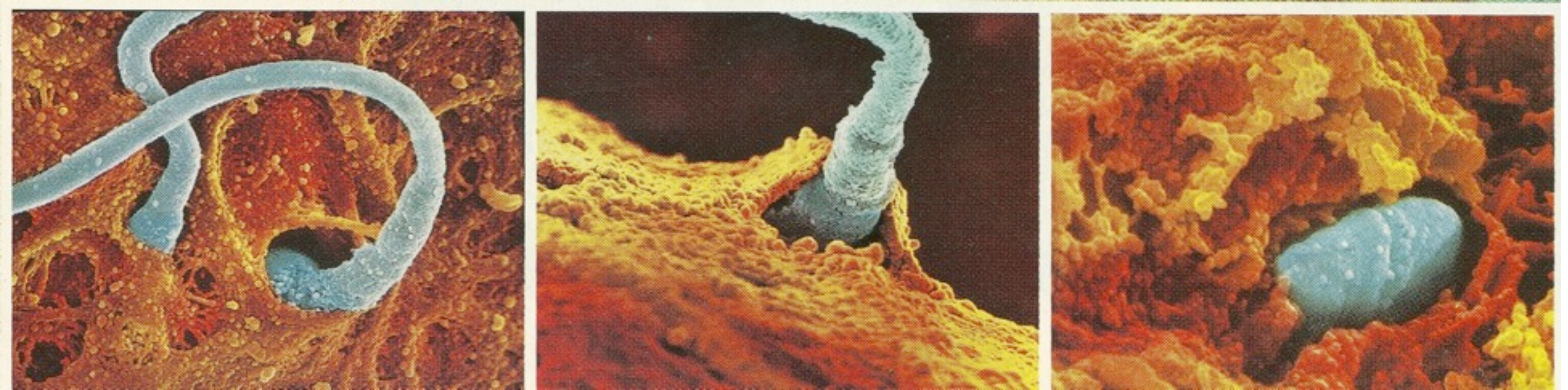


Human Development

Fertilization/Conception

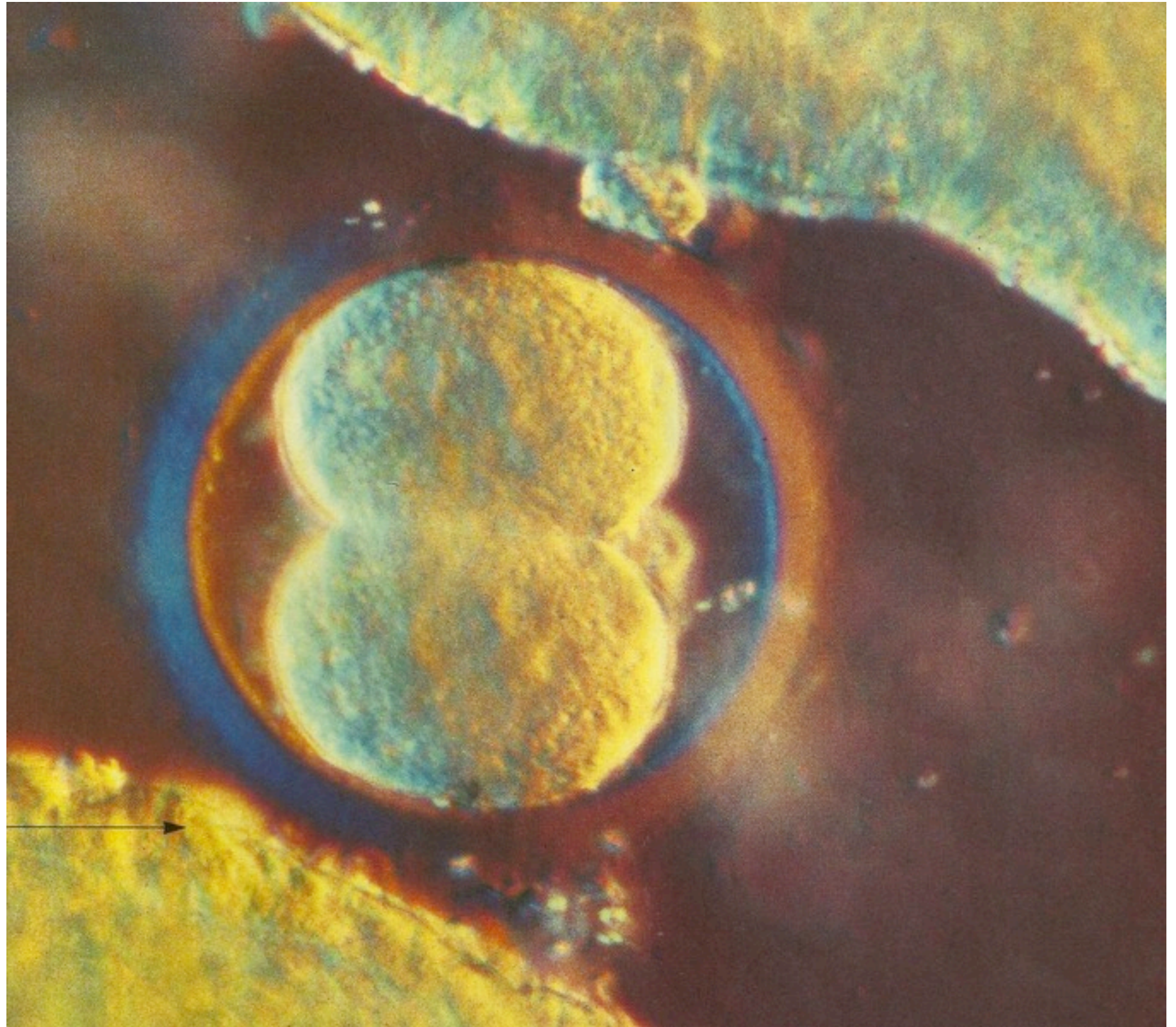


- Fertilization of an egg by a sperm, conception
 - Occurs in the oviduct

Conception

Single cell
zygote divides
into two cells;
occurs on route
to the uterus

12-36 hours
after sperm
binds to egg



Development (First Trimester)

- The first trimester is the main period of organogenesis
 - The development of the body organs



5 weeks. Limb buds, eyes, the heart, the liver, and rudiments of all other organs have started to develop in the embryo, which is only about 1 cm long.



