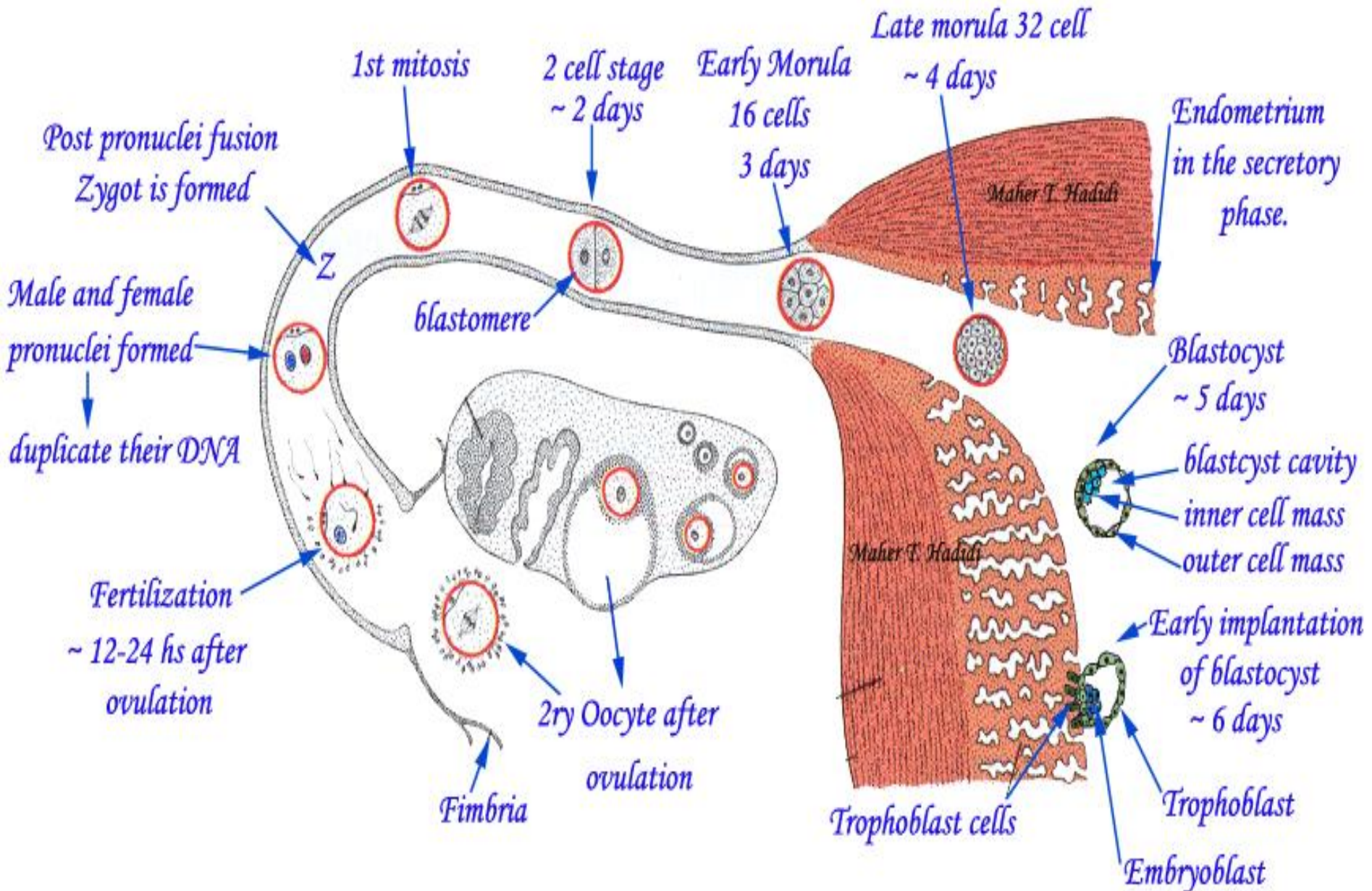


Events during first week of development

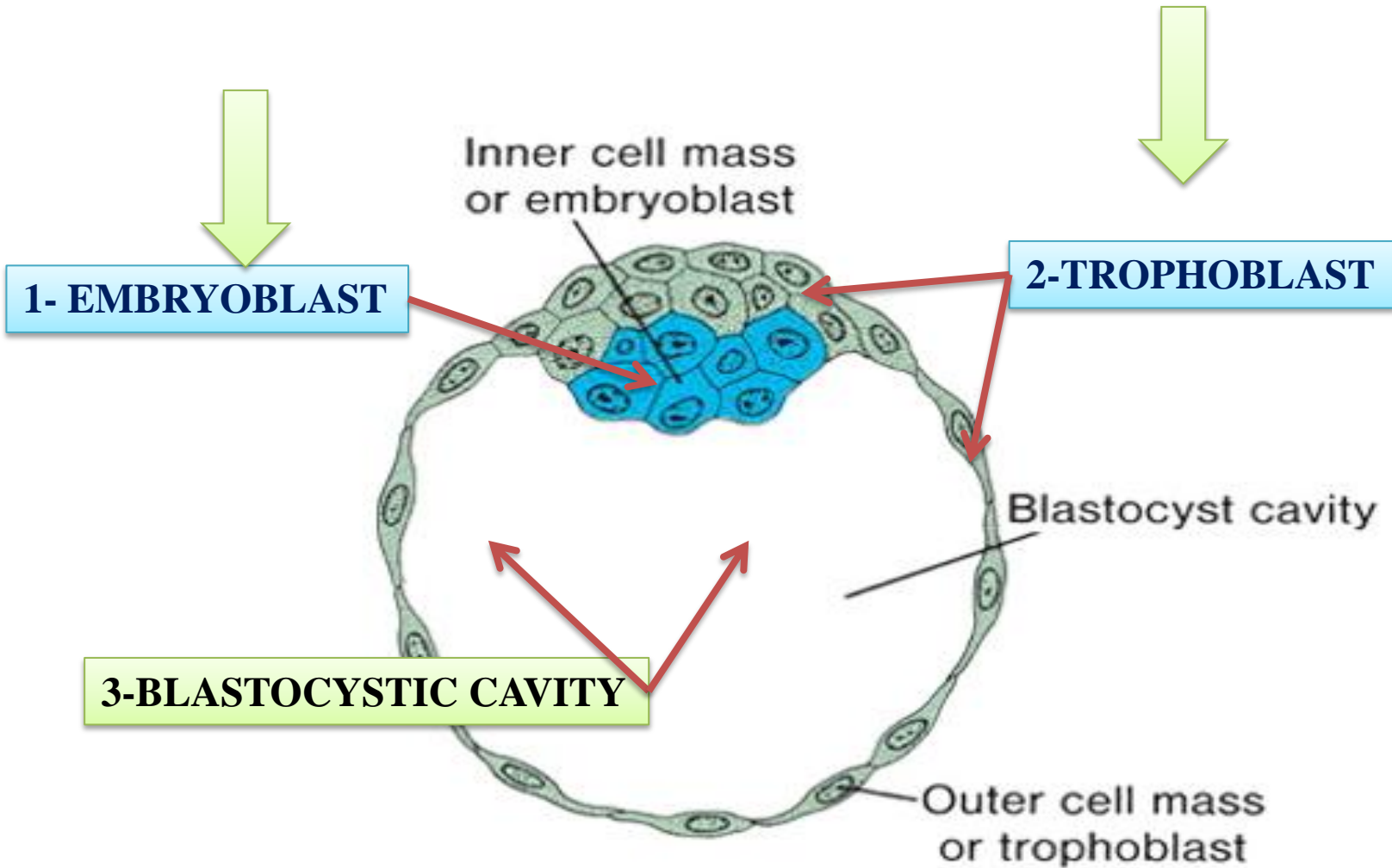


What is the final product of the first week of development?



