Senology
(The study of the breast)

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“Senology”, a neologism derived from the Romanic “sano” and the Greek “logos”, is the branch of knowledge concerned with the mamma and the breast, with milk and breast-feeding in the zoological, biological, medical and social sciences, as well as in art and literature. The terms “mammalogy”, “mastology” are kept more for mammals and their mammary glands. The human species is at the top of the mammal class. The breast is more than the mammary gland. Breast-feeding is more than lactation. Gestation-lactation is a part of the preservation and reproduction of the species. Moreover, the presence of breasts is accompanied by other external structural characteristics, such as body hair, fleshy lips, teeth in sockets and internal structural features such as the three ossicles of the ear, the auditory pavilion and, especially, the brain and the cerebellum. The origin of vertebrate mammals, warm-blooded animals, goes back to the end of the primary era, develops in the secondary era with the primitive type such as the kangaroo, changes and expands in the tertiary era: this is the reign of the mammals, following upon that of the giant reptiles. The mammal order provides the best example of evolution and its division into 3 groups is based on gestation-lactation characteristics. The most primitive mammal is oviparous, like the duck-billed platypus which is covered with hair and lays eggs, but suckles its young. This is a transitional stage between reptile-bird and mammal. The earliest species is fed with milk flowing from rudimentary mammary glands without nipples, directly related to sweat glands in folds of the skin. This most outlandish, most enigmatic, egg-laying mammal, is the champion of the unusual.

The marsupial mammal, mostly viviparous, such as the kangaroo and the sarigue, has uterine gestation, but with no placenta. Maturation takes place in the marsupial pouch, where the young cling to a mamilla, distinguished by its position and the composition of its milk.

In placental viviparous mammals where complete embryonic development takes place in the maternal
The breast is assimilated sometimes to the child, sometimes to the mother, to woman as such. The words “mamma”, “maman”, “mamelle” are related. The word “sein” (breast) appeared in France in the late Middle Ages, derived from “sineus”, a rather ambiguous word meaning both “curved” and “hollow”, and also “the edge of a toga”, suggesting the space between the breasts.

In French, the word “sein”, being masculine, is a paradox in itself. Contradictions and ambiguities are met at every step in senology, especially in medicine. In French poetic language, breast and womb are synonymous. These viscera are stages in the two most ancient mother-child relationships. Suckling is both an oral embrace and a skin contact and also a caress triggered by anything round and smooth. From this aerodigestive movement comes the first primitive communication, first a grunt, barely mouthing which, with the combined efforts of mother and child, becomes “mamma”, herding both language and thought. This stage marks the development of the mother tongue, “the language of the gods”, as the Provençal Frédéric Mistral called it. A major problem nowadays, when the idea of motherhood is out of favour, when the mother, dragging her child with her, has thrust herself into the world of men, a world where discord increasingly hinders true communication and human intercourse.

Huddled against his mother’s breast is where the infant learns rhythm, from her breathing and heart-beat. Its first steps in effort are in sucking and squeezing the nipple, in a setting of permitted sensuality. Sucking is accompanied by an exchange of looks between mother and child. It was Honoré de Balzac, a great psychoanalyst, who said “Ah, the language of feet!”.

This gift from the mother, the symbol of exchange, is at the root of all community life. Breast-feeding removes the traumatic memory of labour and of the birth itself, for both mother and child. Man, eternal foetus, eternal suckling infant, the most nest-loving of all animals, spends his life in turn in the pelvic womb, the folds of the breast, in house, farm, school, cathedral, factory, city, hospital, alternately seeking flight and shelter, following the advice of Novalis: “Wed, yet do not wed your house”. He makes his own home, but then he is repelled by it. Do not some mothers say of their babies “He exhausts me”, or of their older children “He kills me”?
A former Rector of Strasbourg, University Professor Angeloz, in his book on Rilke, considers the great German writer’s ideas on the world of woman and child. “He whose mother never showed him the way into the world, will search for it in vain.” The artist seeks in childhood the secret of art, the secret of creation. The idea of death conjures up that of birth in the maternal womb and it is during lactation that the child moves from the outer to an inner world. The destiny of animals and humans is here in this maturation, from birth which tears them from their mother’s lap or keeps them there, then in weaning, that separates them from their mother’s breast. The happiness they experience in life depends on this.

RILKE agrees with KIERKEGAARD in the Greek idea of knowledge as remembrance. All knowledge being remembering, all life is repetition. So the child will forever retain a certain nostalgia for his first few weeks in this paradisiacal environment and will try forever to return to the source of life.

During breast-feeding, all the sensory organs are affected, sight, touch, taste, hearing, smell; and the breast combines the four functions of life: nutrition, relationship, sexuality, development.

