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# THE DESCENT OF WOMAN

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*One*

# THE MAN-MADE MYTH

According to the Book of Genesis, God first created man. Woman was not only an afterthought, but an amenity. For close on two thousand years this holy scripture was believed to justify her subordination and explain her inferiority; for even as a copy she was not a very good copy. There were differences. She was not one of His best efforts.

There is a line in an old folk song that runs: "I called my donkey a horse gone wonky." Throughout most of the literature dealing with the differences between the sexes there runs a subtle underlying assumption that woman is a man gone wonky; that woman is a distorted version of the original blueprint; that they are the norm, and we are the deviation.

"It might have been expected that when Darwin came along and wrote an entirely different account of *The Descent of Man*, this assumption would have been eradicated, for Darwin didn't believe she was an afterthought: he believed her origin was at least contemporaneous with man's. It should have led to some kind of breakthrough in the relationship between the sexes. But it didn't."

"Almost at once men set about the congenial and fascinating task of working out an entirely new set of reasons why woman was manifestly inferior and irreversibly subordinate, and they have been happily engaged on this ever since. Instead of theology they use biology, and ethology, and primatology, but they use them to reach the same conclusions."

They are now prepared to debate the most complex problems of economic reform not in terms of the will of God, but in terms of the sexual behavior patterns of the cichlid fish; so that if a woman claims equal pay or the right to promotion there is

usually an authoritative male thinker around to deliver a brief homily on hormones, and point out that what she secretly intends by this, and what will inevitably result, is the "psychological castration" of the men in her life.

Now, that may look to us like a stock piece of emotional blackmail—like the woman who whimpers that if Sonny doesn't do as she wants him to do, then Mother's going to have one of her nasty turns. It is not really surprising that most women who are concerned to win themselves a new and better status in society tend to sheer away from the whole subject of biology and origins, and hope that we can ignore all that and concentrate on ensuring that in the future things will be different.

I believe this is a mistake. The legend of the jungle heritage and the evolution of man as a hunting carnivore has taken root in man's mind as firmly as Genesis ever did. He may even genuinely believe that equal pay will do something terrible to his gonads. He has built a beautiful theoretical construction, with himself on the top of it, buttressed with a formidable array of scientifically authenticated facts. We cannot dispute the facts. We should not attempt to ignore the facts. What I think we can do is to suggest that the currently accepted interpretation of the facts is not the only possible one.

I have considerable admiration for scientists in general, and evolutionists and ethologists in particular, and though I think they have sometimes gone astray, it has not been purely through prejudice. Partly it is due to sheer semantic accident—the fact that "man" is an ambiguous term. It means the species; it also means the male of the species. If you begin to write a book about man or conceive a theory about man you cannot avoid using this word. You cannot avoid using a pronoun as a substitute for the word, and you will use the pronoun "he" as a simple matter of linguistic convenience. But before you are halfway through the first chapter a mental image of this evolving creature begins to form in your mind. It will be a male image, and he will be the hero of the story: everything and everyone else in the story will relate to him.

All this may sound like a mere linguistic quibble or a piece of feminist petulance. If you stay with me, I hope to convince you it's neither. I believe the deeply rooted semantic confusion between "man" as a male and "man" as a species has been fed back into and vitiated a great deal of the speculation that goes on about the origins, development, and nature of the human race.

A very high proportion of the thinking on these topics is androcentric (male-centered) in the same way as pre-Copernican thinking was geocentric. It's just as hard for man to break the habit of thinking of himself as central to the species as it was to break the habit of thinking of himself as central to the universe. He sees himself quite unconsciously as the main line of evolution, with a female satellite revolving around him as the moon revolves around the earth. This not only causes him to overlook valuable clues to our ancestry, but sometimes leads him into making statements that are arrant and demonstrable nonsense.

The longer I went on reading his own books about himself, the more I longed to find a volume that would begin: "When the first ancestor of the human race descended from the trees, she had not yet developed the mighty brain that was to distinguish her so sharply from all other species. . . ."

