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The article examines the growing role of visualization technologies, and, in parallel, the limits of visualization: images are not context–free and do not "speak by themselves." From the antiquity on, scientists and laypeople alike had been fascinated by malformed fetuses and newborns, but the term “birth defect” was developed in the 19th century. Ever since doctors became interested in the prevention of “birth defects” produced by diseases or poor health during pregnancy. Until the 1960s, it was, however not possible to know whether such preventive steps were efficient before the child was born. The development of obstetrical ultrasound, and the parallel possibility of genetic analysis of fetal cells opened a possibility “to see what is going to be born”. The older term for the scientific discipline that investigated abnormal births “teratology” - the study of monstrosities - was replaced in the 1970s with the less scary term, “dysmorphology.” In late 20th century the science of abnormal development became inseparably linked with the rapid development of prenatal diagnosis and prenatal screening, and to changing attitudes to the unborn. The author analyses the above phenomena.

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Prenatal Diagnosis (Johns Hopkins University Press, 2017) and Tangled Diagnoses: Women, Prenatal Testing and Risk (Chicago University Press, 2018).

Fear of Monsters, "Birth Defects" and Medical Imagery: Visualizing the Unborn

Introduction: Impaired fetuses and Polish law

In January 2021, the Polish Constitutional Tribunal ratified a law that criminalized the interruption of a pregnancy due to a fetal anomaly. The Tribunal stated that "a high probability of a severe and irreversible health problem in the fetus cannot serve as a basis for terminating pregnancy, and that the very fact of referring to the existence of a potential impairment in the child is a eugenic intervention."[1] This present article can be seen as a comment on the Constitutional Tribunal's statement, especially the condemnation of referring to the existence of a potential impairment in a child ("samo wskazanie na potencjalne obciążenie dziecka takimi wadami").[2] It focuses on the history of displaying such "potential impairments" of the unborn, links this history to an ancient fear of "monstrosities" and the development of the scientific discipline of teratology ("the science of monsters)," and examines the role of medical imagery in making the visualization of anomalies in fetal development possible.

Numerous fetal abnormalities are detectable during a diagnostic ultrasonogram, typically in the second trimester of pregnancy. Some anomalies can be traced to changes in the genetic material of the fetus, while others are attributable to unexplained problems of fetal development. In countries in which abortion is legal, the woman/ couple who receives a diagnosis of severe fetal impairment can elect to have an abortion. In many Western countries, a decision to terminate a pregnancy for a fetal indication has to be approved by an ethics committee, but in the great majority of cases (usually over 90%), the committee endorses the woman's/ couple's

choice. This is not the case in Poland, where after the ratification of the new law, abortion due to a fetal indication became practically impossible. Polish women who learn that they carry a severely impaired fetus, including when the fetal problem is – as is not infrequently the case – linked with structural anomalies of a kind once described as "monstrosities," are today obliged to continue the pregnancy.

Monstrosities demonstrate something, but what precisely they demonstrate has changed over time.[3] In the early modern period, scientists and physicians, religious authorities and lay people were all fascinated by births of severely deformed children. Monstrous births were, at the same time, both repulsive and marvelous. They were seen as a demonstration of divine wrath and the endless power of divine creation, and also as natural phenomena that displayed the playfulness of nature and its mistakes, the vagaries of chance, the infinite creativity of the living world and the might of maternal imagination. They were scary and intriguing, and were an important source of inspiration for anatomists – and artists.[4] Some of the "monsters" described in the early modern writings, such as "a boy with two bodies," born in Florence in 1317, or the "two headed monster" born at Aubervilliers near Paris in 1421, can be interpreted today as descriptions of conjoined twins. Others, like the strange "monster" born in Ravenna in 1512 and depicted in many engravings, escape modern medical classifications.[5] At the same time, if a woman gave (still)birth to a deformed child, doctors and midwifes attempted to establish whether this was the result of an accident – e.g. the woman had a severe fright during her pregnancy that disturbed the growth of her unborn child – or the kind of deformation of the fetus that indicated that this woman was unable to produce healthy progeny.[6]