The projecting convexity of the mammary organ is for some a symbol of masculinity, just as the clitoris is seen as the remains of the male. The male has a vestige of his mother but his rudimentary mammary glands are, rather, erectile organs. If the life force flows through the penis, as Maurice MERLEAU-PONTY writes, it also flows through the nipple. These mammary spheres also give rise to problems, of shape, beauty, duality and symmetry between right and left. The left breast is often larger in right-handed women. “Left nipple, favourite nipple”, said Clément MAROT. And in the Middle Ages, the left breast was regarded as the breast of evil omen, sin and lust, the breast that was punished in the adulteress.

Depth psychologists have mainly analysed and expanded FREUD’s ideas about woman’s problems, all reduced to the pubic triangle, the concave, the openings of reservoirs and sewers, but true maternity includes both maternity of blood and of milk. Fertilization of the ovule by the spermatozoon may follow copulation between a skinned object and an open wound, but suckling takes place at another, higher level, where gifts are offered. For the artist, “maternity” paintings are breast-feeding scenes. In medicine, modern gynaecology usually confines itself to the female genital organs and passages, leaving the other branches of medicine to share out or argue over the mamma or breast. Obstetrics has confined itself to the fetus and its ballistic expulsion, whilst lactation is often left to the initiative of the young mother, nurses, child welfare visitors, midwives and pediatricians. Now that new branches, such as foetology and neonatology are assuming justified and growing importance in our civilisation, there is hope that senology may, in turn, also become a branch of medicine in its own right, assuming that medicine will agree to fully becoming a part of the human sciences.

“Half a mother to give birth to her child, half a mother to feed her offspring, she cannot be called a complete mother until she has both given birth and fed her child at her own breast”, said MARCUS AURELIUS.

JUVENAL points out that the wool of a young ewe fed by a goat becomes coarser, and MONTAIGNE says: “I think that the worst vices take root in early childhood and that our character lies in the hands of those that suckle us”.

RONSARD adds: “Two mounds of milk, rising and falling, have two nipples heralding youth.”

Alfred de VIGNY wrote in Samson and Delilah: “He will always dream of the warmth of the bosom.”

And Melanie KLEIN, one of FREUD’s early pupils, said: “I have always attached great importance to the child’s very first contacts with outside objects.”

And finally, our contemporary RICOEUR writes: “In man, desire comes before speech.”

Sleep, a return to the security of the maternal breast, follows oral satisfaction and brings dreams: dreams whose backcloth will always be the breast itself, no matter what the dream is about. Procreation, or its equivalents, weighs on the lives of all women: desire to, fear of and refusal to have a child and even remorse in the conjugal, family, social, professional, economic and ethical context.

The breast, before and after childbirth, is the projection of the mother’s mental, neuro-endocrinal, dienecephal and visceral life. The puerperal mammary cycle comprises three phases:

1. Pregnancy: Proliferative phase, i.e. development of the mammary gland itself and the acini-lactiferous duct complex.

2. Lactation: Functional secretory-excretory phase, the acini secretng the milk carried by the ducts to the orifice of the nipple.

3. Weaning: Reabsorption and involution, i.e. a rather slow, virtually but never quite complete return to the previous mammary state.
This puerperal cycle with three phases is typical, but it has equivalents.

— Sometimes a drop of milk appears during the period of detumescence after love making.

— During the menstrual cycle on either side of ovulation, with its initial oestrogen phase and development of ducts, then its progestagen phase with development of the acini.

— Throughout life, from the embryonic development of the gland until puberty, with its discontinuous but important dysfunctions during the child-bearing period, and its slow regression after the menopause, during senescence.

This glandular tissue is buried within adipose, fibrous and mesenchymal tissue with cells and connective tissue. The distribution and relative proportions of these types of tissue, the number of arterial, venous, lymphatic and lactiferous vessels and the incessant disturbances explain why the breast is heterogeneous, individual and why its varieties are countless. This individuality is always to be found in radiographical, histological, tactile and thermographic images, just as it appears in this anatomical, functional and aesthetic study.

Claude BERNARD wrote: "Nature has an ideal type in every species, but this type is never attained. If it were attained, there would be no individual".

Child-bearing in all its stages also shows substitutes, deviations, perversions, such as various ways of kissing, thumb-sucking in children and in women pseudo-pregnancy, lactation and weaning. The mammary gland is the endocrinial target organ par excellence, not only during childbirth, but throughout life. Endocrinology, the interface between chemistry and behaviour, has made great advances where the breast is concerned. The ovarian hormones influence the ducts by means of oestrogen and the acinus extremities by progestagen, these hormones being modulated by the anterior lobe of the pituitary gland, a veritable endocrine brain, by means of gonadotropin messengers. The placenta also plays a part in this endocrine concert, along with the thyroid, the cortico-adrenal gland and the pancreas. This endocrine activity is combined and controlled by means of signals and counter-signals along the cortico-hypothalamo-pituitary axis. The concentration of these chemical messengers varies throughout life from the foetal period until death.