Of course, she was no more the first ancestor than he was —but she was no *less* the first ancestor, either. She was there all along, contributing half the genes to each succeeding generation. Most of the books forget about her for most of the time. They drag her onstage rather suddenly for the obligatory chapter on Sex and Reproduction, and then say: "All right, love, you can go now," while they get on with the real meaty stuff about the Mighty Hunter with his lovely new weapons and his lovely new straight legs racing across the Pleistocene plains. Any modifications in her morphology are taken to be imitations of the Hunter's evolution, or else designed solely for his delectation.

Evolutionary thinking has been making great strides lately. Archeologists, ethologists, paleontologists, geologists, chemists, biologists, and physicists are closing in from all points of the

compass on the central area of mystery that remains. For despite the frequent triumph dances of researchers coming up with another jawbone or another statistic, some part of the miracle is still unaccounted for. Most of their books include some such phrase as: ". . . the early stages of man's evolutionary progress remain a total mystery." "Man is an accident, the culmination of a series of highly improbable coincidences. . . ." "Man is a product of circumstances special to the point of disbelief." They feel there is still something missing, and they don't know what.

The trouble with specialists is that they tend to think in grooves. From time to time something happens to shake them out of that groove. Robert Ardrey tells how such enlightenment came to Dr. Kenneth Oakley when the first Australopithecus remains had been unearthed in Africa: "The answer flashed without warning in his own large-domed head: 'Of course we believed that the big brain came first! We assumed that the first man was an Englishman!' " Neither he, nor Ardrey in relating the incident, noticed that he was still making an equally unconscious, equally unwarrantable assumption. One of these days an evolutionist is going to strike a palm against his large-domed head and cry: "Of course! We assumed the first human being was a man!"

First, let's have a swift recap of the story as currently related, for despite all the new evidence recently brought to light, the generally accepted picture of human evolution has changed very little.

Smack in the center of it remains the Tarzanlike figure of the prehominid male who came down from the trees, saw a grassland teeming with game, picked up a weapon, and became a Mighty Hunter.

Almost everything about us is held to have derived from this. If we walk erect it was because the Mighty Hunter had to stand tall to scan the distance for his prey. If we lived in caves it was because hunters need a base to come home to. If we

learned to speak it was because hunters need to plan the next safari and boast about the last. Desmond Morris, pondering on the shape of a woman's breasts, instantly deduces that they evolved because her mate became a Mighty Hunter, and defends this preposterous proposition with the greatest ingenuity. There's something about the Tarzan figure which has them all mesmerized.

I find the whole yarn pretty incredible. It is riddled with mysteries, and inconsistencies, and unanswered questions. Even more damning than the unanswered questions are the questions that are never even asked, because, as Professor Peter Medawar has pointed out, "scientists tend not to ask themselves questions until they can see the rudiments of an answer in their minds." I shall devote this chapter to pointing out some of these problems before outlining a new version of the Naked Ape story which will suggest at least possible answers to every one of them, and fifteen or twenty others besides.

The first mystery is, "What happened during the Pliocene?"

There is a wide acceptance now of the theory that the human story began in Africa. Twenty million years ago in Kenya, there existed a flourishing population of apes of generalized body structure and of a profusion of types from the size of a small gibbon up to that of a large gorilla. Dr. L.S.B. Leakey has dug up their bones by the hundred in the region of Lake Victoria, and they were clearly doing very well there at the time. It was a period known as the Miocene. The weather was mild, the rainfall was heavier than today, and the forests were flourishing. So far, so good.

Then came the Pliocene drought. Robert Ardrey writes of it: "No mind can apprehend in terms of any possible human experience the duration of the Pliocene. Ten desiccated years were enough, a quarter of a century ago, to produce in the American Southwest that maelstrom of misery, the dust bowl. To the inhabitant of the region the ten years must have seemed endless. But the African Pliocene lasted twelve million."

On the entire African continent no Pliocene fossil bed has

ever been found. During this period many promising Miocene ape species were, not surprisingly, wiped out altogether. A few were trapped in dwindling pockets of forest and when the Pliocene ended they reappeared as brachiating apes—specialized for swinging by their arms.

Something astonishing also reappeared—the Australopithecines, first discovered by Professor Raymond Dart in 1925 and since unearthed in considerable numbers by Dr. Leakey and others.