The Blastocyst

➤ The blastocyst is made of:



SECOND WEEK OF DEVELOPMENT

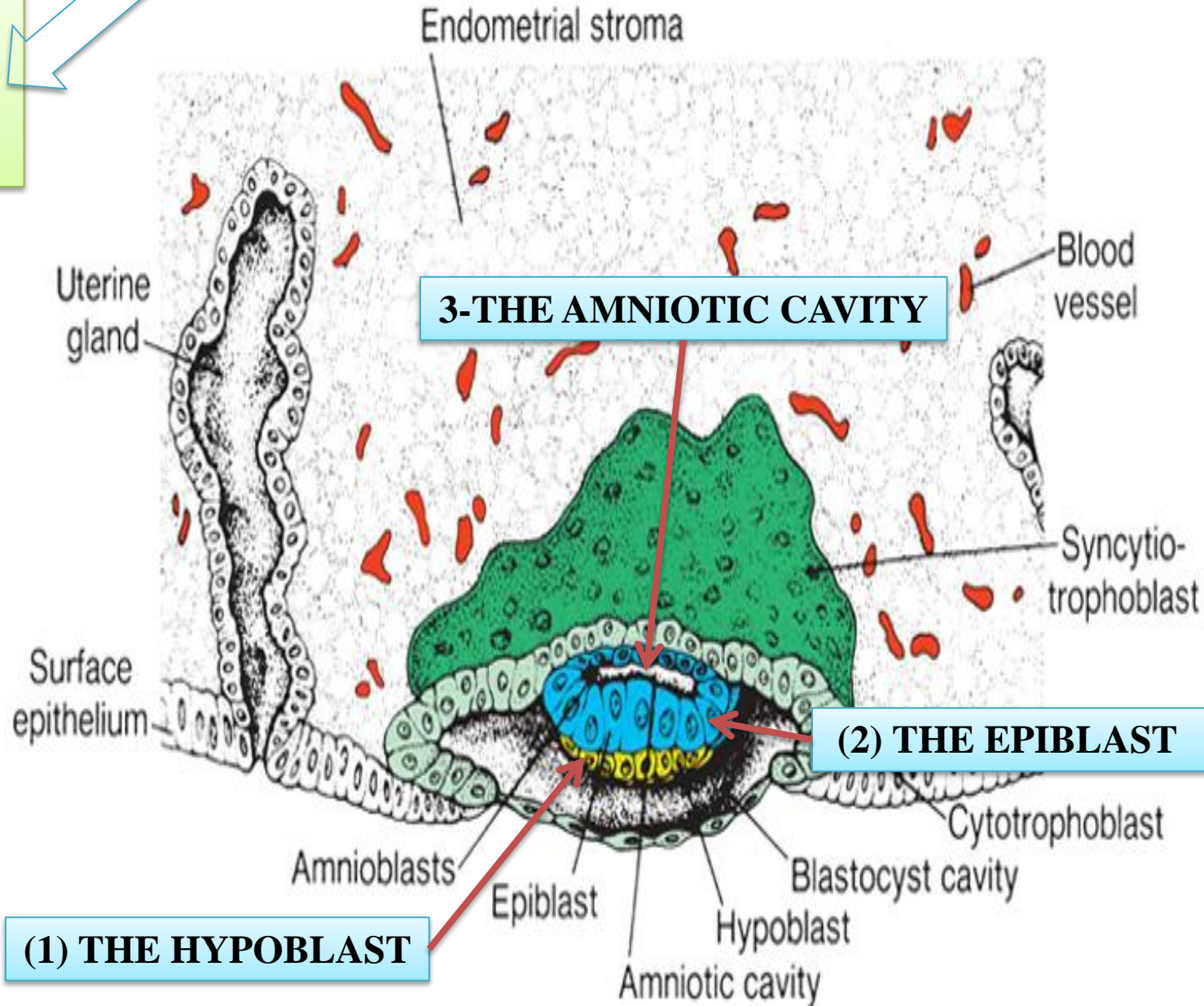
At the eighth day of development

The
EMBRYOBLAST
differentiates into
two layers:

(1) THE
HYPOBLAST

(2) THE
EPIBLAST

3-THE
AMNIOTIC
CAVITY



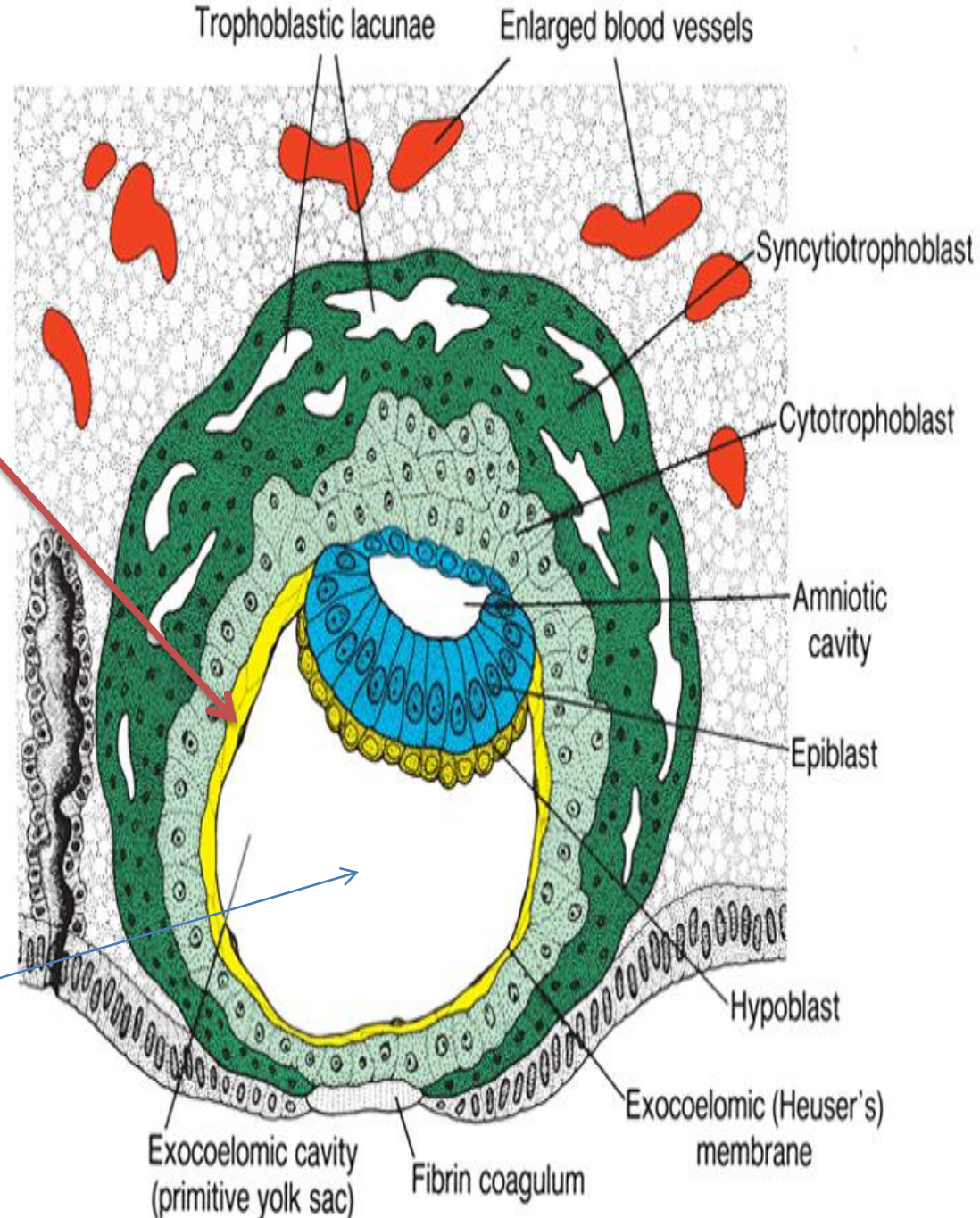
DAY 9

❖ the **hypoblast** give rise to a thin membrane

THE EXOCOELOMIC MEMBRANE

This membrane, together with the hypoblast, lines (The blastocystic cavity) to become