14 weeks. Growth and development of the offspring, now called a fetus, continue during the second trimester. This fetus is about 6 cm long.



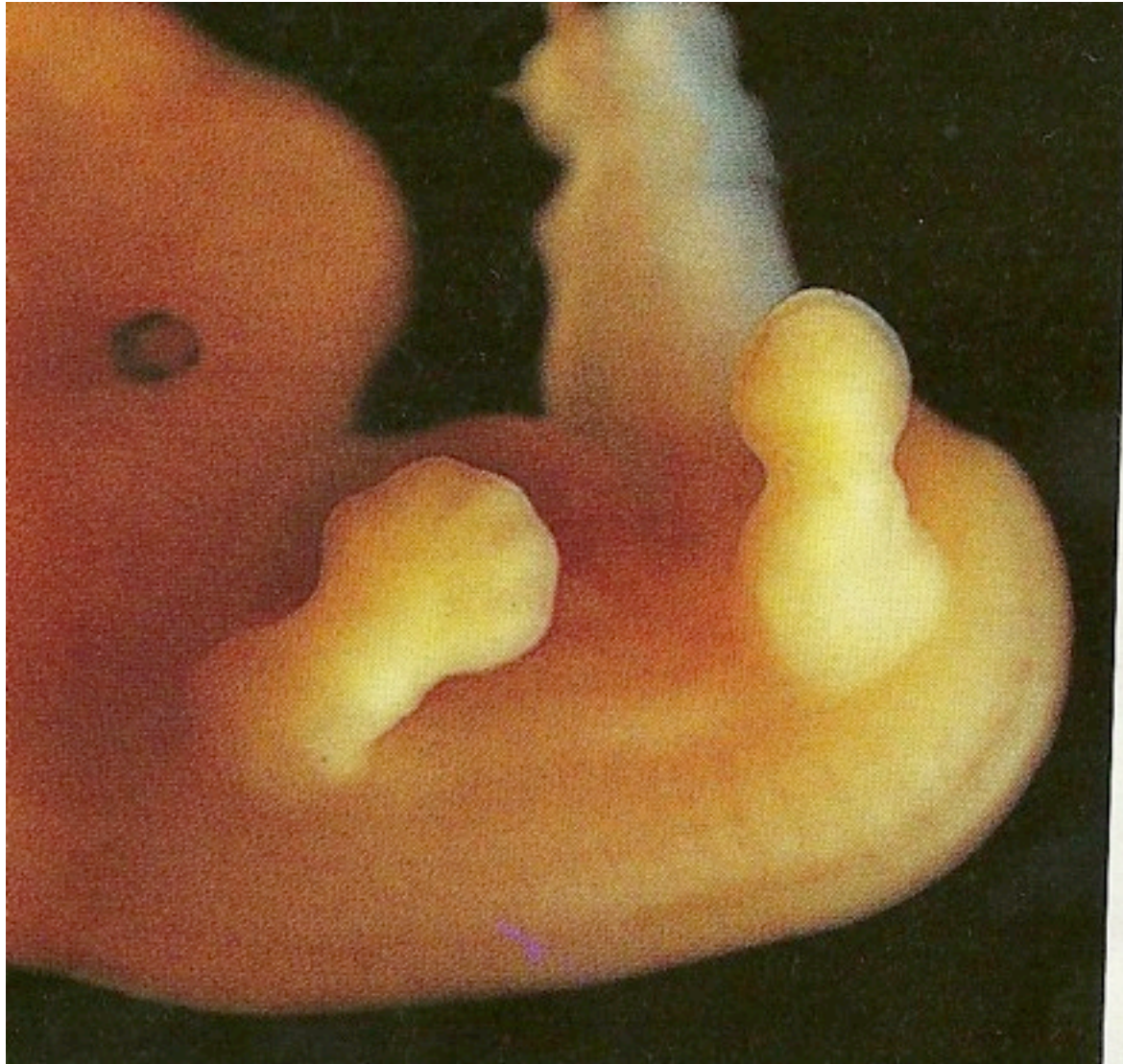
20 weeks. By the end of the second trimester (at 24 weeks), the fetus grows to about 30 cm in length.