Australopithecus emerged from his horrifying twelve-million-year ordeal much refreshed and improved. The occipital condyles of his skull suggest a bodily posture approaching that of modern man, and the orbital region, according to Sir Wilfred le Gros Clark, has "a remarkably human appearance." He was clever, too. His remains have been found in the Olduvai Gorge in association with crude pebble tools that have been hailed as the earliest beginning of human culture. Robert Ardrey says: "We entered the [Pliocene] crucible a generalized creature bearing only the human potential. We emerged a being lacking only a proper brain and a chin. What happened to us along the way?" The sixty-four-thousand-dollar question: "What happened to them? Where did they go?"

Second question: "Why did they stand upright?" The popular versions skim very lightly over this patch of thin ice. Desmond Morris says simply: "With strong pressure on them to increase their prey-killing prowess, they became more upright—fast, better runners." Robert Ardrey says equally simply: "We learned to stand erect in the first place as a necessity of the hunting life."

But wait a minute. We were quadrupeds. These statements imply that a quadruped suddenly discovered that he could move faster on two legs than on four. Try to imagine any other quadruped discovering that—a cat? a dog? a horse?—and you'll see that it's totally nonsensical. Other things being equal, four legs are bound to run faster than two. The bipedal development was violently unnatural.

Stoats, gophers, rabbits, chimpanzees, will sit or stand bipedally to gaze into the distance, but when they want speed they have sense enough to use all the legs they've got. The only quadrupeds I can think of that can move faster on two legs than four are things like kangaroos—and a small lizard called the Texas boomer, and he doesn't keep it up for long. The secret in these cases is a long heavy counterbalancing tail which we certainly never had. You may say it was a natural development for a primate because primates sit erect in trees—but *was* it natural? Baboons and macaques have been largely terrestrial for millions of years without any sign of becoming bipedal.

George A. Bartholomew and Joseph B. Birdsell point out: ". . . the extreme rarity of bipedalism among animals suggests that it is inefficient except under very special circumstances. Even modern man's unique vertical locomotion when compared to that of quadrupedal mammals, is relatively ineffective. . . . A significant nonlocomotor advantage must have resulted."

What was this advantage? The Tarzanists suggest that bipedalism enabled this ape to race after game while carrying weapons—in the first instance, presumably pebbles. But a chimp running off with a banana (or a pebble), if he can't put it in his mouth, will carry it in one hand and gallop along on the others, because even *three* legs are faster than two. So what was our ancestor supposed to be doing? Shambling along with a rock in each hand? Throwing boulders that took two hands to lift?

No. There must have been a pretty powerful reason why we were constrained over a long period of time to walk about on our hind legs *even though it was slower.* We need to find that reason.

Third question: How did the ape come to be using these weapons, anyway? Again Desmond Morris clears this one lightly, at a bound: "With strong pressure on them to increase their prey-killing prowess . . . their hands became strong efficient weapon-holders." Compared to Morris, Robert Ardrey is ob-

sessed with weapons, which he calls "mankind's most significant cultural endowment." Yet his explanation of how it all started is as cursory as anyone else's: "In the first evolutionary hour of the human emergence we became sufficiently skilled in the use of weapons to render redundant our natural primate daggers" (i.e., the large prehominid canine teeth).

But wait a minute—how? and why? Why did one, and only one, species of those Miocene apes start using weapons? A cornered baboon will fight a leopard; a hungry baboon will kill and eat a chicken. He could theoretically pick up a chunk of flint and forget about his "natural primate daggers," and become a Mighty Hunter. He doesn't do it, though. Why did we? Sarel Eimerl and Irven de Vore point out in their book *The Primates:*

"Actually, it takes quite a lot of explaining. For example, if an animal's normal mode of defense is to flee from a predator, it flees. If its normal method of defense is to fight with its teeth, it fights with its teeth. It does not suddenly adopt a totally new course of action, such as picking up a stick or a rock and throwing it. The idea would simply not occur to it, and even if it did, the animal would have no reason to suppose that it would work."