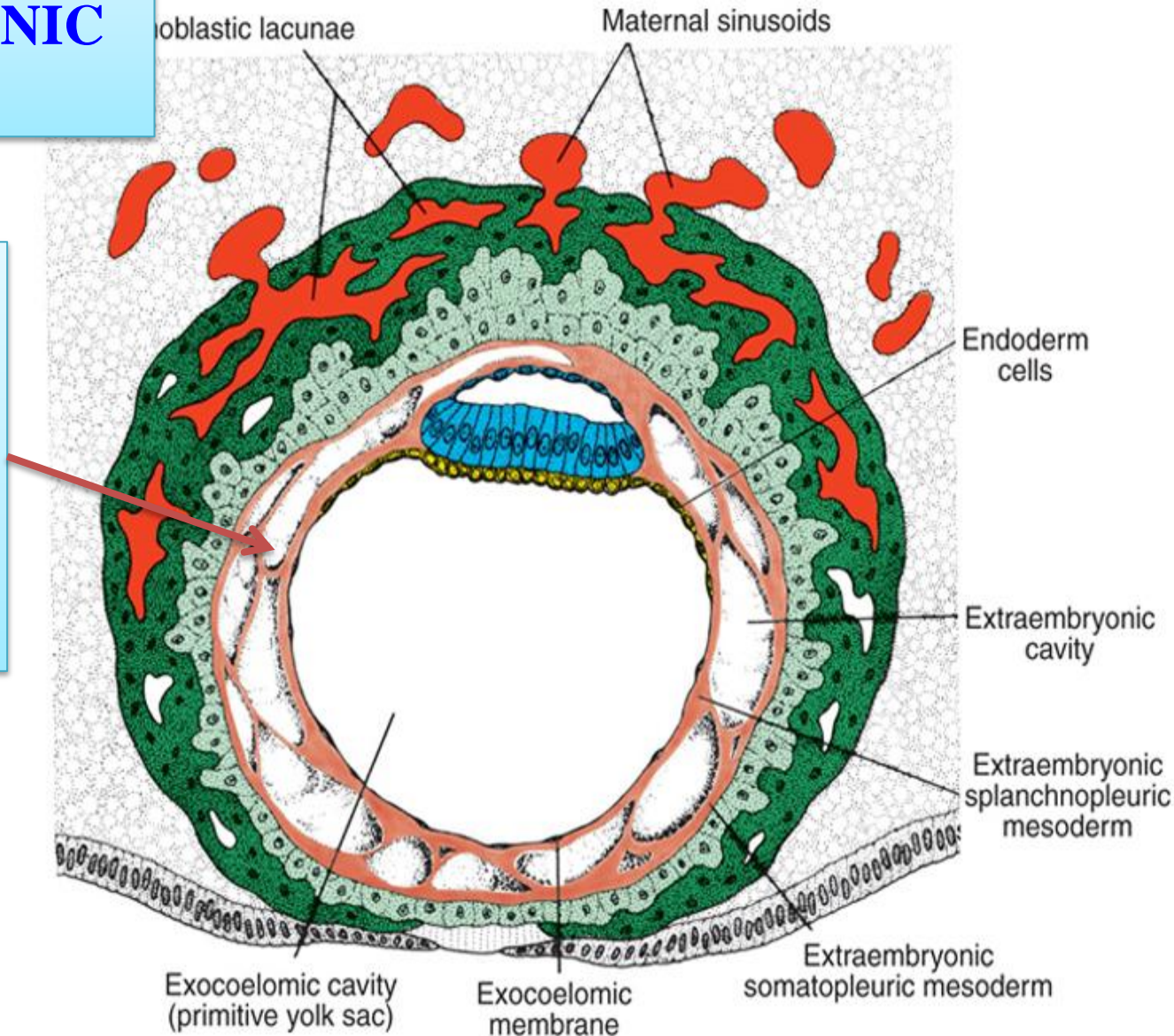
**THE PRIMITIVE
YOLK SAC**
Or exocoelomic cavity



Days 11 and 12

The **yolk sac** cells, form a fine, loose connective tissue, the **EXTRAEMBRYONIC MESODERM**,

which fills all of the space between the **trophoblast** externally and the **amnion** and **exocoelomic membrane** internally



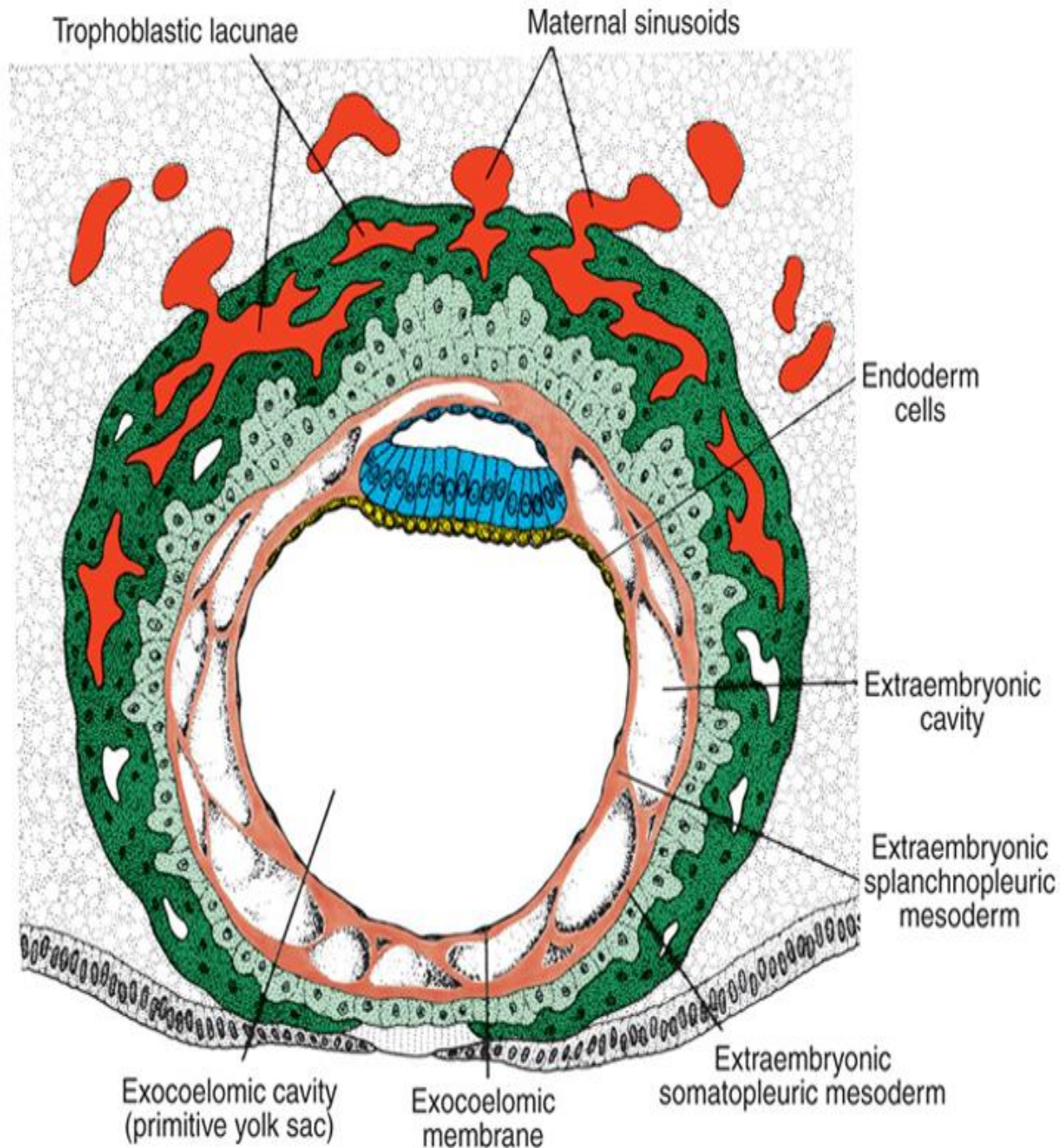
Days 11 and 12 continued

Soon, large cavities develop in the extraembryonic mesoderm, and when these become confluent, they form a new space known as