In the 17th century, the investigation of "monstrous births" gradually shifted to the explanation of such births as natural

phenomena, but also as signs of the existence of a "flaw" in the family. The "fear of monsters" became a fear of "bad blood" and tainted heritage.[7] Dissection of abnormal children and fetuses became an important method of gleaning new medical knowledge. This phenomenon played an important role in eighteenth-century debates between advocates of preformationism - a view that assumed that the child's development was predetermined from conception - and epigenesis, a view that assumed that such development was (also) shaped by events during pregnancy. In the 19th century, abnormal births became firmly integrated into the natural order. They became "birth defects," the exceptions that confirmed the rule.[8] This view led to the development of embryology – the science of normal development during pregnancy - and its twin specialty teratology (literally the "science of monsters"), the science of abnormal antenatal development.[9] Studying "monstrosities" became a legitimate branch of scientific inquiry.

Teratology: the science of abnormal births

The Edinburgh gynecologist John William Ballantyne (1861-1923), seen today as one of the founders of studies in the field of human pregnancy, started his career as a specialist in teratology, and later moved on from the investigation of "monsters" to elaborating ways to prevent birth defects.[10] Ballantyne's major contributions to the subject were his books *Diseases and Deformities of the Foetus* (1892) and *Antenatal Pathology of the Foetus and Embryo* (1902), devoted to the study of fetal abnormalities. *Diseases and Deformities of the Foetus* focused on the description and classification of fetal anomalies, while *Antenatal Pathology of the Foetus and Embryo* was written with the explicit goal of aiding the prevention of the birth of impaired children. This volume founded the new discipline - teratology - the science of monstrous births.[11] Before Ballantyne, embryology was seen exclusively as a domain of fundamental

biology. The practitioners' interest in pregnancy was limited to its accidents, and did not include the unborn child. Ballantine drew attention to the matter of studying the pregnant woman, and then her child.

Fetal anomalies, Ballantyne explained in *Diseases and Deformities of the Foetus*, were not mere curiosities. They were of the upmost importance for the clinician. Fetal malformations were the main cause of the high mortality in the neonatal period, and many among them could be prevented. Fetal problems that led to miscarriages, stillbirths, and the birth of sickly newborns were more often observed in mothers who suffered from poor physical or mental health. Infectious diseases such as syphilis and tuberculosis, and chronic conditions such as diabetes or cancer, hampered the development of the fetus. The same was true for "poisons" such as lead, mercury, and arsenic, but also alcohol and tobacco. It was difficult to prove the effect of smoking tobacco on the fetus, but the high mortality of children born to women who worked in the tobacco industry was strong indirect evidence of the substance's harm. Ballantyne also noted that women who drank heavily during pregnancy often gave birth to malformed children, probably because alcohol affects embryonic or fetal development.[12] Increasing people's awareness of the rules of hygiene reduced mortality in adults; it was therefore a doctor's duty to promote the application of similar rules during pregnancy.[13]

From teratology to dysmorphology

Before the 19th century, physicians relied not only on sight, but also on other senses: smell, hearing, touch, and taste. Touch has retained some of its importance in modern medicine too, especially in surgery and pathology, but from the 19th century onward the main analytical sense of the physician was sight. The birth of clinics, Michel Foucault has argued, was directly linked with physicians' capacity to correlate disease symptoms in living

patients with changes in organs and tissues observed during a dissection.[14] Their observations were then codified as images in anatomical atlases. Wide circulation of these images facilitated the homogenization of classifications of pathological conditions.[15]

Ballantyne's richly illustrated books, *Diseases and Deformities of the Foetus* and *Antenatal Pathology of the Foetus and Embryo,* promoted the diffusion of teratological knowledge among physicians.[16] Nevertheless, for a long time teratology continued to be mainly a branch of experimental biology. Scientists who investigated the development of embryos and fetuses in laboratory animals knew that their development could be disrupted by numerous physical, chemical and infectious agents. They also knew that substances given to a pregnant female affected fetal development. Physicians who treated pregnant women had, however, limited contact with scientists who studied fetuses in the laboratory. Moreover, many believed that the human placenta acted as a "filter," one able to reject substances that might harm the fetus.[17] The thalidomide disaster of 1961-1962 disproved the latter belief[18]. Clinicians found out that the placenta did not protect fetuses from the effects of a harmful substance in maternal circulation.