In every animal species endocrine functioning is different in the puerperal period through the distribution of different hormonal activity.

Knowledge of this mammary hormonology is used in the milk industry and in bottle feeding but its relevance to therapy in mammary pathology is still unclear. Diseases of the breast can be divided into 2 main groups:

— Non-cancerous, benign diseases;

— Cancerous, malignant diseases.

The non-cancerous complaints include, as in the case of all organs, infections, traumas, deformities, malformations, all of which, on the whole, are infrequent compared with mastopathies, i.e. conditions bordering on the abnormal and pathological, those dysplastic varieties without specific structures neither cancerous nor infectious nor traumatic by nature. These are unbalanced growth disorders that result in well-established tumours like the adenofibroma in young girls or dilatation of the ducts in young women.

Functional disorders in milk secretion during lactation, absence of milk, or milk secretion outside lactation, cystic diseases and disorders of the subjective psychological kind, of behaviour, premenstrual pain, over-sensitivity of the nipple, refusal to give milk and the wish for removal of the breast may be due to a guilt complex or obsessive cancer-phobia.

These complaints are the most frequent, accounting for 95 out of 100 patients; they are important because they sometimes resemble cancer, especially in the early stages, or because sometimes a cancer is hidden behind a mastopathy. These disorders of the mammary gland are related to numerous hereditary factors: anomaly of the lower cervical column, from whence all the nerves innervating the gland begin, quite often associated with cranial or frontal endostasis in a context of frigidity, sterility, regret at having no children, moving house, divorce, all forms of separation. These mastopathies of course indicate disease in the organ, but also anxiety in the patient. So, in this special symposium, we must search for the most important causes of these anomalies, treat them by non-mutilatory therapy, from sedatives, decongestants, hormone creams and colostrum extract, through comforting words of confidence, sometimes even psychoanalysis. Exeresis of the sclero-cystic lumps is sometimes a worrying possibility.

Just as KOCH's bacillus is not tuberculosis, neither do divorce or distressing separation systematically lead to mammary complaints, breaking the organ's silence. Obviously other factors come into the reckoning. For instance, an alcoholic husband, drunken, violent, impotent, jealous, himself showing signs of gynecomastia, may be the original cause of a secreting type of mastopathy. The problems of alcoholics' wives are complex.

Hypertrophy of the gland in men, i.e. gynecomastia, is due to hepatic and endocrinial disturbance, but can also occur for no known reason. In adolescents it is sometimes associated with psycho-neuro-hormonal disturbances against a background of family discord. Cancerous diseases. Cancer is most frequent in western women, affecting 1 in 20, always on the increase, feared both for itself and out of a dread of mutilatory therapy. The phenomenon of cancer takes the form of unlimited cell growth, resembling that of normal epithelial or connectival cells; anarchic cell-growth uncontrolled in reproduction, in time, hence sometimes fast, sometimes slow and, lastly and most important, malignancy, the swarming of cancer cells or cellular factors, spreading step by step through the lymph, the blood, round about or over greater distances. Cancer cells will colonize the lungs, the brain, the bone and repeat their explosive, anarchic, diabolical, indefinite proliferation, supplanting the organ itself, causing a great variety of pathological conditions.

This spontaneous development is fatal.

The cancerous cell is homologous with the normal cell. At present, apart from its malignant ability
to reproduce indefinitely and colonize, we cannot statistically distinguish the one from the other, the normal from the cancerous. Their individual morphology appears identical by all present-day means of investigation. Their resemblance typifies the drama of cancer. The organism itself is not able to tell one from the other in order to eliminate the destructive cancer cells as it would any foreign body, be it a wood splinter, infectious germ or organ transplant. Because of this homology between cancerous and healthy tissue, or rather between cancerous and healthy cells, there is no major reaction on the part of the organism. Cancer develops insidiously and often does not become apparent until its manifestations have gone beyond the local state at which it can be cured. The treacherous aspects of cancer are, firstly, its spontaneous, irreversible development and, secondly, the organism’s failure to reject it—hence the difficulty of early diagnosis and also the impossibility of therapy if it has spread beyond the main seat of the cancer. The organism itself is incapable of resistance. Present-day medication is not yet sufficiently selective to arrest the growth of cancer cells without endangering healthy cells. Cancer and organ transplants raise the opposite problems of tolerance and rejection.