**THE
EXTRAEMBRYONIC
COELOM,**

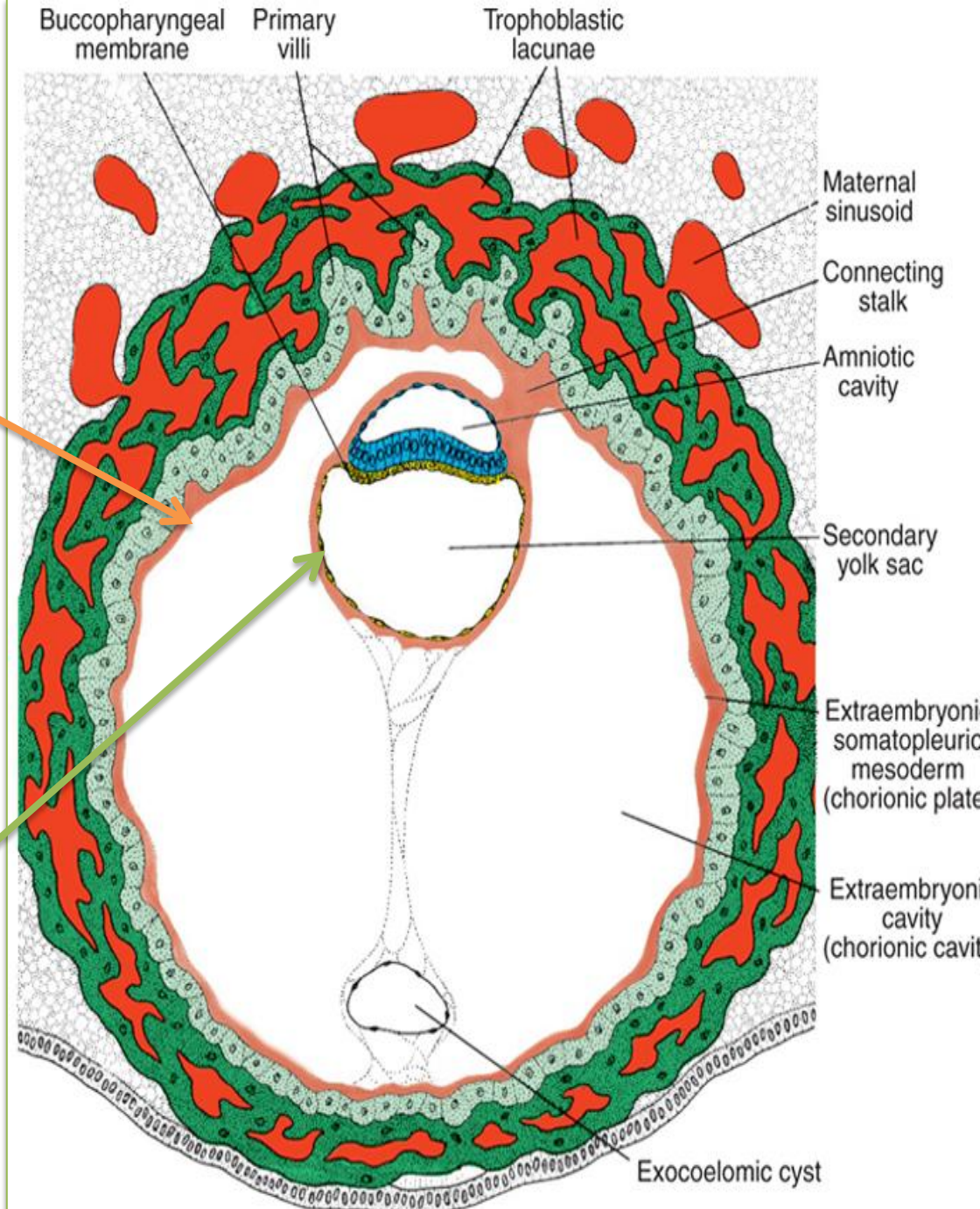
or

CHORIONIC CAVITY



The extraembryonic mesoderm lining the **cytotrophoblast** and **amnion** is called the extraembryonic **SOMATOPLEURIC** mesoderm

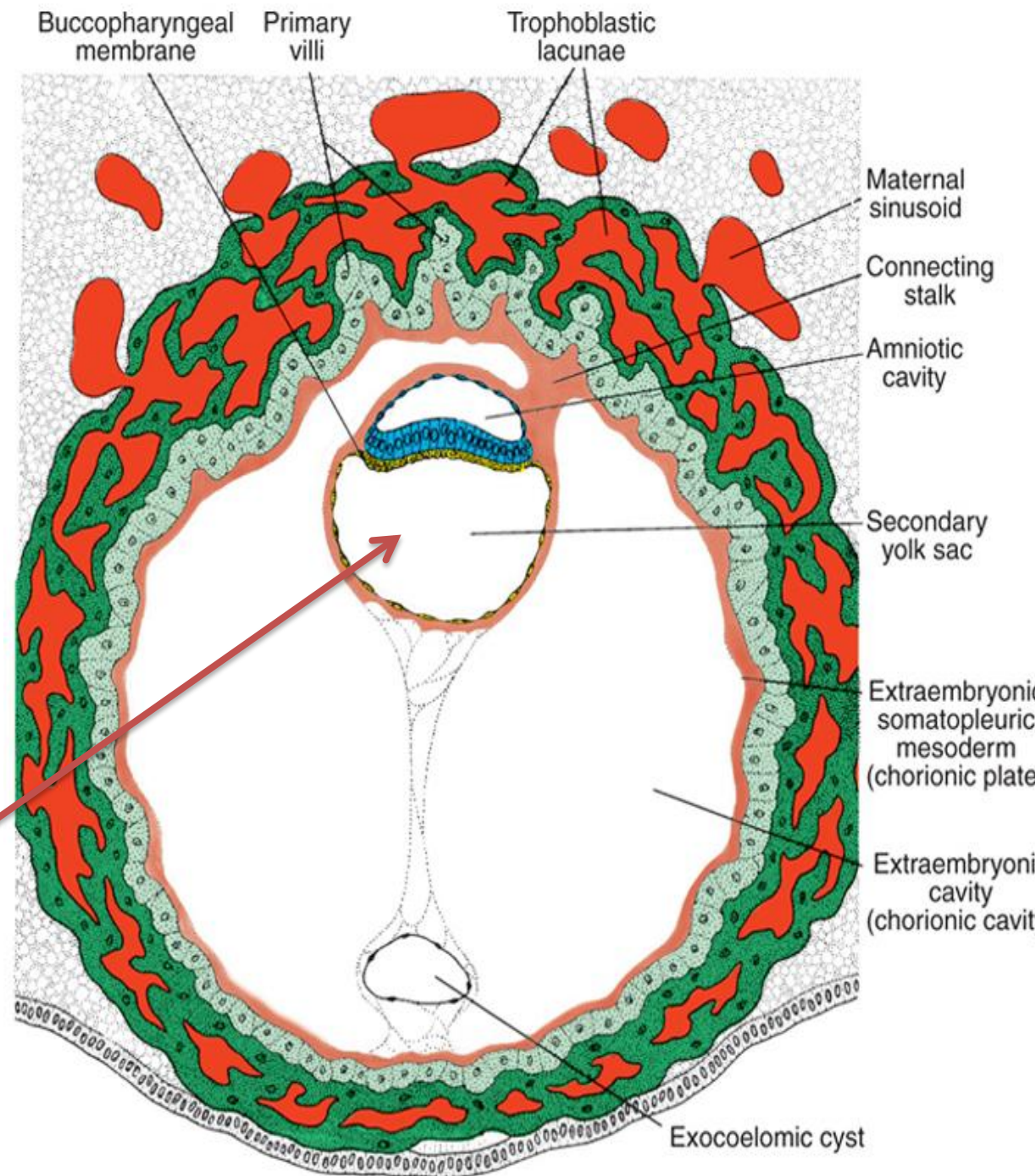
the lining covering **the yolk sac** is known as the extraembryonic **SPLANCHNOLEURIC** mesoderm



Day 13

The **hypoblast** produces cells that migrate along the inside of the **exocoelomic membrane**. These cells proliferate and gradually form a new cavity within the exocoelomic cavity. This new cavity is known as