a week

**a ball of
several
hundred
cells**



4-10 weeks



8 weeks

now called
an embryo

has limbs



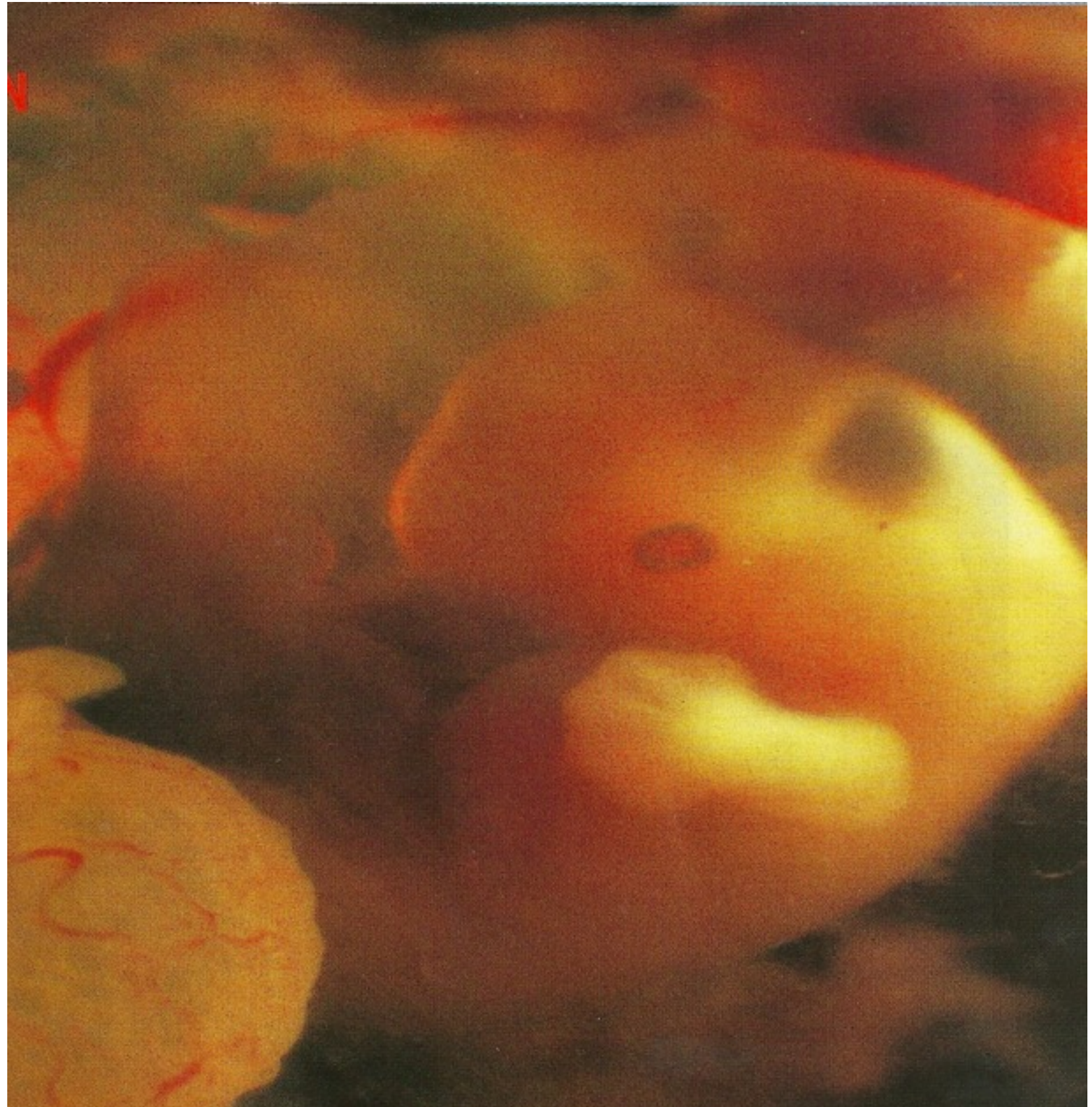
8 weeks

hands and
feet have
weblike