Before the thalidomide disaster, only a handful of experts were interested in the study of birth defects in humans. One of the leading US experts on this question was the pediatrician Joseph Warkany.[19] Born and educated in Vienna, in 1932 Warkany took up a job at The Children's Hospital in Cincinnati, Ohio, where he worked on birth defects for the rest of his life. In the 1940s, Warkany became interested in inborn malformations. After World War Two, observation of the consequences of the atomic bomb explosions in Japan, and of tests of atomic weapons in the Pacific, stimulated studies of links between fetal and newborn impairments and exposure to radiation. However, until the 1960s, Warkany's specialty, teratology, was

a marginalized area of medicine.[20] The thalidomide disaster coincided with the rise of the ecological movement in the 1960s. The combined effect of the thalidomide disaster and the rapidly growing interest in environmental risks favored an interest in teratology and the application of research in this area in clinics. The US teratologic society was founded in 1961, and grew rapidly; Warkany became its first president.[21]

In 1966, the pediatrician David Smith coined the term "dysmorphology" (the study of abnormal forms) to replace the ominous sounding "teratology."[22] The new name, Smith hoped, would put an end to the labeling of birth defects as "monstrosities," and facilitate communication with the parents of children with such defects. Smith is perhaps best known for his description of fetal alcohol syndrome (FAS). In 1973, he and his collaborator Kenneth Jones reported an association of typical 'dysmorphic' traits, and behavioral and cognitive disorders in the children of mothers who consumed large quantities of alcohol during pregnancy. FAS became one of the main models of dysmorphology studies in the US. It combined an observation of the "typical facial traits" of a child, a successful correlation of these traits with physiological anomalies and cognitive delays, the elucidation of the primary cause of these anomalies, and recommendations on how to prevent it – mainly by persuading pregnant women to limit their alcohol intake.[23] FAS was, however, studied after birth. From the late 1960s the physician's gaze extended to antenatal life.

Seeing the live fetus

Until the 1960s, teratologists, and then dysmorphologists, studied living children and dead fetuses. In the second half of the 20th century, medical technologies made it possible to directly see and study a living fetus. "Seeing" was both metaphorical – diagnosis of inborn anomalies using biochemical and genetic tests - and literal: medical imaging technologies increasingly

made the fetus visible. The history of genetic and biochemical tests that diagnose fetal impairments started with efforts to diagnose Rhesus factor incompatibility during pregnancy. When a pregnant woman is Rhesus negative (her red blood cells lack the Rhesus marker) and the fetus is Rhesus positive, the pregnant woman produces antibodies that destroy the fetal blood cells: this may lead to fetal / newborn death or a severe impairment. In the 1950s, physicians devised a technique to sample the amniotic fluid (amniocentesis), and see whether it contained products of the destruction of fetal red cells. If that was the case, they induced birth as rapidly as was safely possible, then exchanged the newborn's blood for blood free of the destructive maternal antibodies.[24]

Since the amniotic fluid contains fetal cells, in the 1960s amniocentesis started to be employed to examine these cells: first for fetal sex in women carriers of sex-linked chromosomal anomalies such as hemophilia (only male fetuses would be affected), then for the presence of chromosomal anomalies, such as Down syndrome (induced by the existence of three copies of chromosome 21 in the cell), and metabolic diseases such as Tay Sachs disease. In all these cases, it was assumed that the majority of women who found out that they were carrying an affected fetus would elect to terminate the pregnancy. The generalization of amniocentesis for diagnosis of "birth defects" was linked with the decriminalization of abortion in numerous Western countries in the 1960s and early 1970s. The next steps were the development of blood tests for increased Down risk, and screening of all pregnant women for this risk, the development of advanced tests able to diagnose a much wider range of genetic disorders in fetal cells collected through amniocentesis and, in the 21st century, the development of tests that study fetal DNA present in pregnant women's blood (noninvasive prenatal screening or NIPS).[25]