THE SECONDARY YOLK SAC OR DEFINITIVE YOLK SAC



THE CHORIONIC vesicle

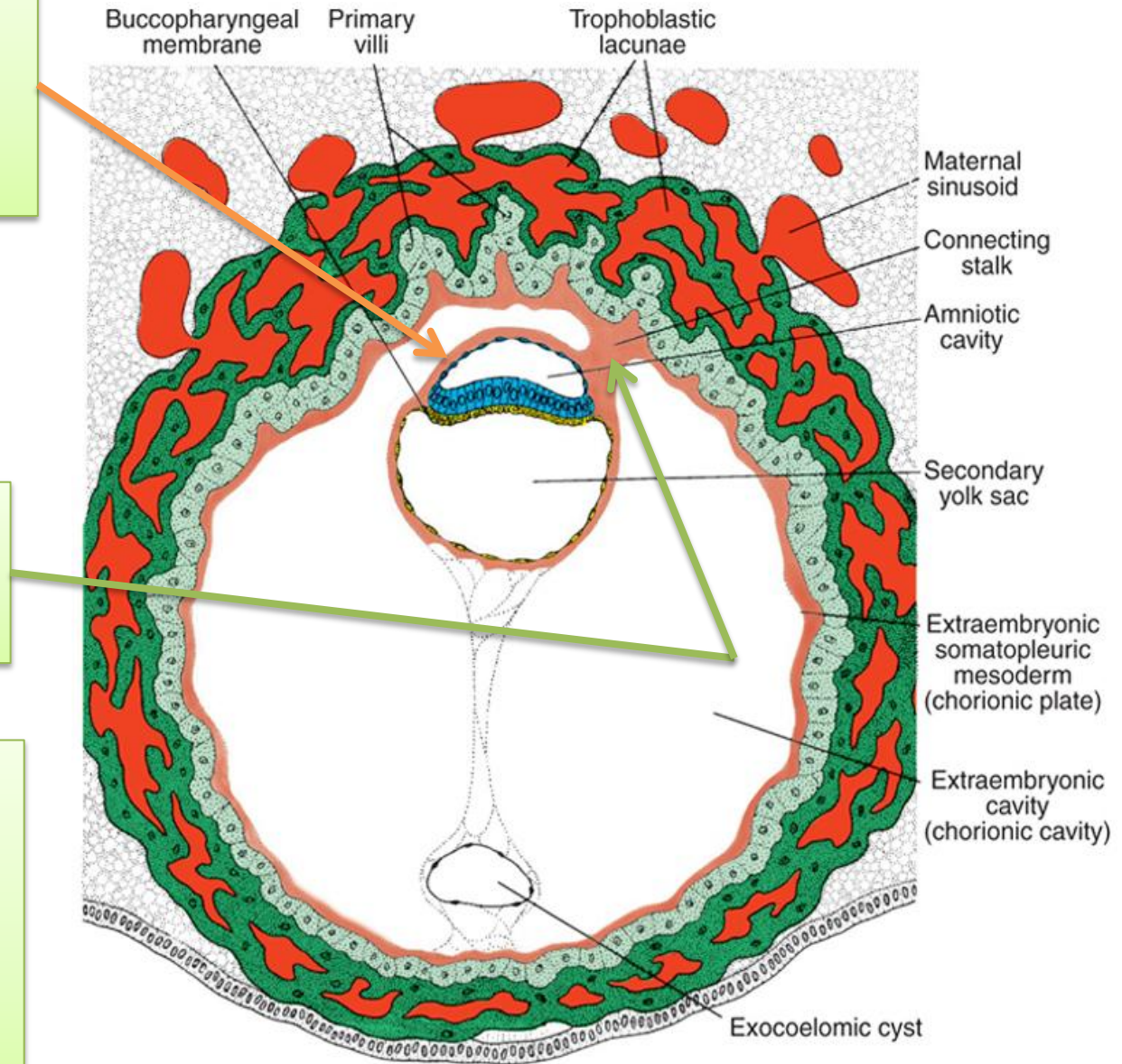
Which is hanging in
the chorionic cavity by



CONNECTING STALK

With development of blood
vessels, the stalk becomes

THE UMBILICAL CORD



What is the final product of the second week of development?



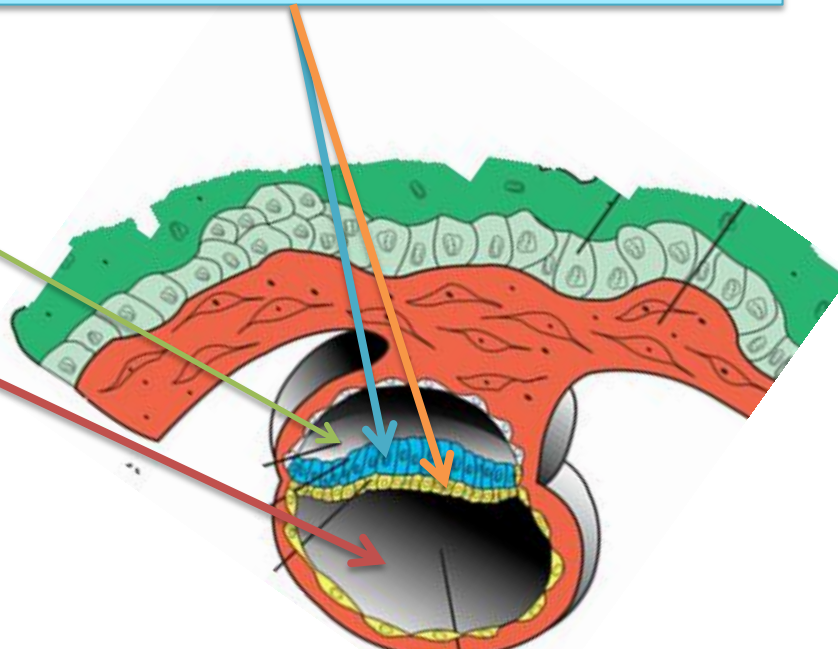
THE CHORIONIC vesicle

What is inside the chorionic vesicle?



The embryo which is made of two layers
(Bilaminar disc)

With amniotic cavity above the epiblast and
The secondary yolk sac below the hypoblast



The **second week** of development is known as the week of twos:

The *TROPHOBLAST* differentiates into two layers

The *cytotrophoblast*

The *syncytiotrophoblast*

The *EMBRYOBLAST* forms two layers

The *epiblast*

The *hypoblast*

The *EXTRAEMBRYONIC MESODERM* splits into two layers

The *somatopleure*

The *splanchnopleure*

Two *CAVITIES*

The *amniotic*

The *yolk sac*

THIRD WEEK OF DEVELOPMENT

Buccopharyngeal
membrane

Primary
villi

Trophoblastic
lacunae

Maternal
sinusoid

Connecting
stalk

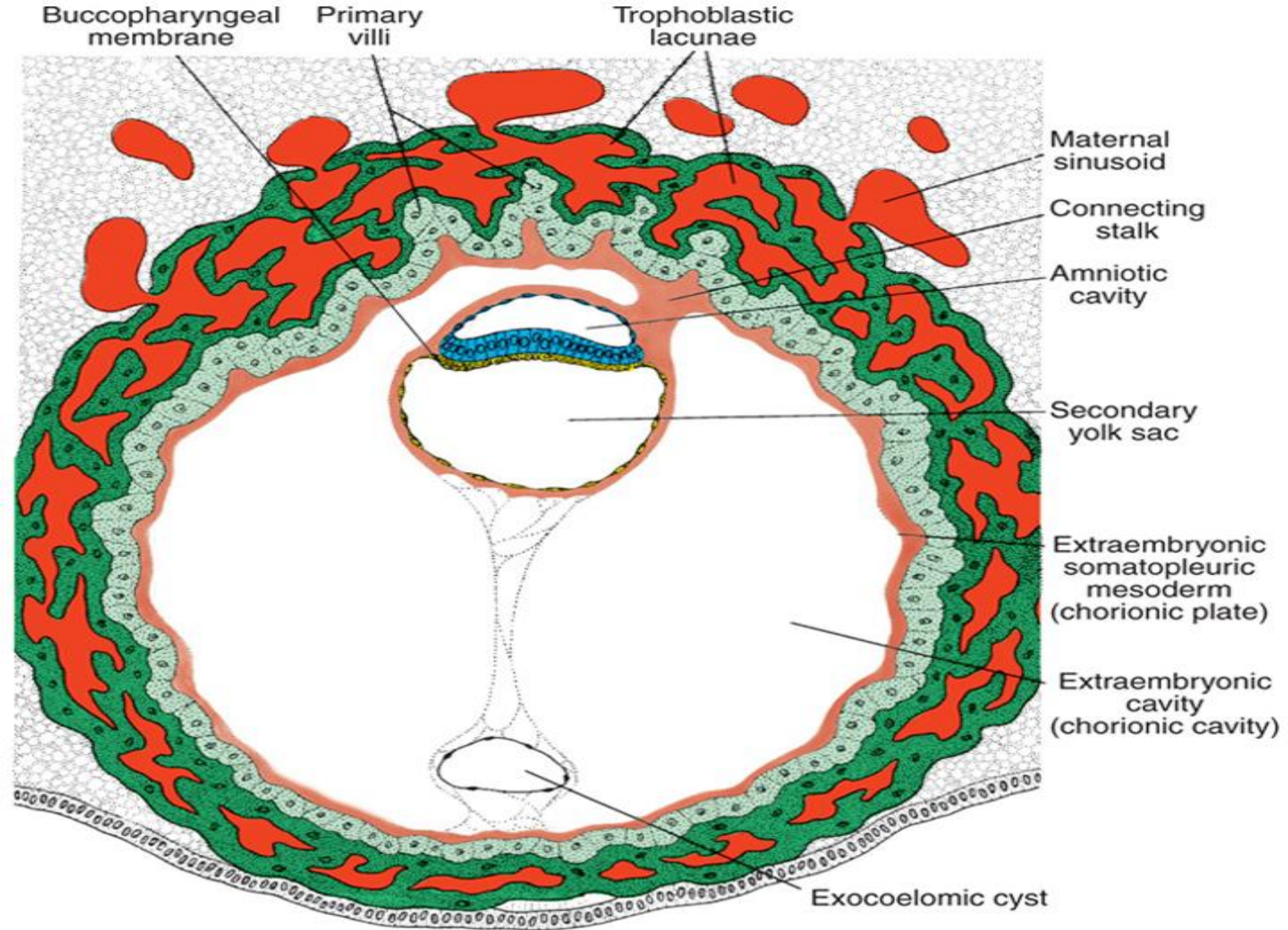
Amniotic
cavity

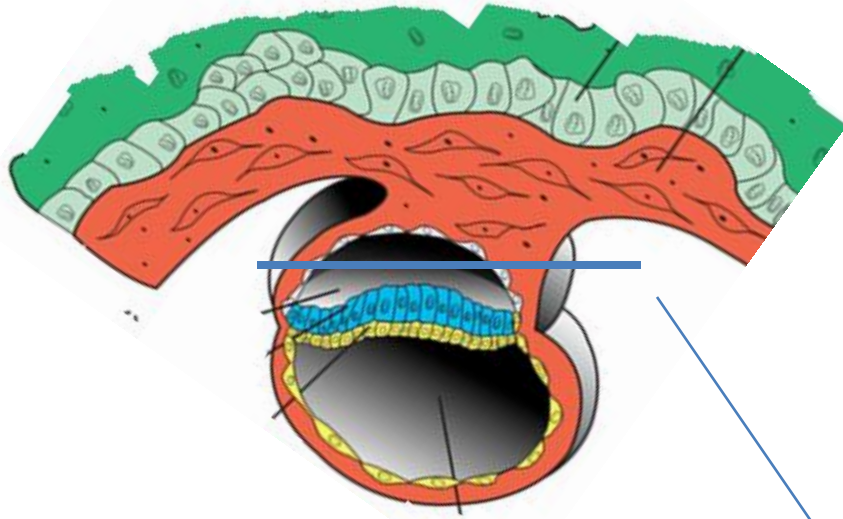
Secondary
yolk sac

Extraembryonic
somatopleuric
mesoderm
(chorionic plate)

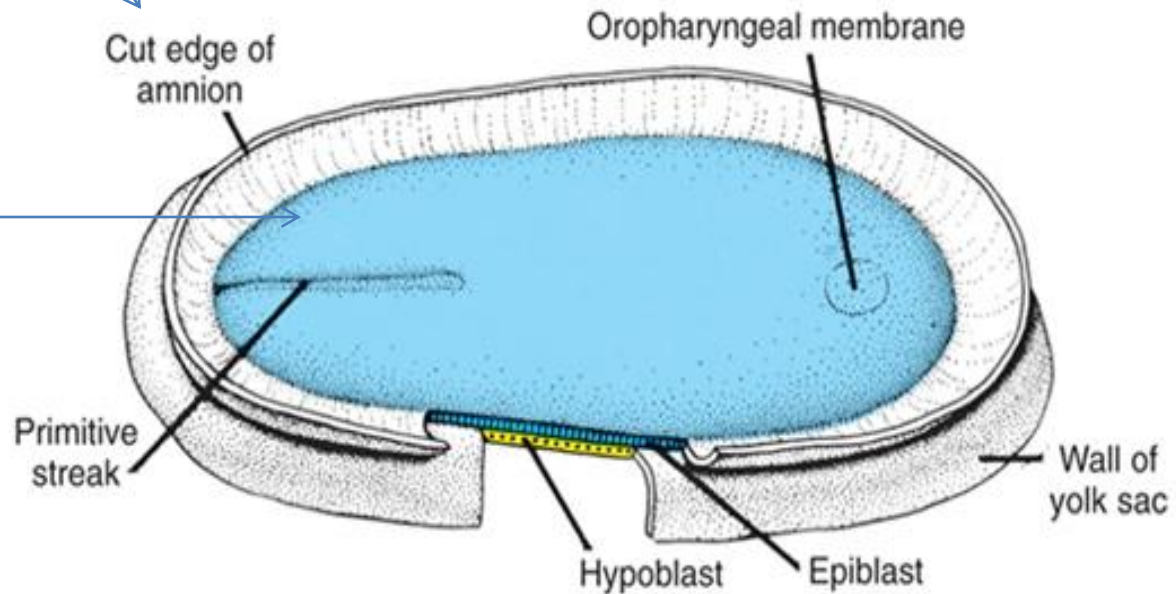
Extraembryonic
cavity
(chorionic cavity)

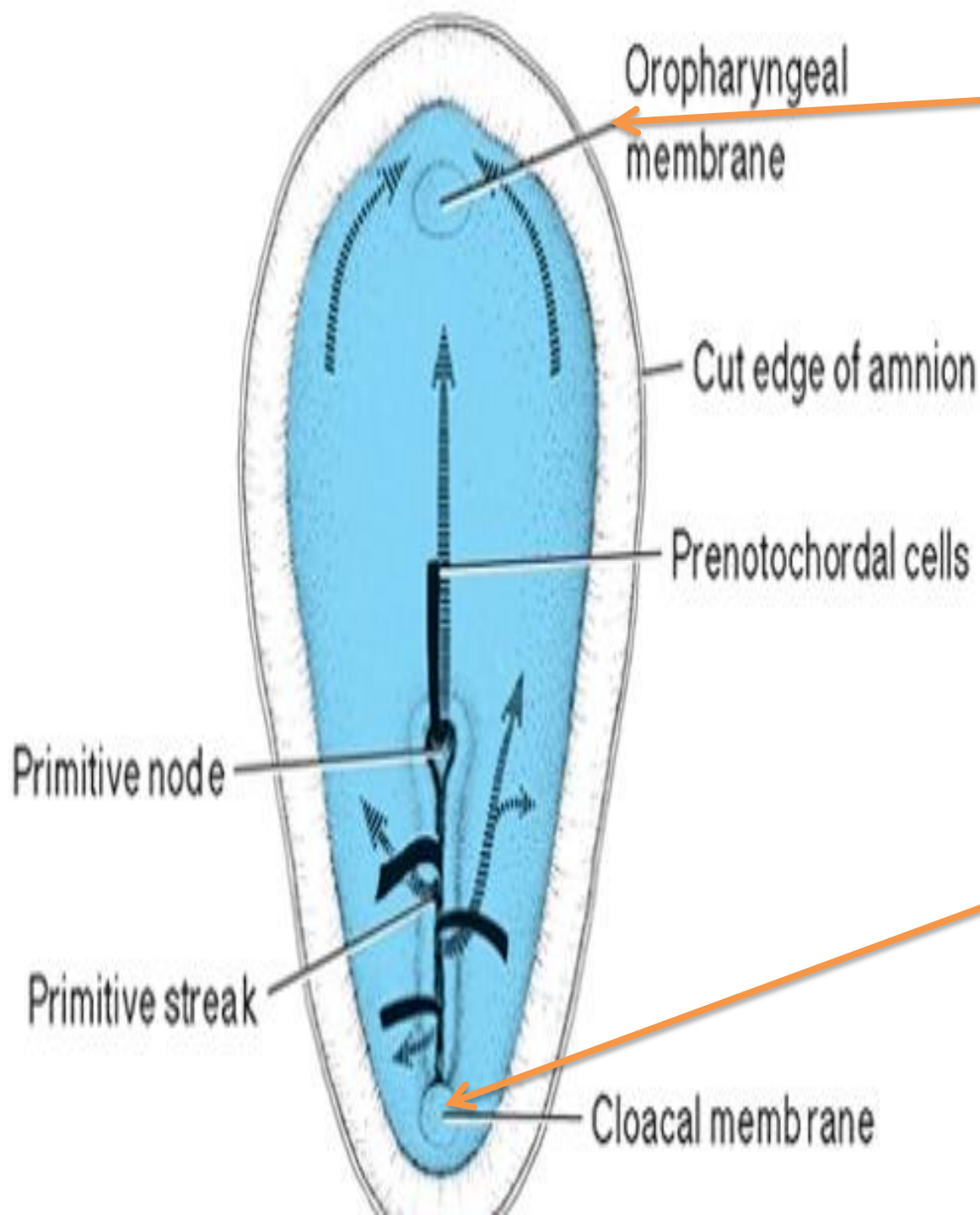
Exocoelomic cyst





**When viewed from above,
through the amniotic cavity,
the epiblast appears as an
oval disc**





**The
BUCCOPHARYN
GEAL
MEMBRANE**

marks the future **mouth** which is situated in the midline at **the cranial** end