Now primates do acquire useful tool-deploying habits. A chimpanzee will use a stick to extract insects from their nests, and a crumpled leaf to sop up water. Wolfgang Köhler's apes used sticks to draw fruit toward the bars of their cage, and so on.

But this type of learning depends on three things. There must be leisure for trial-and-error experiment. The tools must be either in unlimited supply (a forest is full of sticks and leaves) or else in *exactly the right place.* (Even Köhler's brilliant Sultan could be stumped if the fruit was in front of him and a new potential tool was behind him—he needed them both in view at the same time.) Thirdly, for the habit to stick, the same effect must result from the same action every time.

Now look at that ape. The timing is wrong—when he's faced with a bristling rival or a charging cat or even an escaping

prey, he won't fool around inventing fancy methods. A chimp sometimes brandishes a stick to convey menace to an adversary, but if his enemy keeps coming, he drops the stick and fights with hands and teeth. Even if we postulate a mutant ape cool enough to think, with the adrenalin surging through his veins, "There must be a better way than teeth," he still has to be lucky to notice that right in the middle of the primeval grassland there happens to be a stone of convenient size, precisely between him and his enemy. And when he throws it, he has to score a bull's-eye, first time and every time. Because if he failed to hit a leopard he wouldn't be there to tell his progeny that the trick only needed polishing up a bit; and if he failed to hit a springbok he'd think: "Ah well, that obviously doesn't work. Back to the old drawing board."

No. If it had taken all that much luck to turn man into a killer, we'd all be still living on nut cutlets.

A lot of Tarzanists privately realize that their explanations of bipedalism and weapon-wielding won't hold water. They have invented the doctrine of "feedback," which states that though these two theories are separately and individually nonsense, together they will just get by. It is alleged that the ape's bipedal gait, however unsteady, made him a better rock thrower (why?) and his rock throwing, however inaccurate, made him a better biped. (Why?) Eimerl and de Vore again put the awkward question: Since chimps can both walk erect and manipulate simple tools, "why was it only the hominids who benefited from the feed-back?" You may well ask.

Next question: Why did the naked ape become naked?

Desmond Morris claims that, unlike more specialized carnivores such as lions and jackals, the ex-vegetarian ape was not physically equipped to "make lightning dashes after his prey." He would "experience considerable overheating during the hunt, and the loss of body hair would be of great value for the supreme moments of the chase."

This is a perfect example of androcentric thinking. There were two sexes around at the time, and I don't believe it's ever

been all that easy to part a woman from a fur coat, just to save the old man from getting into a muck-sweat during his supreme moments. What was supposed to be happening to the female during this period of denudation?

Dr. Morris says: "This system would not work, of course, if the climate was too intensely hot, because of damage to the exposed skin." So he is obviously dating the loss of hair later than the Pliocene "inferno." But the next period was the turbulent Pleistocene, punctuated by mammoth African "pluvials," corresponding to the Ice Ages of the north. A pluvial was century after century of torrential rainfall; so we have to picture our maternal ancestor sitting naked in the middle of the plain while the heavens emptied, needing both hands to keep her muddy grip on a slippery, squirming, equally naked infant. This is ludicrous. It's no advantage to the species for the Mighty Hunter to return home safe and cool if he finds his son's been dropped on his head and his wife is dead of hypothermia.

This problem could have been solved by dimorphism—the loss of hair could have gone further in one sex than the other. So it did, of course. But unfortunately for the Tarzanists it was the stay-at-home female who became nakedest, and the overheated hunter who kept the hair on his chest.

Next question: Why has our sex life become so involved and confusing?

The given answer, I need hardly say, is that it all began when man became a hunter. He had to travel long distances after his prey and he began worrying about what the little woman might be up to. He was also anxious about other members of the hunting pack, because, Desmond Morris explains, "if the weaker males were going to be expected to cooperate on the hunt, they had to be given more sexual rights. The females would have to be more shared out."

Thus it became necessary, so the story goes, to establish a system of "pair bonding" to ensure that couples remained faithful for life. I quote: "The simplest and most direct method

of doing this was to make the shared activities of the pair more complicated and more rewarding. In other words, to make sex sexier."