The history of direct observation of the fetus started with the use of X-rays in pregnant women, mainly to see whether there were obstacles to normal childbirth, but occasionally also to visualize the fetus.[26] This technique provided only limited information about the fetus - it could visualize multiple pregnancies and major malformation of the fetal skeleton, but not much more. Moreover, physicians learned in the 1940s and 50s that radiation might endanger the fetus. The true impetus for seeing the fetus came from the development of obstetrical ultrasound, and its transformation into a major tool for the detection of structural fetal malformations. Social scientists who studied obstetrical ultrasound often focused on its sociocultural role, the transformation of the intimate experience of pregnancy via the production of fetal images, and the social, political, economic and cultural role of such images.[27] They rarely discussed the uses of this medical imaging technique as a major diagnostic tool and the integration of this tool into routine supervision of pregnancies.

The history of obstetrical ultrasound began in the 1950s, when a Glasgow group led by Ian Donald applied this technology—originated in industry and the military— to the visualization of gynecological pathologies, such as ovarian cysts and tumors.[28] Ultrasound was introduced into obstetrics in the late 1950s. At that time, obstetrical uses of ultrasound paralleled the main use of X-rays in obstetrics: the detection of potential problems during childbirth, such as a malformed pelvis or an unusual position of the fetus, and, occasionally, to display major fetal malformations. In the 1960s and early 1970s, obstetrical ultrasound was also used to visualize multiple pregnancies before the obstetrician was able to hear more than one heartbeat, to indicate whether a woman was at high risk of miscarriage, to diagnose a pregnancy outside the womb (ectopic pregnancy), to establish the age of pregnancy in women who were not sure when their last period was, to check whether the

growth of the fetus was too slow (intrauterine growth delay), and to visualize any abnormal position of the placenta that put the woman at risk of hemorrhage during childbirth (placenta previa). In the 1970s, ultrasound was also used to make amniocentesis safer by allowing the operator to follow the trajectory of the amniocentesis needle, and, in some cases, to check whether an induced abortion or a spontaneous miscarriage had been completed, and no residual fetal tissue remained in the uterus.[29]

In the late 1960s, Ian Donald described the machines he used as "crude."[30] In the early 1970s, the resolution of obstetrical ultrasound images was not good enough to diagnose the majority of fetal problems. The only exceptions were major malformations such as anencephaly (the absence of a fetal brain). The resolution of ultrasound machines improved rapidly in the 1970s, thanks to two technical innovations: the introduction, in the mid 1970s, of linear array scanning, and, in the late 1970s, of transvaginal ultrasound. The latter innovation was linked with the development of in vitro fertilization, a technique that officially came into being with the announcement of the birth of the first "test tube baby," Louise Brown, in 1978. Ultrasound was essential for the collection of eggs, which were then fertilized in a test tube. Transvaginal ultrasound was then employed to visualize the implantation of the fertilized egg.[31] The increase in ultrasound's resolution made the use of this medical imaging technology possible when scrutinizing the fetus and detecting structural malformations. The routine use of ultrasound in turn increased the frequency of uncovering fetal anomalies. The inclusion of obstetrical ultrasound in the supervision of all pregnancies was not supported by proof that systematic use of this technology improved the outcomes of pregnancies. The only—belated—attempt to evaluate the contribution of the routine use of ultrasound to the management of pregnancy was the US clinical trial RADIUS. The results of this trial, published in 1993, indicated that routine use of obstetrical ultrasound did not

reduce complications during childbirth or diminish fetal deaths. Organizers of the RADIUS trial concluded that obstetrical ultrasound should be used in the same way that other medical imagery technologies were. Gynecologists should perform an ultrasound examination only when they suspected that something was wrong. This conclusion might have reflected, among other things, the impossibility of 'correcting' the great majority of severe fetal malformations visible on the ultrasound screen, or, to use the language of the authors of this study, "the ultrasonical detection of congenital anomalies has no effect on perinatal outcome".[32]