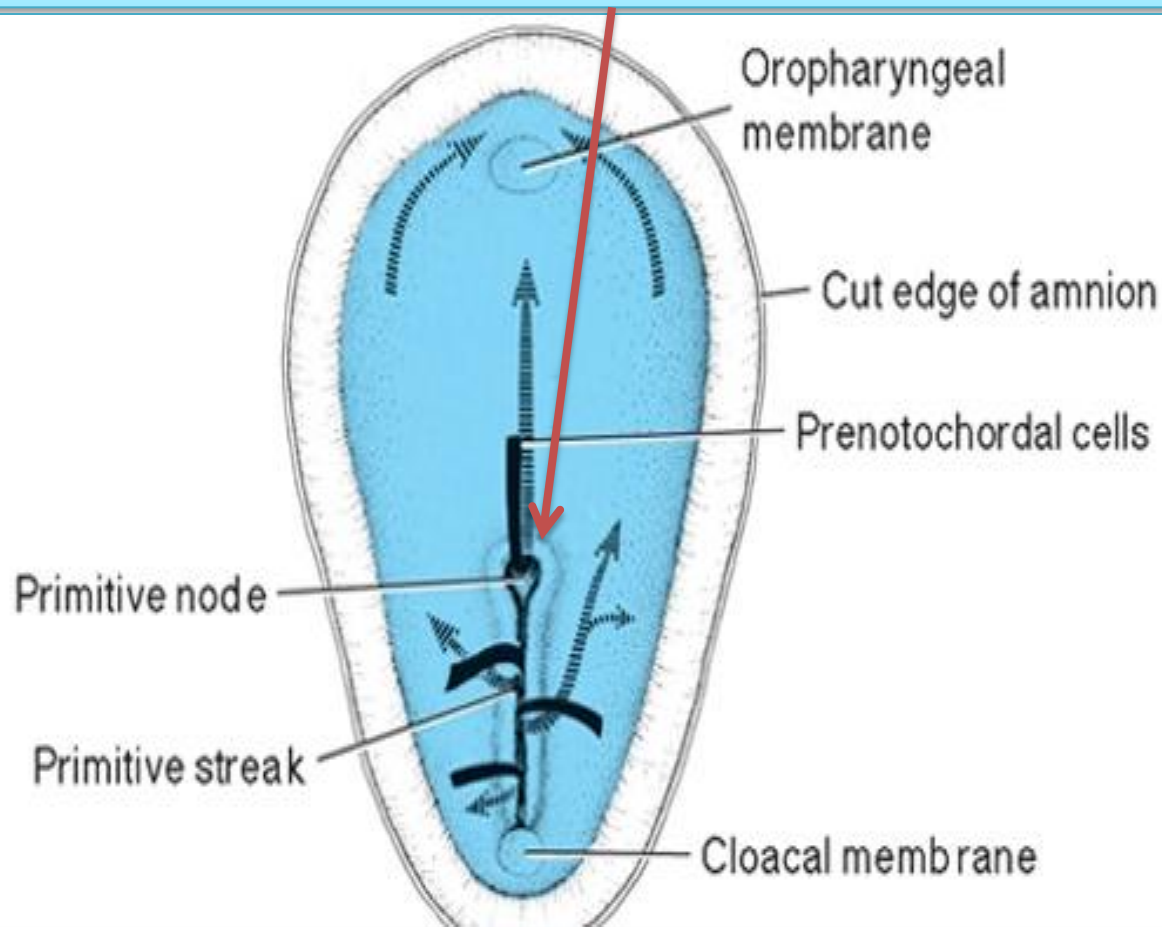
**The CLOACAL
MEMBRANE**

marks the future **anus** which is situated in the midline at **caudal** end.

The cells of the **EPIBLAST** are capable of
proliferation and migration

These two features of the epiblast will lead to:

- The cells of the epiblast start to proliferate forming
a swelling called PRIMITIVE NODE



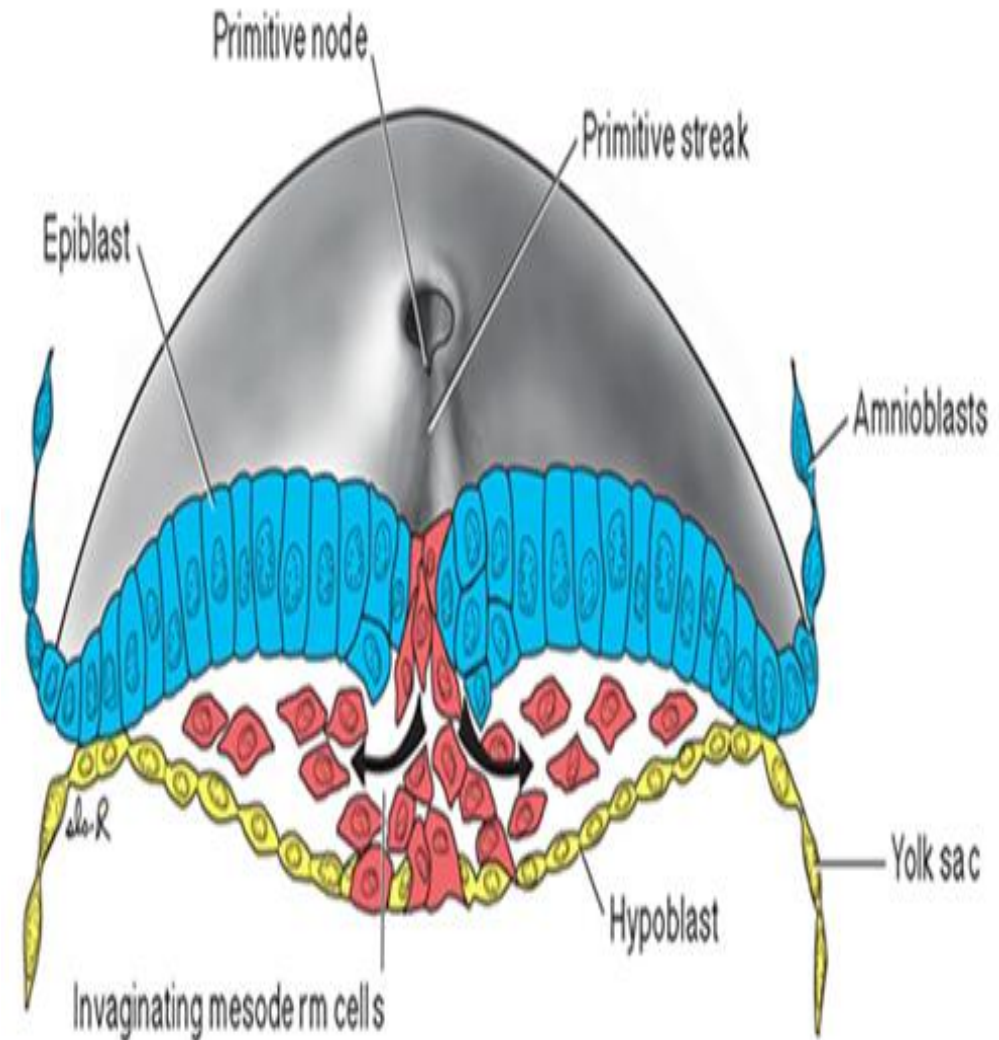
➤ As the primitive node elongates **THE PRIMITIVE STREAK** appears

➤ Cells of the **epiblast** **migrate** toward the **primitive streak** .

➤ The cells of the primitive streak **ingress** in the epiblast making a **pore** in the middle

➤ Upon arrival in the region of the streak, they **detach** from the epiblast, and **slip beneath** it.

➤ This **inward movement** is known as **invagination**.