To this end, the Naked Apes sprouted ear lobes, fleshy nostrils, and everted lips, all allegedly designed to stimulate one another to a frenzy. Mrs. A.'s nipples became highly erogenous, she invented and patented the female orgasm, and she learned to be sexually responsive at all times, even during pregnancy, "because with a one-male–one-female system, it would be dangerous to frustrate the male for too long a period. It might endanger the pair bond." He might go off in a huff, or look for another woman. Or even refuse to cooperate on the hunt.

In addition, they decided to change over to face-to-face sex, instead of the male mounting from behind as previously, because this new method led to "personalized sex." The frontal approach means that "the incoming sexual signals and rewards are kept tightly linked with the identity signals from the partner." In simpler words, you know who you're doing it with.

This landed Mrs. Naked Ape in something of a quandary. Up till then, the fashionable thing to flaunt in sexual approaches had been "a pair of fleshy, hemispherical buttocks." Now all of a sudden they were getting her nowhere. She would come up to her mate making full-frontal identity signals like mad with her nice new earlobes and nostrils, but somehow he just didn't want to know. He missed the fleshy hemispheres, you see. The position was parlous, Dr. Morris urges. "If the female of our species was going to successfully shift the interest of the male round to the front, evolution would have to do something to make the frontal region more stimulating." Guess what? Right the first time: she invested in a pair of fleshy hemispheres in the thoracic region and we were once more saved by the skin of our teeth.

All this is good stirring stuff, but hard to take seriously. Wolf packs manage to cooperate without all this erotic paraphernalia. Our near relatives the gibbons remain faithful for

life without "personalized" frontal sex, without elaborate erogenous zones, without perennial female availability. Why couldn't we?

Above all, since when has increased sexiness been a guarantee of increased fidelity? If the naked ape could see all this added sexual potential in his own mate, how could he fail to see the same thing happening to all the other females around him? What effect was that supposed to have on him, especially in later life when he noticed Mrs. A.'s four hemispheres becoming a little less fleshy than they used to be?

We haven't yet begun on the unasked questions. Before ending this chapter I will mention just two out of many.

First: If female orgasm was evolved in our species for the first time to provide the woman with a "behavioral reward" for increased sexual activity, why in the name of Darwin has the job been so badly bungled that there have been whole tribes and whole generations of women hardly aware of its existence? Even in the sex-conscious U.S.A., according to Dr. Kinsey, it rarely gets into proper working order before the age of about thirty. How could natural selection ever have operated on such a rickety, unreliable, late-developing endowment when in the harsh conditions of prehistory a woman would be lucky to survive more than twenty-nine years, anyway?

Second: Why in our species has sex become so closely linked with aggression? In most of the higher primates sexual activity is the one thing in life which is totally incompatible with hostility. A female primate can immediately deflect male wrath by presenting her backside and offering sex. Even a male monkey can calm and appease a furious aggressor by imitating the gesture. Nor is the mechanism confined to mammals. Lorenz tells of an irate lizard charging down upon a female painted with male markings to deceive him. When he got close enough to realize his mistake, the taboo was so immediate and so absolute that his aggression went out like a light, and being too late to stop himself he shot straight up into the air and turned a back somersault.

Female primates admittedly are not among the species that can count on this absolute chivalry at all times. A female monkey may be physically chastised for obstreperous behavior; or a male may (on rare occasions) direct hostility against her when another male is copulating with her; but between the male and female engaged in it, sex is always the friendliest of interactions. There is no more hostility associated with it than with a session of mutual grooming.

How then have sex and aggression, the two irreconcilables of the animal kingdom, become in our species alone so closely interlinked that the words for sexual activity are spat out as insults and expletives? In what evolutionary terms are we to explain the Marquis de Sade, and the subterranean echoes that his name evokes in so many human minds?

Not, I think, in terms of Tarzan. It is time to approach the whole thing again right from the beginning: this time from the distaff side, and along a totally different route.

and is found in many diving mammals, even fresh water ones such as beaver and coypu. It is also found in Homo sapiens. When a man dives, his heartbeat slows down—not by any means as dramatically as a seal's, yet undoubtedly in human beings such a mechanism at some stage did at least begin to evolve. How, and when, and why? These things don't happen overnight.