The RADIUS trial's conclusion had practically no effect on obstetrical practice. In the 1990s ultrasound examinations were already firmly incorporated into the routine care of pregnant women in industrialized and, increasingly, also intermediary countries. Obstetrical ultrasound became an inseparably medical and social technology.[33] Women and health professionals learned to rely on this technology, including for emotional reasons. Pregnant women and their partners were pleased to 'meet' their future child, learn about the fetus's "real age" and stage of development, and were often reassured that the baby would be "all right."[34] Sometimes, however, the expected joyful encounter with the future child did not happen as predicted. Dramatic stories of a severe fetal malformation being detected often started with the shock felt by a pregnant woman and her partner when a routine appointment for an ultrasound examination suddenly transformed into the announcement of something much sadder.[35]

On looking like a baby

Western fetuses are usually seen as well-defined biological entities. The anchoring of the Western fetus in biology is, to an important degree, a consequence of biomedical innovations: pregnancy tests, prenatal diagnosis and screening, improved

survival of premature children, in vitro fertilization and manipulation of human embryos in a test tube, stem cells and fetal tissue research, and fetal surgery. It may also reflect a growing identification of the fetus as a baby, not only by the anti-abortion movements, but in medical information routinely distributed to pregnant women which exhorts them to avoid behavior which will harm their baby. Educational materials that aim to persuade pregnant women to quit smoking, systematically construct the fetus as a child, and a pregnant woman who smokes as a child abuser.The strong language of these educational publications can be contrasted with the paucity of reliable knowledge about the effects of smoking, especially in moderation, on the fetus.[36] In several US states it is possible to jail a pregnant woman who, through such behavior as taking illegal drugs, is perceived as putting the health of her future child at risk. In a widely reported case, a pregnant woman was threatened with jail for refusing to enroll in a drug control program, in spite of her affirmation, bolstered by a negative urine test, that she was not using drugs any more. She ended up being forcibly enrolled in such a program for nearly three months.[37]

For numerous scholars, the advent of the "modern" or "scientific" fetus is linked with the rise of the omnipresence of fetal images. This development is linked with the widespread diffusion of Lennart Nilsson's famous 1965 *Life Magazine* photo essay, "Drama of life before birth," and his book, published the same year, *A Child is Born.* Both publications became huge international bestsellers.[38] Nilsson's was not the first presentation of fetal development to the lay public. In the 1940s, 50s, and early 60s, several books aimed at pregnant women included drawings and photographs of fetal development.[39] Nilsson was, however, a well-known professional photographer who devoted several years to the photography of fetuses, and who produced esthetically compelling – and heavily retouched

– color photographs. Their outstanding visual qualities facilitated their worldwide diffusion and their transformation into codified images of fetal development.

Many scholars have discussed the role of Nilsson's photographs in the rise of the "public fetus."[40] The historian Solveig Jülich has examined a much less well-known role played by Nilsson's photographs: their contribution to the Swedish debate on abortion. In the early 1950s, Nilsson was invited by the head of a leading gynecology and obstetrics department in Stockholm to photograph miscarried and aborted embryos and fetuses in the department. At that time, Swedish law permitted abortion on medical, humanitarian and eugenic grounds, but abortion remained nevertheless a controversial issue. In 1952 Nilsson's photograph of an aborted five months old fetus was published by a popular magazine under the heading, "Why must the fetus be killed?" The publication, in 1964, of another photograph of an aborted fetus taken by Nilsson was criticized as anti-abortion propaganda. Nilsson's 1965 photo-essay was criticized on similar grounds. Critics argued that Nilsson's efficient visual manipulation of very tiny fetuses, deliberately presented in his photographs as "virtual babies," led future mothers to believe that a ten-millimeter-long fetus was already a fully formed child. Such images might have distressed women who decided to have an abortion. Nilsson himself did not mention abortion and insisted that his photographs displayed the "miracle of life." He and his editors carefully avoided mentioning that all the photographed fetuses were dead, and the great majority were aborted. The staff of the publishing house which produced Nilsson's book were explicitly instructed to answer evasively or vaguely when customers asked about the origin of the pictures. Anything else, they were told, was impossible, since "it would have destroyed the market."[41] The transformation of dead specimens into "icons of life" would not have been conceivable without a careful masking of the material realities

behind Nilsson's stylized photographs.[42]