look as
fingers
and toes
develop

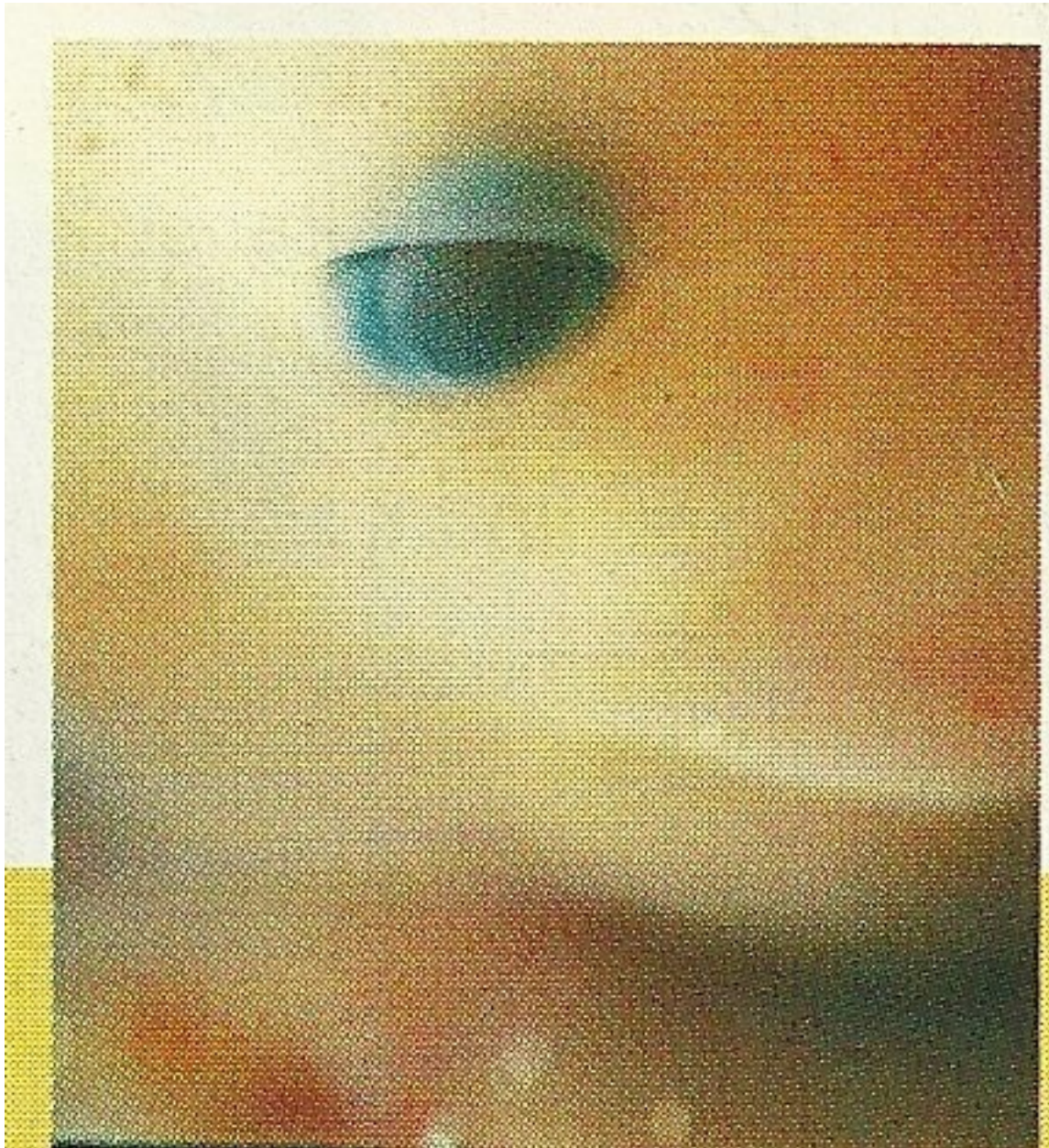


8 weeks

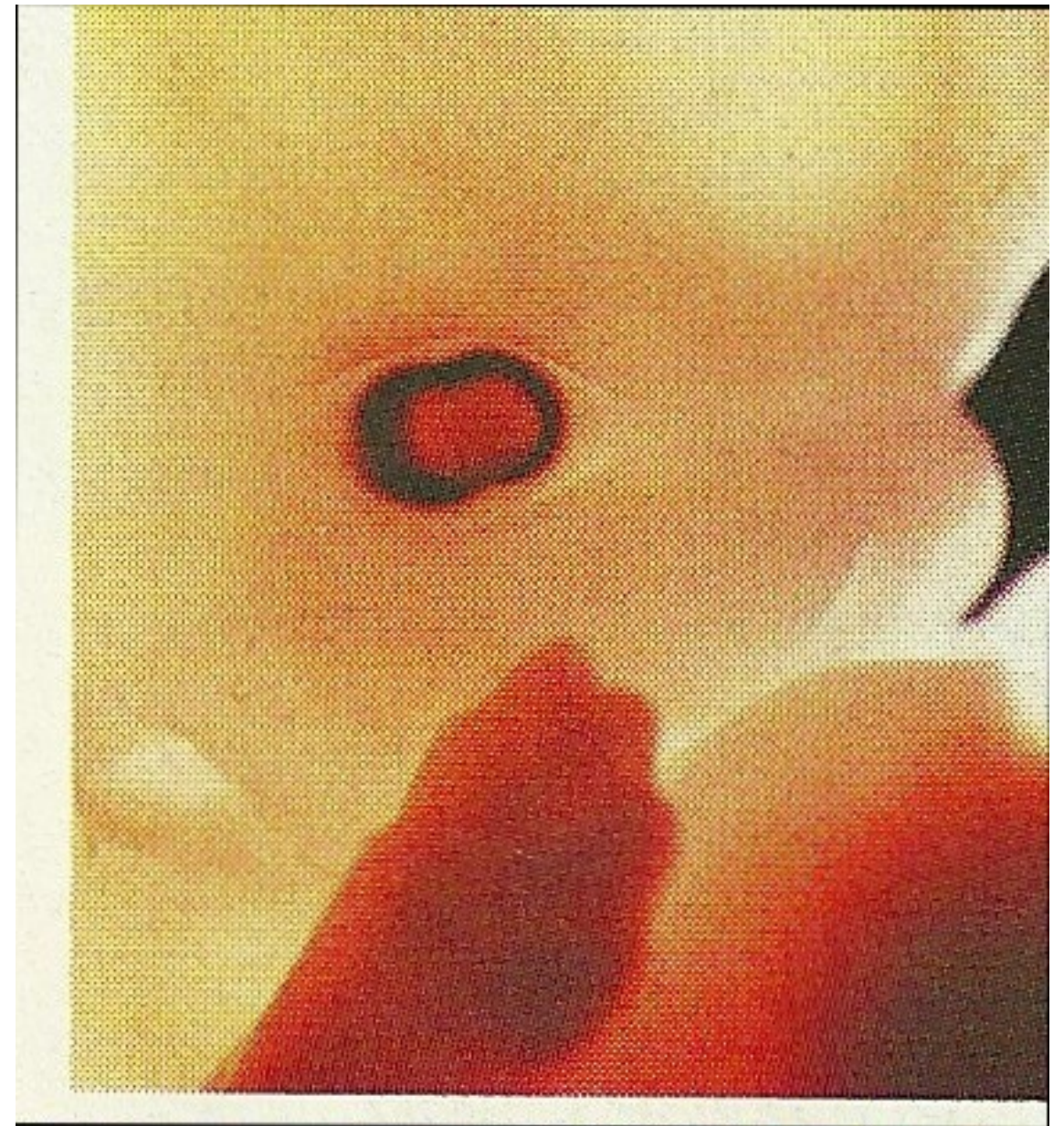
**most
internal
organs are
formed but
do not yet
function**



