households, and later carried about the village by child nurses who cluster together with their charges on their hips."

In the U.S. today, however, the typical family is a "nuclear" one, with only the married couple and their immediate children living in a separate house or apartment. They probably have not lived there very long and may contemplate moving again soon. Chances are

that no relatives live with them—or even close by—and that they are not really "involved" with their friends and neighbors. The result is that the children are dependent for emotional sustenance solely on their single set of parents, and their human experience is thus considerably restricted.

Except in our nostalgic fantasies, the large, tribal, multiparental household or community is a thing of the past. But one day might friends or relatives arbitrarily decide to live together in groups again, sharing expenses, households and parental duties (just as neighbors now trade around baby-sitting chores on occasion)? In Sweden as well as in the U.S. and Canada today a few groups are currently experimenting with such arrangements, and many communes in this country have been trying it. But could this form of tribalism ever really work in our highly mobile, technological society? Far-fetched though the idea may be, it is perhaps not to be dismissed out of hand.

If we were to enter an era when permanent marriages became a rarity and children were raised only by volunteer parents, what would happen to the children when the parents separated? Whose children would they be? Would they be re-assigned to some other group or couple for a while? Or, for stability's sake, would they have to be raised by the state—perhaps in small, familylike units? And in the new era what would be the role of sex? If it were as casual as any other harmless pleasure (assuming the harmlessness of it), what would be wrong with anyone having sex with anyone else for no other reason than their mutual desire? Some people have been saying, in effect, "Good! It's about time sex was devalued and put in its place. Now maybe people will marry for more sensible reasons." But this kind of freedom could bring about a drastic decline in the quality of sexual experience—as well as a drastic reversal in the roles of both the male and the female.

Such a reversal would give neither sex much to rejoice at. Traditionally the male has been much more free about sex than the female. He was expected to delight in sex, to be the aggressor, the panting pursuer, the sower of wild oats. In the sex act it was the woman who bestowed the favors, the man who won them. The woman treasured her chastity, used it as a lure to marriage. One of the reasons a man married was to assure himself secure possession of a pleasure that was otherwise hard

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to get. The woman submitted to his passion as her wifely duty.

Women have increasingly emancipated themselves from this mystique. They hear and read a great deal about the female orgasm, what a monumental experience it can and should be, their inalienable right to intense and frequent sexual pleasure—yea, even into their 70s and 80s. We now know that the sexual needs of women are at least as great as those of men, and that the female climax is more intense and longer-lasting.

The male sexual capacity, despite the Casanovas and Don Juans of history, seems to be essentially more limited than the female's and his need more easily satisfied. It will be satisfied even more easily if the female goes on the prowl. He will not have to pursue at all. Soon, in fact, he may find himself fleeing as opportunities surpass his ability to deal with them.

The woman, who formerly competed for males as marriage partners, may find herself competing for them as sexual partners. She will have become the aggressive pursuer of coy, hesitant males (even if the coyness and hesitancy are due merely to satiation—or to boredom with a commodity so totally available). Even today, as a woman grows older, she finds there are fewer and fewer men to go round. (For one thing, they tend to die earlier than women do.) With so many enhanced opportunities for dissipation, the men may begin to wear out even sooner. To preserve them longer, women—especially if they can begin to have their babies without having to carry them, thus freeing them from their ancient bondage—may wind up working while the more delicate male stays home and takes care of himself. And as the supply of available males dwindled in a world where sexual satisfaction was every woman's right, what would women do? Would there be a return of polyandry? Would they turn to each other?

However it all went, the concept of adultery would disappear, words like "premarital" and "extramarital" would become meaningless, and no one would think of attaching a label like "promiscuity" to sex activities. After all, why not be as free to experiment with a variety of sexual partners as with a variety of foods and restaurants? Love, marriage and the family have been around a long time and have served us very well.

But it is clear that they may not survive the new era unless we really want them to.

Whatever our attitude, a more liberalized sexuality does seem to be here to stay, and it finally seems to be established, even among many churchmen, that sex is, or ought to be, a good and joyous thing. In this atmosphere most authorities tend to agree with the judgment of Dr. Joseph Fletcher, an Episcopal theologian: "It is doubtful that love's cause is helped by any of the sex laws that try to dictate sexual practices for consenting adults." It looks very much as if we will have to abandon our old habit of insisting that sex must serve the same purpose for everyone, or even for the same person at different times of his life.

As long as sex is practiced in private between fully consenting adults who do no physical harm to one another, is it really a matter for the police or for criminal statutes?

A good many authorities have suggested that it might help, too, if we stopped thinking of sex as consisting only of intercourse, if we thought, instead, of sex as something a person *is* rather than something he *does*, as something incidental to his or her total sexuality—that is, to all the experiences and all the thoughts, from childhood to old age, that have contributed to his or her maleness or femaleness. Sexual feeling does not, after all, invariably or even usually involve only sexual intercourse; rather, it involves a whole range of attitudes and actions, from a mother's tenderness to a father's pride in the development of a child.

A man of our time, feeling overburdened by his confusions and responsibilities, might see distinct advantages in the more carefree kind of world that the new biology could make feasible. He might even envy his imaginary counterpart in one of the possible societies of the not-too-far-off future—a man grown *in vitro*, say, and raised by a state nursery. Such a man, it is true, might never know who his genetic parents were, nor would he have any brothers or sisters he could call his own. On the other hand, if he considered all men his brothers, what need would he have for a few specifically designated siblings who happened to be born in the same household? Think how carefree he might be:

no parents to feel guilty about neglecting, no parental responsibilities of his own, no marriage partner to whom he owes fidelity—free to play, work, create, pursue his pleasures. In our current circumstances the absence of a loved one saddens us, and death brings terrible grief. Think how easily the tears could be wiped away if there were no single "loved one" to miss that much—or if that loved one were readily replaceable by any of several others.

And yet if you (the hypothetical *in vitro* man) did not miss anyone very much, neither would anyone miss you very much. Your absence would cause little sadness, your death little grief. You too would be readily replaceable.

A man needs to be needed. Who, in the new era, would need you? Would your mortality not weigh upon you even more heavily, though your life span were doubled or tripled?

"Which of us has known his brother?" wrote Thomas Wolfe. "Which of us has looked into his father's heart? Which of us has not remained forever prison-pent? Which of us is not forever a stranger and alone?"

The aloneness many of us feel on this earth is assuaged, more or less effectively, by the deep and abiding relationships we have with other human beings—with our parents, our children, our brothers and sisters, our wives, husbands, sweethearts, lovers, closest friends. These relationships are not always as close as we would like them to be, and communication is often distressingly difficult. Yet there is always the hope that each man and woman who seeks this special warmth will eventually find it.

But in the *in vitro* world, the tissue-culture world, even this hope might be difficult to sustain. Could society devise adequate substitutes? Could the trans-humans of post-civilization survive without love as we have known it in the institutions of marriage and the family? If each of us is "forever a stranger and alone" here and now,

then how much more strange, how much more alone, would one feel in a world where we belong to no one, and no one belongs to us?

TURN THE PAGE FOR THE LIFE POLL