Nilsson's images of dead fetuses were made to look “alive” through subterfuge. Ultrasound, in contrast, makes it possible to directly observe a living fetus in the pregnant woman's womb. Images generated by obstetrical ultrasound were at first blurry and imprecise. They became increasingly sharp and well defined, and recently have become available in three and sometimes even four dimensions (short movies of the fetus in the womb).[43] The possibility of seeing on an ultrasound screen that the fetus, even a very small one, looks like a miniature baby, is often presented as a key element in the identification of a fetus with a child. In an oft-told story, a woman/couple see for the first time an ultra-sonogram picture of the fetus, suddenly realize that she/they are really going to be parents, and immediately become viscerally attached to her/their future child. In a "pro-life" version of this story, a woman who considers having an abortion changes her mind when she sees “her child” on an ultrasound screen. There is, however, one problem with this narrative: it exists only in a well-defined time and place. In other places and periods, seeing a tiny, baby-like form might have had elicited very different feelings.

Lynn Morgan's research on US collections of fetuses for anatomy studies in the early 20th century indicates that people who, one may reasonably assume, were no less able than those who are alive today to perceive similarities between aborted fetuses and newborn babies, had a very different attitude to fetal bodies.[44] Emilie Wilson's study of physiological experiments performed between the 1930s and 1960s by the Pittsburgh anatomist, Davenport Hooker, on aborted, non-viable fetuses (under 24 weeks old), tells an even more striking story. Scientific films which had shown the stimulation of such fetuses with soft hairs to elicit reflex movements, were described in positive terms in articles in

Time Magazine and other popular publications. Experiments on dying fetuses were seen as a legitimate investigation of human development and an important contribution to embryological knowledge. Entities which looked very much like babies, were treated like experimental material. At the same time, some fetuses used by Hooker in his experiments were also treated as babies. A few among them were baptized, sometimes during an interval between two experiments. Baptism did not change their designation as "exteriorized fetuses," or the large diffusion of films which recorded their movements.[45]

On not looking like a baby

In some cases, a “birth defect” is not externally visible and a stillborn child, or fetus aborted due to severe impairment, looks like a miniature, perfectly formed baby. Other malformations, however, are visible, and some -- those avidly conserved in anatomical collections -- may seem truly scary. Seeing a severely deformed fetus/stillborn child may be a traumatic event for the mother. Some women diagnosed with a severe structural malformation of the fetus wish to terminate the pregnancy as rapidly as possible if the act is legal in the country in which they live. Other women may make the opposite choice. When they learn that their future child is not viable, they often wish to wait until the natural end of the pregnancy, to be able to see their child and say goodbye to her/him. Nevertheless, the majority of women who undergo a second trimester termination of pregnancy for a fetal anomaly have a preference for a surgical abortion through dilatation and evacuation (D&E), an intervention that includes dismembering the fetus, over the induction of birth and the expulsion of an intact fetus. D&E allows them to have the procedure under general anesthesia, and spares them the experience of “birthing death.”[46] Such a choice is not always possible, however, because in many countries

physicians are reluctant to perform D&E, and strongly recommend a drug-induced expulsion of the intact fetus instead.[47]

If the abortion has to take place late in the second trimester of pregnancy (after 22 weeks) or in the third trimester, the only possibility to terminate a pregnancy is through the inducing the expulsion of the fetus: women then have the possibility to see the stillborn child, and perform mourning rites.