Some people rejected the aquatic theory because of the problem of the primate's baby, born so immature and helpless. Children three or four years old have been known to drown in a couple of feet of water. How could an aquatic ape ever survive the hazards of those first tender years? But now we read of Hollywood's water babies, film stars' tots dogpaddling merrily around swimming pools before they can even walk. Admittedly they are carefully coached by experts. What would happen if they weren't?

Anthony Storr provides us with the answer:

"The pioneer doctors who started the Peckham Health Centre discovered that quite tiny children could be safely left in the sloping shallow end of a swimming bath. Provided no adult interfered with them, they would teach themselves to swim, exploring the water gradually and never venturing beyond the point at which they began to feel unsafe." If the prehominid's babies could do this, that Pliocene beach was the safest place for them in the whole of Africa.

The fact is that the Tarzanists, as well as forgetting the females, are constantly forgetting about the infants. It is many months before an anthropoid baby can be left alone. Its mother's existence is viable only because its fingers are strong enough almost from birth to cling onto her fur and so leave her four limbs free for going about her business. In such a perilous place as the open grassland she would need that freedom more than ever; more than ever the infant would need not only its tight grip but something to cling to. The naked baby of a naked anthropoid would never have survived.

Only in the sea could the mother afford to dispense with her fur. The baby would have very few enemies in those four-foot shallows. Leopards don't come so far into the sea, nor sharks so near to the land. The child soon gets used to the water and once in he's mobile and comparatively weightless. All he needs by way of reassurance and support is to hang on, when he gets tired, to that part of his mother remaining above water, which is of course her scalp, so from that area of her skin the hair has never disappeared.

Professor Hardy explains the hair on our heads by saying that since only our heads remained above water, exposed to the sun, the hair remained to protect us from its rays. Other evolutionists, if they explain it at all, usually dump it onto the miscellaneous heap of unique human features labeled "for sexual attraction"—a safe and lazy solution, since there are very few physical features which somebody at some time hasn't found sexually stimulating.

I feel that even protection against the sun is not a totally adequate explanation. If the hair was for this purpose it is true it would not have disappeared: it might have grown thick and tufty, as in many African tribes of course it is. But this theory leaves two things unexplained: the maiden with long flowing locks and the bald man.

In some populations of the ape there must have arisen, by mutation, the phenomenon of long hair on the head—a new departure for an ape. And the mutation must have proved adaptive. Why? I have seen this explained as a consequence of a move north or an Ice Age—protection against the cold. But this will not do. Cold is most acute when wind is blowing, and Jeannie's light brown hair, "floating like a zephyr" on the breeze, would not have kept her body warm. The fact is that when monkeys from a warm climate are moved to northern zoos like Moscow's, they adapt by growing thicker hair all over their bodies. Climate might serve to explain the hairy Ainu, but not long tresses alone. Even for an aquatic ape, there must have

been some advantage to outweigh the nuisance of its sometimes getting into the eyes, and taking so long to dry when its owner went ashore to sleep.

However, it would be a powerful advantage for a baby if its mother's hair was long enough for his fingers to twine into; and if the hair floated around her for a yard or so on the surface he wouldn't have to make so accurate a beeline in swimming toward her when he wanted a rest. It would also explain the piece of dimorphism that nobody else has plausibly accounted for: in communities where the males took no part in the bringing up of the offspring there would be nothing to prevent their heads going as bald as their bodies, so long as this development remained sex-linked. Junior wouldn't mind Daddy's head being smooth and slippery because in the water, just as formerly in the trees, his mother was the one he hung on to.

There is one even more cogent reason for believing that the hair on a woman's head evolved for the benefit of her offspring rather than for the enticement of her mate. In the later stage of pregnancy it still happens that the proportion of thin hairs on her scalp becomes relatively smaller and the proportion of thick hairs relatively greater. The later stage of pregnancy is not a time when she has any particular reason to acquire extra sexual allure, and anyway the total visual effect is negligible. But as providing a safer temporary anchorage for a baby treading water, the development makes very good sense.