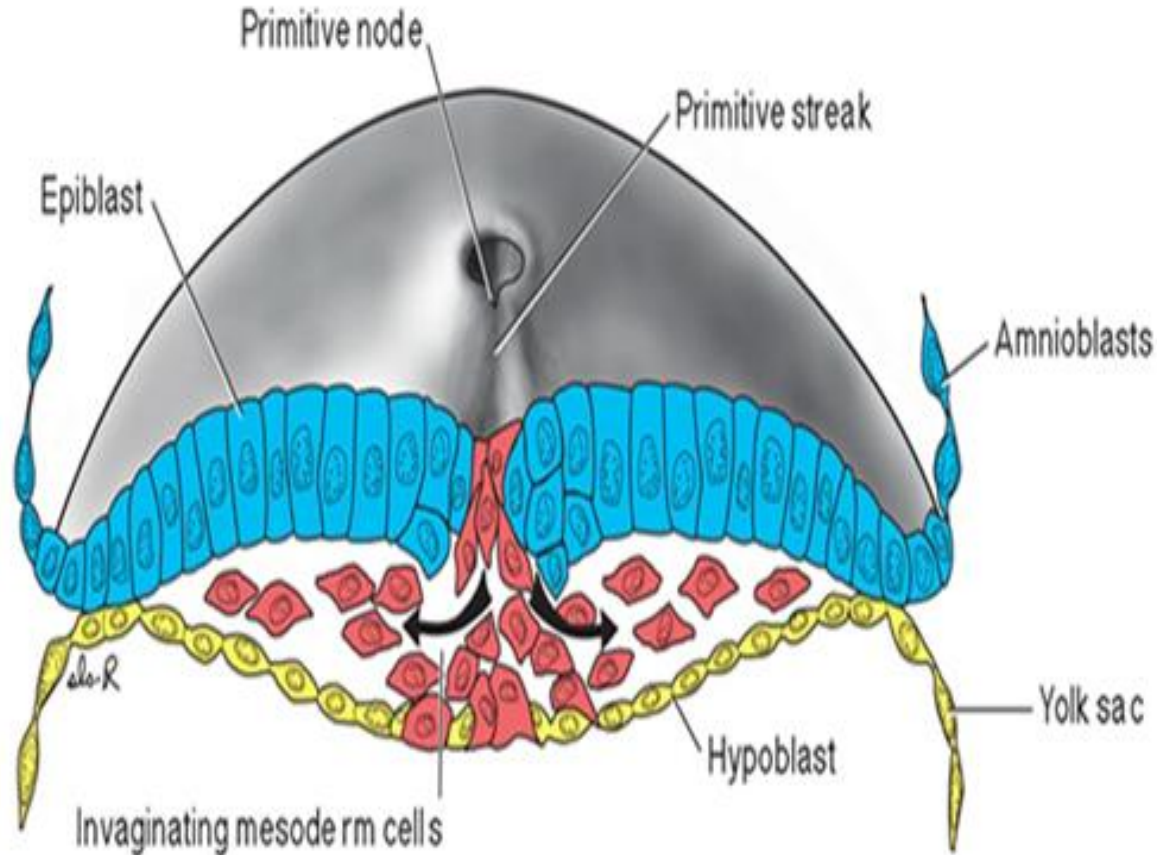


➤ Once the cells have invaginated, some displace the hypoblast, creating the embryonic

ENDODERM

➤ Other cells come to lie between the epiblast and newly created endoderm to form

MESODERM



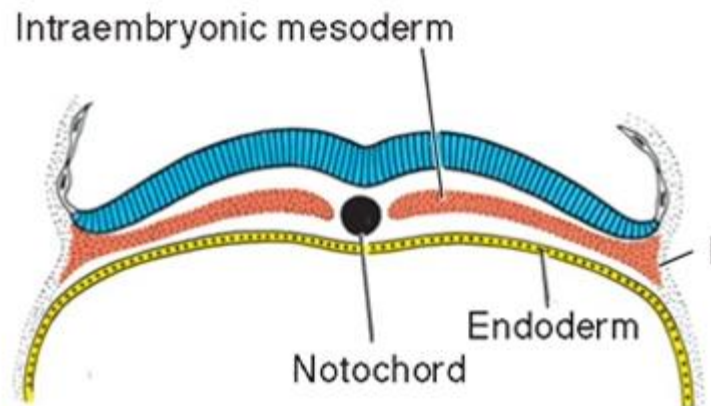
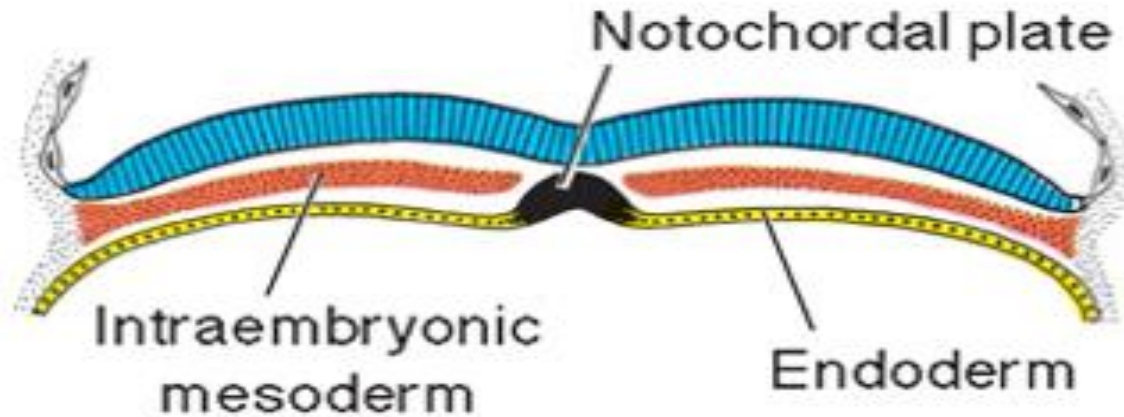
➤ Cells remaining in the epiblast then form **ECTODERM**.

Thus, THE EPIBLAST, through the process of gastrulation, is the source of all of the germ layers.

cells in these layers will give rise to all of the tissues and organs in the embryo.

A swelling appears on the upper surface of the hypoblast called **NOTOCHORD**

Because of the presence of the notochord in the middle of the trilaminar disc, the migrating cells from the epiblast will fill only the paraxial region (the area around the axis)



The most characteristic event occurring during the **third week of gestation** is

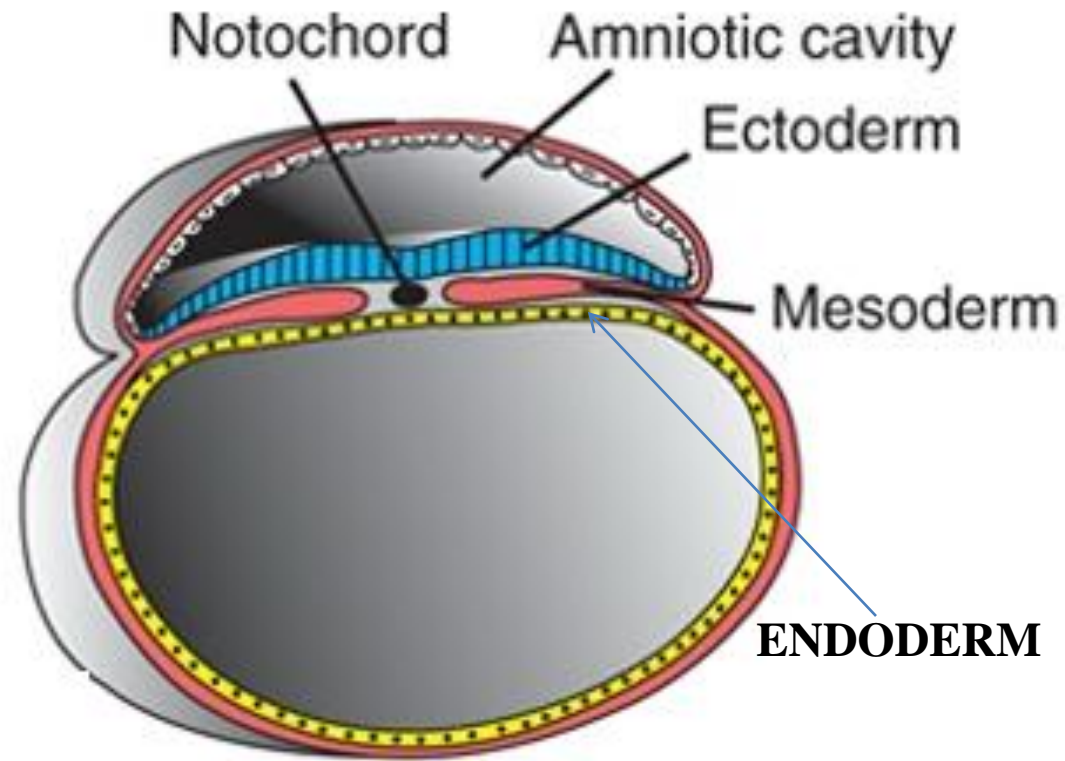
GASTRULATION,
the process that establishes all three germ layers in the embryo



1-ECTODERM

2-MESODERM

3-ENDODERM



What is the final product of the third week of development?

A trilaminar disc embryo