8 weeks



**eyes and
lenses are
forming**



**1/2 inch
in size on
average**

12 weeks

all
internal
parts are
present

kidneys
are
producing
urine



later most of the
amniotic fluid is
fetal urine



12 weeks

muscles and
bones are
starting to grow

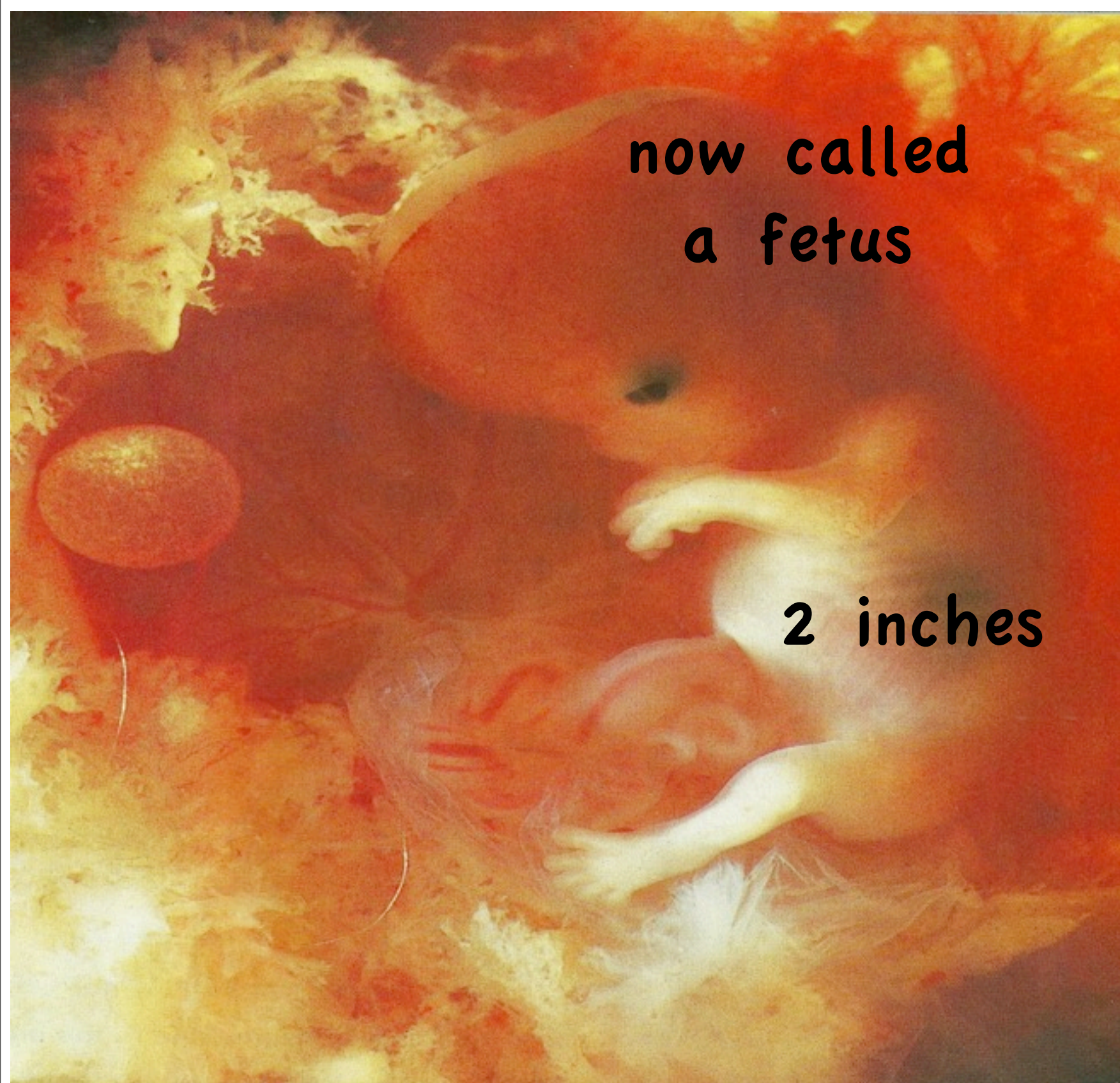
mouth can
open & close

arms & legs
can bend

gonads are
formed

now called
a fetus

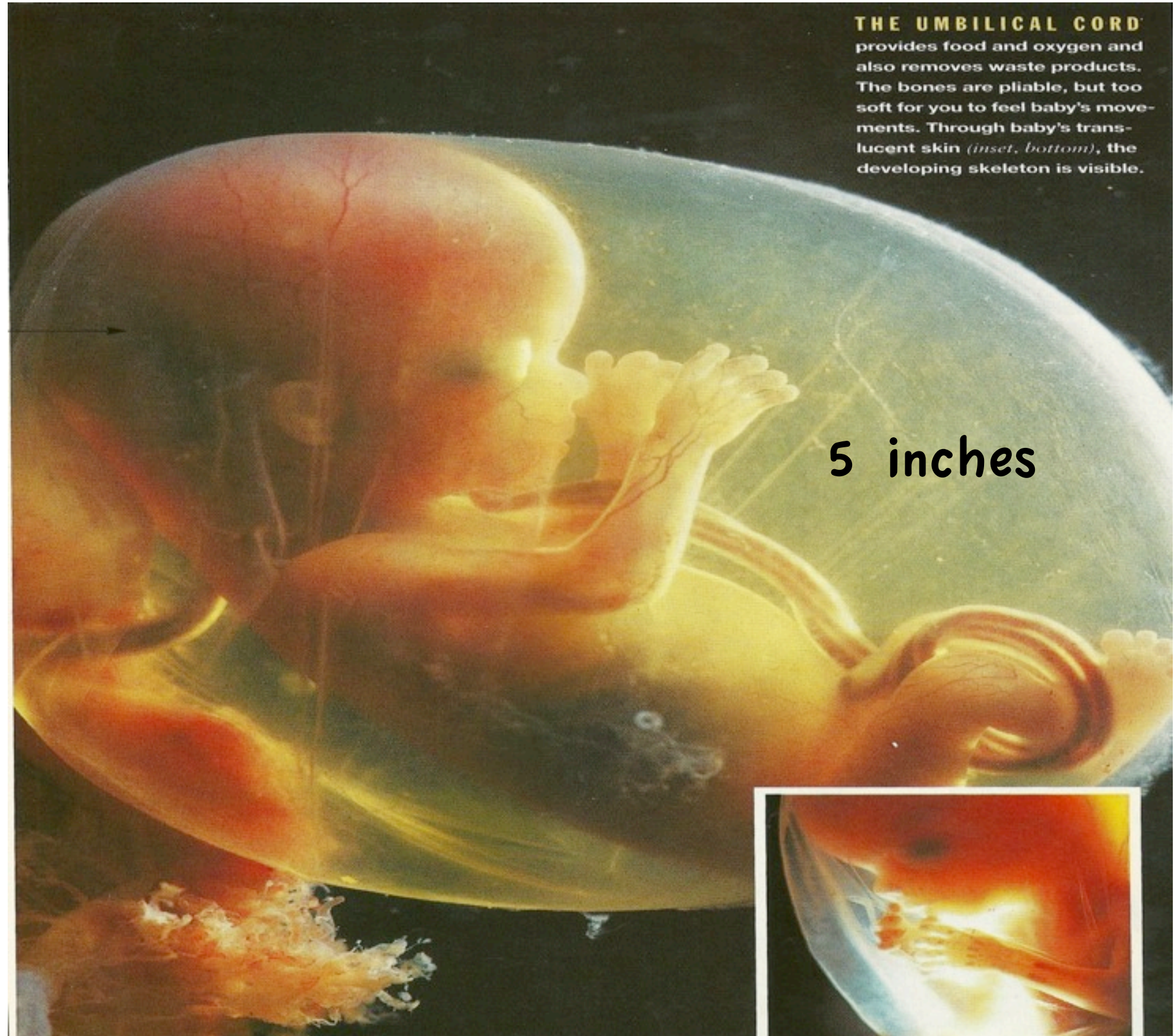
2 inches



16 weeks

fingerprints
and nails
are formed

hair begins
to grow



16 weeks

**bones are
making red
blood cells**

**sex organs
are distinct**



16 weeks

**baby starts
to show in
females**

**female can
feel baby
move**



20 weeks