While we're on babies, let's take another look at breasts. A chimp suckles its young quite successfully with a pair of skinny little nipples located on a fairly flat pectoral surface, and there is no immediately apparent reason why the naked ape couldn't have done the same. But women are different; and the strongly favored androcentric theory is that the difference is an esthetic improvement, and that it evolved as some sort of sexual stimulus.

This is essentially a circular argument. "I find this attribute sexy: therefore it must have evolved in order that I might find it sexy." It's like saying that a woman walks with a wiggle

because this is attractive to a male. In fact, she only walks with a wiggle because her children are so intelligent. The necessity of passing a large-skulled infant's head through her pelvic ring has prevented her skeleton from adapting to bipedalism quite as gracefully as that of her brothers; and males only find this defect attractive because they associate it with femininity.

Surely, if you are considering a process as strictly functional as lactation, and you notice a modification in the arrangements for it, it would be reasonable to think about the primary beneficiary of the process—namely, the baby—rather than trying to relate it to the child's father's occupation.

So—imagine now that you are this anthropoid baby. You're having a whale of a time splashing around in the water, but after a while you get peckish. You pull your mother's hair and start bawling in her ear, so that she will come out of the water to feed you. A whale can squirt milk out to its pup rather like an aerosol container; but, as aquatic animals go, the whale is a pro and your mother is strictly in the beginners' class. Once or twice, being lazy or finding the rocks rather hard for sitting on, she's urged you to feed in the water, but there were waves, and your big brothers kept horsing around, and you swallowed great gulps of sea water and got terrible tummy upsets, so now she takes you ashore for the ten-o'clock feed. She wades up the beach, sits up straight with water dripping out of her mermaid locks, holds you on her lap in the most natural position, with your head resting comfortably in the crook of her arm, and then relaxes and gazes absently out to sea, expecting you to get on with it as you and your kind have done from time immemorial.

But now, as the astronauts put it, you have a problem here. What the stupid woman fails to realize is that things have changed. There isn't any fur. If you let your head lie in the crook of her arm, the milk is high up out of reach. You have to hoist your torso into an erect position, and try to balance your head and somehow keep your lips clamped to this chimp-sized nipple of hers, and don't think it's easy. Your arms are too short to go around her waist, and if you scrabble around try-

ing to get a purchase on something, there's nothing there but a faintly corrugated surface of slippery wet ribs. If she's a good type she will hold you up higher and help you, but she gets fed up with this much sooner because it takes more concentration and makes her arm ache, and any dairyman will tell you a milk producer won't give down properly if she's uncomfortable or irritated.

So you really need two things: you need the nipple brought down quite a bit lower, and you need a lump of something less bony, something pliant and of a convenient size for small hands to grab hold of while you lie on her lap and guide your lips to the right place. Or, alternatively, guide the right place into your lips. And since you are what evolution is all about, what you need you ultimately get. You get two lovely pendulous dollopy breasts, as easy to hold on to as a bottle, and you're laughing.

Because of this new shape, and the fact that subcutaneous fat was being laid down all over her body at the time, a fair amount of this insulatory material naturally became concentrated in the breasts. And as Lila Leibowitz pointed out to the Northeastern Anthropological Association, the fat layer had other advantages—it cushioned the more fragile subtissue, it helped to keep the milk warm, and it stored reserve nutrients.

I don't think that in primitive conditions the form was typically hemispherical. In young females they would necessarily pass through a stage when they could be so described, and today, in civilized conditions, with high-protein feeding, and school physical training, and sexual selection for the Adolescent Look, and birth control, and well-cut brassieres, they may be coaxed into remaining that shape for quite a long time. But that's a form of neoteny—it's not the way they were originally designed, as any anthropological travelogue will amply confirm. Most men regard them as intrinsically hemispherical, but that's because whenever they imagine they are thinking about *mulier sapiens*, what they are really thinking about is the Miss World contest.

So far so good. We have a possible explanation of the Raquel Welch phenomenon in this theory of the baby deprived of a

handhold. It would be greatly strengthened if we could find an animal parallel, just as the shellfish/pebble-tool theory was strengthened by finding the sea otter. It would be nice to track down another mammal who went into the water, and found things happening to her vital statistics.