Once health professionals were reluctant to show a fetus/stillborn child to a woman who had either had a miscarriage or an induced abortion. Social scientists recounted dramatic stories about the insensitive treatment of women who miscarried late in pregnancy or gave birth to a dead child. Women were not allowed to choose whether they wished to treat the "product of miscarriage" as a child, while some doctors believed that women should be protected from the need to sign a birth certificate. Occasionally, dead fetuses were mishandled by hospital staff. In some cases, doctors did everything they could, including abandoning a newborn baby without any care, in order to present the birth as a stillbirth rather than a live birth followed by the baby's demise. A "stillbirth" label allowed them to avoid the hassle of producing a birth certificate followed by a death certificate, and saved the hospital the costs of treating a "condemned" baby in an intensive care unit.[48] One woman who gave birth to a severely malformed baby recalled that the doctor exclaimed, "My God, it is alive," before crushing its skull; another woman remembered reading in her stillborn child's chart that he was described as a "hairy creature with extra teeth."[49] The anthropologist Rayna Rapp has described the distress of women who decided to terminate a pregnancy after a diagnosis of fetal anomaly and were unable to bury the dead fetus. Denied access to fetal remains, some families decided to bury a sonogram image of the fetus instead.[50]

In the late 20th and early 21st century, attitudes to seeing fetuses and unborn children have changed dramatically. Health

professionals, primarily midwives and nurses, strongly recommend seeing and holding the dead fetus/stillborn child, and taking photographs of, and with, the child.[51] In many Western countries, health professionals -- acting as moral entrepreneurs -- strongly encourage mothers/parents to create a bond with their dead child. Thus, UK doctors and nurses are instructed to inform the parents that if they do not see "their baby" they may regret it as it could make mourning more difficult.[52]

A key element in bonding between parents and the stillborn child is taking and keeping photographs of the child.[53] The putative benefits of "bonding" activities have not been supported by empirical evidence. Some women may strongly wish to see their dead child and to keep the child's photographs, but others may have the opposite wish. Sociologists have been surprised to find out that, contrary to their initial expectations, holding the body of a stillborn child often exacerbates rather than attenuates the woman's stress, probably because some women are left with images that haunt them afterwards.[54] Such haunting images may be more frequent when the child's body is severely deformed. If that is the case, nurses and midwives often wrap up the stillborn child in such a way that the malformation is concealed as much as possible, and consistently emphasize the child's "cute" features. For example, when the body is severely misshapen, they draw the woman's attention to perfectly formed tiny hands and feet.[55] It is not certain how effective such a presentation of the body is in preventing the mother from having troubling memories: the invisible may be haunting too.[56]

In her book "Obsoletki," Justyna Bargielska tells the story of a mother called Beata. In the second trimester of her pregnancy, her doctors discovered that her daughter had] "no head" (probably the fetus was anencephalic). Beata elected for a termination, and her doctors cut the baby in her belly into pieces, and then took the pieces out, although they forgot

one piece; Beata got sick, and had to undergo another surgery. Bargielska asked a colleague who was working in a hospital how it was possible that Beata reported she felt the movement of the "little one" in her womb; how could she move without a head? Electricity, the colleague answered, as with eels. Later Beata presented herself as a woman who had given birth to two children with heads, and one without a head.[57]

Bargielska does not say whether Beata was able to choose the method of her abortion, or whether the decision to proceed with a D&E abortion was imposed by the hospital. If Beata indeed had such a choice, she might have chosen a surgical abortion in order to avoid seeing and handling her "headless" daughter. However, an anencephalic baby is not a shapeless, headless entity; s/he has an unusually shaped head, but otherwise looks more or less like a "normal" baby. If carried to term, such a baby is usually born alive, then dies shortly after birth. Her/his birth is the birth of an infant, not of an "eel." In an article about visual mementos of dead children found on the internet, the sociologist Margaret Godel analyzes in detail a memorial site to Ruth, a baby stillborn at 28 weeks, who had anencephaly and spina bifida. Her mother refused an abortion because of her religious beliefs. Ruth's memorial is not about a "baby without a head," but about her parents' dreams of an ideal baby. Her memorial website includes her photographs, taken just before her funeral, and her mother's poems. These poems express the mother's feelings about her loss, and describe Ruth's imagined life. Ruth's parents add that she will always remain a very important member of their family.[58] In her case, the visible malformation of a dead baby was made invisible through its retranscription as the imagined life of a potential child.