7 inches

senses begin
awakening

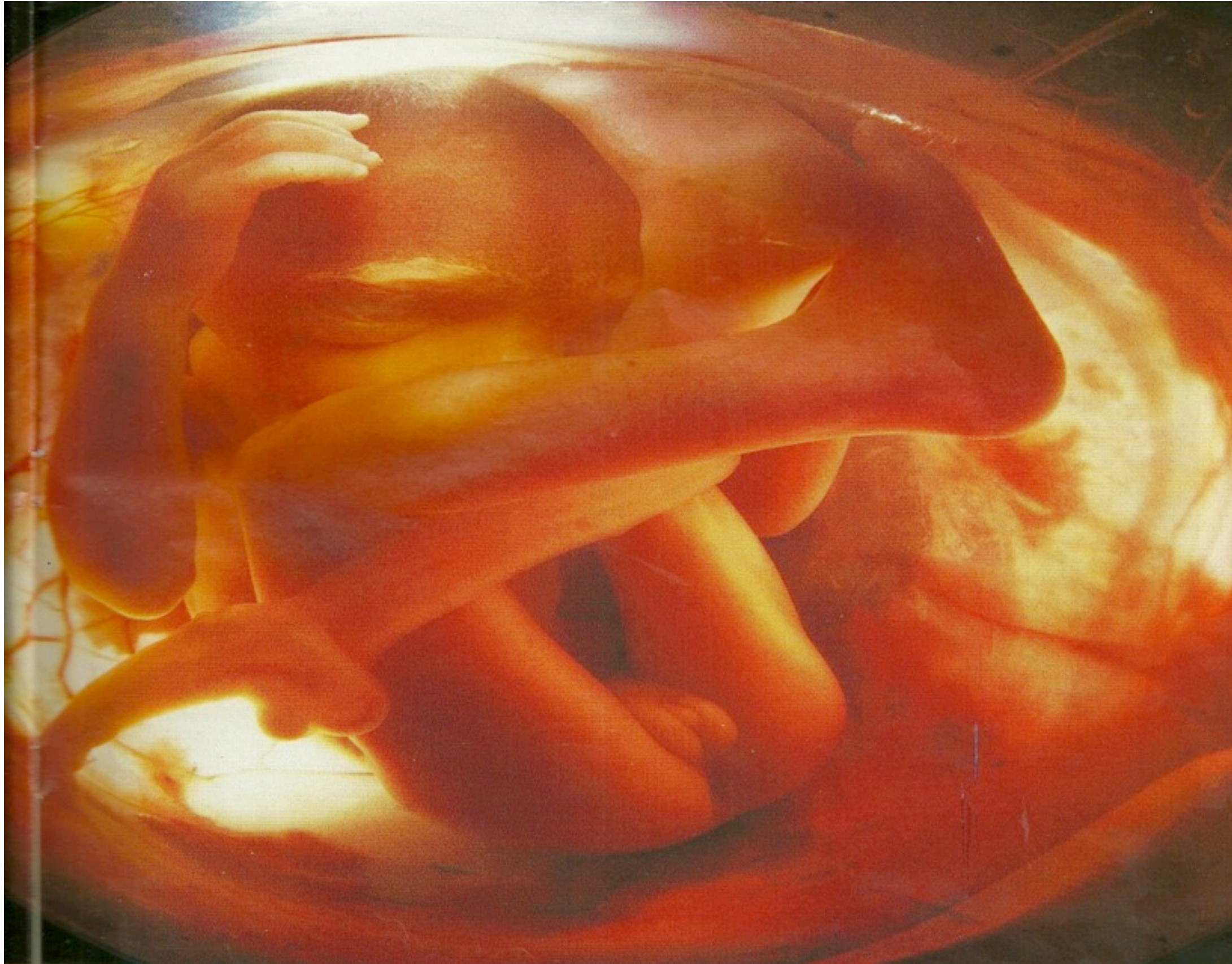
nerve cells
increase
rapidly

baby's first
stool
(meconium)
begins to
form

SERENE and well-protected
in the warm amniotic fluid, a
baby will suck his thumb if it
floats up to his mouth.

20 weeks

amniotic
fluid is
swallowed
and
urinated,
completely
replaced
every 24
hours



24 weeks

ten inches

FINE, DOWNY HAIR, called lanugo, covers the baby's body, possibly to hold the protective waxy coating called vernix. By the time of birth, lanugo has all but disappeared.

fine hair
called
lanugo holds
vernix in
place

“cheesy”
covering
called vernix
covers skin
to protect
from fluid



24 weeks