The trouble with aquatic animals is that some of them have been there so long that it's impossible to know where or how they lived before they went back to the sea. They've become as streamlined as fish. Nobody, for instance, can make a guess at the shape or habits of the unimaginable quadruped that lumbered down some prehistoric beach and began to turn into a whale (though we have reason to believe it was actually quite small).

However, it is a fact that the only nonhuman pneumatically breasted females I have been able to trace happen to be aquatic. They are the sirenians (or sea cows), that rare class of marine animals which includes the dugong and the manatee, both credited with being the original "mermaid."

Each of them has been widely reported and believed to suckle while floating upright in the water holding its single offspring in its flippers. I haven't managed to find any reliable contemporary eyewitness account of this, but that may be because they are getting very rare, and their only close relative, the massive but inoffensive Rhytina—Steller's sea cow—was subjected to a campaign of systematic slaughter and is extinct. (Or let us say, since some vague rumors of a sighting drifted out of the Russian Arctic a few years back, almost certainly extinct.)

As to their statistics, the director of the Marine Biological Station at Al Ghardaqah describes the dugong as possessing a pair of "well-developed pectoral breasts." Steller wrote of the Rhytina: "That they produce only one pup is concluded from the shortness of the teats and the number of the breasts"—which were two and pectoral.

The manatee is known colloquially in Guyana, according to David Attenborough, as the "water-mamma"; and Colin Bertram writes of it: "The breasts are indeed a single pair and pectoral, as

in man. . . . In the manatee the teat seems to be almost on the actual hinder edge of the thick flipper just where it joins the body." He points out that it would be impossible to tag a manatee by clipping a marker to the base of its flipper, as is done with seals, because the breast would be in the way; and he mentions that when the manatee is lactating the gland is "large and shapely."

So far the theory holds up. But is there any evidence that there was ever a time when they (and their offspring) had hands? I admit that the word "manatee" has no connection with the Latin *manus*, a hand. But it is interesting to note that more than one keen observer, knowing more about zoology than etymology, has made the immediate assumption on looking at that jointed flat-nailed flipper that the creature must have been called manatee because of its hands.

The manatee's ancestor, of course, was nothing like a primate. It was certainly a land animal: it has the skeleton, the lungs, the vestigial hairs, to prove it. It is tempting to think of it as somewhat resembling the ancestor of her geographical neighbor the South American sloth, which must at one time have run along the branches before (like the orang) it grew too big and began to suspend itself underneath them instead. It is particularly tempting since the sloth wears her teats in the same eccentric position as the manatee—namely, under her armpits—and since the manatee and the two-toed sloth are the only two mammals in the whole of creation with six bones in their necks instead of seven.

But the taxonomists tell us that the sloth itself is not one of the sea cow's nearest living relatives. They are a small bizarrely assorted group and give us no help at all in trying to reconstruct a common ancestor. One is, improbably, the elephant. The second is a rabbitlike creature dwelling in holes in the rocks and referred to in the Bible as a "cony." The last is a small arboreal creature, the tree hyrax.

All we know for certain is that there must have been some ecological crisis (like the Pliocene for us) which induced the

sea cow to leave her former habitat and take to the water; that the pectoral placing of the teats evolves most plausibly and most frequently in animals which at one time sat upright in trees; and that she has retained through all vicissitudes a vague instinct that her forelimbs were once for holding on with because she holds on to her infant with them, so that there might have been a time before she lost her fur, and when she still sat up on the beach to suckle him, when her infant likewise used his for holding on to her. If she did indeed leave the trees for the sea she is almost certainly the only creature besides ourselves that ever did so. Only instead of staying there for ten million years she stayed forever, and grew soggy and torpid, and lost her legs and most of the features of her face and degenerated into a great fat ugly six-foot blob of glup.

Poor cow, she's a far cry from Raquel Welch: one good look into those tiny watery eyes, and the mere thought that we might be sisters under the skin would send most of us scuttling hastily back to Tarzan.

It would also make us wonder why on earth those jolly pigtailed seagoing chantey-singing sailors ever took it into their heads to call her "mermaid" and tell tall tales of her fatal magnetism. It can't have been only the rum ration; but we'll return to this problem a little later on.