Hence two large branches of immunology arising out of the study of cancer and organ transplants: maintenance of specificity and individuality of the organism. Substantial progress has been made in recent years both in diagnosis and treatment. The development of safe and accurate, early physical methods of non-surgical exploration, such as thermography, echo- graphy, radiography and aspiration in cytological examination, enables a certain diagnosis to be made for 9 patients out of 10, the tenth having to undergo a surgical biopsy. Hand and eye are always necessary and indispensable, but often insufficient or unable to find anything in the case of small cancers. Progress in our knowledge of cancer through experimenting with mice or at molecular level has shown a close connection between cancerology, genetics, endocrinology and immunology. Cancer thus appears as the greatest distortion of life, since it is bound up with birth, growth and reproduction of a variety of cells. It is the greatest affront to biological harmony. Cancer is revealed by X-rays, by thermography, by means of recordings of ultrasonic echoes and of the distribution of radioactive bodies.

What comes to light is a vision of the invisible, but the visible does not always reveal the essence. Progress has also been made in the psychological field: many metastases are really psychosomatic illnesses. Surgical cancer therapy is based on mastectomy, which is effective.

Recent trends have been both towards increased exeresis, emptying of the amput, supraclavicular fossa and internal mammary gland and towards less exeresis: simple mastectomy or even merely removal of the one cancerous nodule by simple tumorectomy. But, on the whole, the results have changed little over the last few years. Approximately one third of breast-cancer patients are not operated on, due to refusal, very advanced disease, danger of surgery. One third of those who have a breast removed die within a few years. Fewer than one third survive 10 years.

Judicious spatial distribution by choice of radiation, photons externally at 200–1,000 kV or electrons interstitially at 7–25 MV, and by strict dosimetry. Chronological distribution of dose is the only selectivity at our disposal at the present time, to act on cancerous tissue without harming the patient and there is a narrow margin between the risk of non-sterilization and the risk of complications. Today, for some patients, after local and general examination, a tumorectomy followed by radiotherapy produces indisputable results. Similarly, radiotherapy alone can produce cures. But all these breast-cancer therapies require great experience, give rise to numerous difficulties, demand competence and devotion. Other, pharmacodynamic cancer treatments have also made some progress. Hormone therapy, cytostatics, immunotherapy. This pharmacotherapy gives rise to the most difficult problems of internal medicine: its success is unprecedented, but fragmentary, temporary, unpredictable.

The discovery of a cancer while it is still small, about 1 cm, is essential if it is to be cured. "Woman—said Paul ELuard— is a prisoner of her breasts." Sc she should know them better and examine them regularly, one week after her period to look for the slightest anomaly, consult a doctor sooner and so perhaps benefit from effective non-mutilatory therapy.

Finally, computer processing, if an international coding system were generally accepted, would provide accurate information about the value of types of treatment. But breast-cancer patients vary so widely and so many different therapies are employed that no single country can produce significant results, as this requires a number of about 1,000 patients and a time-lag of about 10 years after treatment. In the European Communities, about 60,000 people die of breast cancer.

The generalized use, by means of computer techniques, of precise detailed terminology in diagnostic and therapeutic information is the only way to respect the complete freedom of the therapist despite difficulties due to individualism and to reject inhuman randomization, in order to assess the value of treatment; it is the only way of overcoming the present confusion in order that the suffering of the patients, the self-sacrifice of the doctors, the labours of the research-workers, the participation of the community may not be in vain.

CONCLUSION

The breast, source of life and menace of death, is taboo. A female attribute, yet possessed by man, it is unusual among organs. Expression of beauty and promise of happiness, perhaps the shape of truth, it is the organ of gift exchange and communication. Whom is the breast for? Womar
offers it without losing it, the child seeks it in vain, man always desires it. It reveals woman’s nobility, hides her guile, proclaims her disappointments, records her fears and emotions. It is a witness to civilization. Suckling, that so important stage in life is no longer mammary, maternal. Phryne-ism is on the increase, accentuated by breast-centred eroticism. Happiness pills in the form of tranquillizers, contraceptive pills based on estrogen and progestagen, pills for slimming, prostheses for increasing size, surgical and other means of changing the shape, all these upset both its structure and its function.

If mammary cancer, in molecular terms, is at the crossroads of virology, genetics, endocrinology, immunology, cancer as a whole, as the phenomenon of indefinite, anarchic, metastatic growth, has parallels in the world of industry, where uncontrolled, irreversible growth results in a cancerous world of planet-wide uniformity, ugliness, pollution, death.

The aim of senology is to treat the breast as an integral part of the whole organism, the organism as part of the cosmos; to consolidate and synthesize all our knowledge and everything we do in this multi- and inter-disciplinary field. The University, born in the shadow of the Cathedral, is by definition a community, but the word itself evokes the principle of unity in diversity and it remains the university’s vocation to be an Alma Mater. It is the function of the university scholar to place our discoveries, our knowledge and our activities in all spheres in perspective and to establish a scale of human values. He should, by vocation, be an anthropologist, that is to say someone to whom nothing that concerns man can be indifferent.