rapid growth occurs now

baby can hear

air sacs begin
to inflate

bones are
hardening

heart beat
can be heard



28 weeks

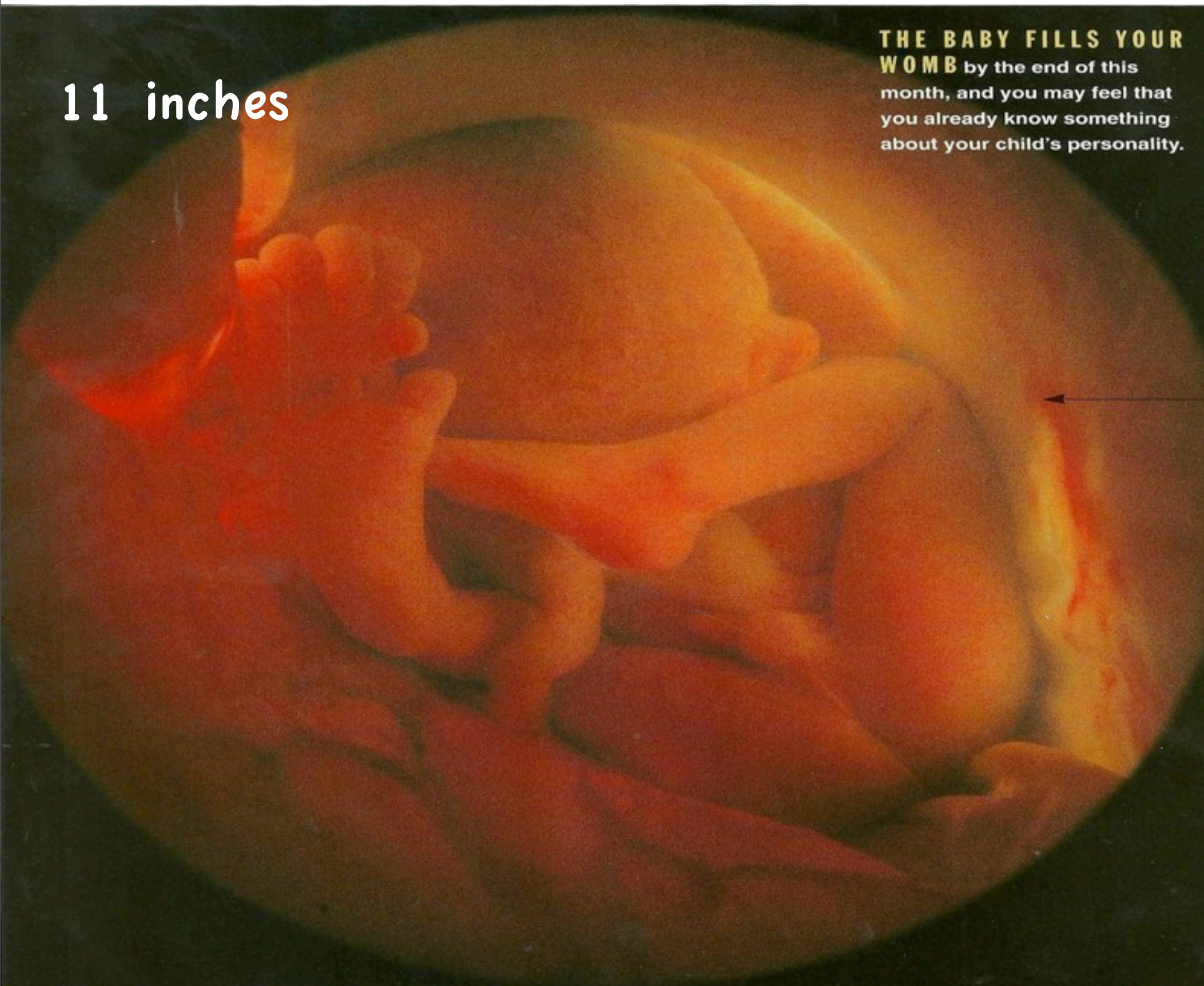
eyelids can
open

11 inches

**THE BABY FILLS YOUR
WOMB** by the end of this
month, and you may feel that
you already know something
about your child's personality.

fat begins
to fill in
contours

brain begins
to fold and
wrinkle



32 weeks

mom passes
some
antibodies
to baby

vernix and
lanugo are
falling off

baby very
likely to
survive if
born now

17 inches

HAIR NOW COVERS your
baby's head, and her lungs
are maturing. Waiting for her
arrival becomes difficult in this
last month or two.