Coda: A hospital delivery

A poem, "Hospital deliveries," written by the physician and poet Christine Chiosi, describes the birth of a severely deformed, non-viable child, born to a religious couple who refuse an abortion.

Facemasks for everyone

Concealing down-turned lips.
Husband hovering—a love shadow—over wife.
Christian, is whispered soft.
Would not abort—

Last minute telegrams, presaging this birth. (...)
Baby is born. Oh! What gender, please!
Only a single leg.
Half-formed cloaca.
A scrum of doctors gathers 'round the child.
(...)

Sea of doctors recedes
from lifeless bassinette.
And Dad bursts—one long wail.
And Mom lies stunned & mute.
And there's no more
hope-for-miracles
to hope.

Limp as a jellyfish.
Donned with a cap.
Its chest and lower tentacles are swaddled.
Delivered to its dad,
who rocks it in his arms
singing a dirge ... names it as a daughter...
says, She is perfect now,
kissing her face. Says,

Her eyes are blue lagoons. Her lips taste sweet.
While no one dares a word."[59]

Prenatal diagnosis is about seeing what is going to be born, but what people are going to "see" -- including after the baby's birth or stillbirth – can be open to interpretation. The parents of Ruth, born with anencephaly - and thus without a brain - described in her internet memorial a vision of her full and rich future life. The father of the child in Chiosi's poem saw the birth of his perfect daughter. But there may be a limit to what a person can themself see. In "Hospital deliveries," the mother, who refused to end a pregnancy with a severely misshaped fetus and underwent the traumatic birth of a severely malformed child, is stunned - and mute.

Chiosi described the moment of seeing the deformed body of a dead child. Visual memories of a dead fetus/stillborn child can be reinterpreted and given a positive meaning. They can also be a source of severe distress.[60] The new Polish law that criminalizes the termination of pregnancy for a severe fetal anomaly may oblige many women to live with an image of the malformed body of their dead child. Some women can attenuate, modify, or sublimate such memory, and some, like Beata, described in Bargielska's book, may be able to joke about "being a mother of a headless child." Other women - and perhaps also the same women in different moments of their lives - may be haunted by the thought that their body produced a deeply misshapen, "monstrous" child. "Monsters" can also demonstrate the injustice of laws.

1 "W ocenie Trybunału, art. 4a ust. 1 pkt 2 u.p.r. nie pozwala przyjąć, że duże prawdopodobieństwo ciężkiego i nieodwracalnego upośledzenia płodu albo nieuleczalnej choroby zagrażającej jego życiu ma stanowić podstawę do automatycznego domniemania naruszenia dobrostanu kobiety ciężarnej, **zaś samo wskazanie na potencjalne obciążenie dziecka takimi wadami ma charakter eugeniczny".** Leszek Rudzinski. Nowe prawo aborcyjne weszło w życie. Jest publikacja

wyroku TK. *Polska Times*, 28.01. 2021.https://polskatimes.pl/nowe-prawo-aborcyjne-weszlo-w-zycie-jest-publikacja-wyroku-tk/ar/c1-15412963 (accessed January 10, 2022).

2 The Tribunal's use of the term "eugenic character' ("character eugeniczny") as a shorthand for "evil" is ahistorical and highly problematic, but this topic is beyond the scope of my article. On the problematic uses of the term eugenic, see e.g. Diane Paul, *The Politics of Heredity: Essays on Eugenics, Biomedicine and the Nature-Nurture Debate* (Albany: State University of New York Press, 1998); Lene Koch, "The meanings of eugenics: Reflections on the government of genetic knowledge in the past and the present" *Science in Context*, no 17(3) (2004): 315-31.

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12 Ballantyne, *Manual of Antenatal Pathology and Hygiene*, vol 1, 292-297.

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