40 weeks (birth)

THE MOMENT OF BIRTH
must come as a big shock to baby. His first cry announces his arrival—and perhaps protests this rude awakening.

**baby's head
faces down
(most)**

**baby's head
slips down
into the
basket of
the pelvis
“lightening”**

**17-22 inches
on average**

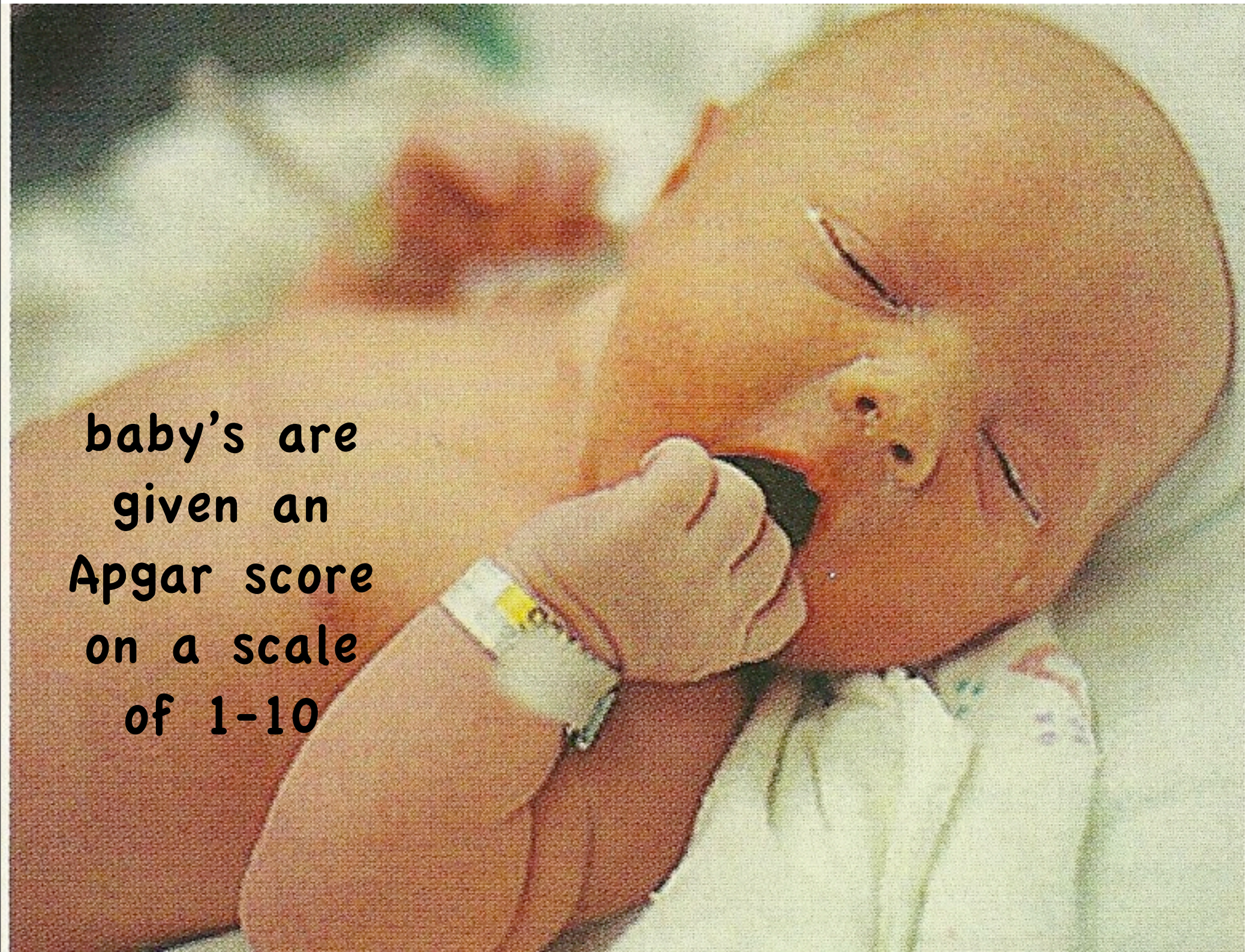
**6-9 pounds
on average**

40 weeks (birth)

**baby's are
given an
Apgar score
on a scale
of 1-10**

**umbilical
cord cut,
treated with
antiseptic
and clamped**

**baby's eyes
are
medicated to
prevent
veneral
infection**



40 weeks (birth)

APGAR SCORING SYSTEM

	0 Points	1 Point	2 Points	Points totaled
Activity (muscle tone)	Absent	Arms and legs flexed	Active movement	
Pulse	Absent	Below 100 bpm	Over 100 bpm	
Grimace (reflex irritability)	Flaccid	Some flexion of Extremities	Active motion (sneeze, cough, pull away)	
Appearance (skin color)	Blue, pale	Body pink, Extremities blue	Completely pink	
Respiration	Absent	Slow, irregular	Vigorous cry	

Severely depressed	0-3
Moderately depressed	4-6
Excellent condition	7-10

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40 weeks (birth)

first cry
fills lungs
with air

eyes are
usually
brown or
blue

baby's head
may be
elongated if
a vaginal
birth



first weeks after birth



**sense of
smell is
sharp**

**hearing is
acute but
lacks
directionality**

**eyes focus
best on
close objects**