

Planche 1

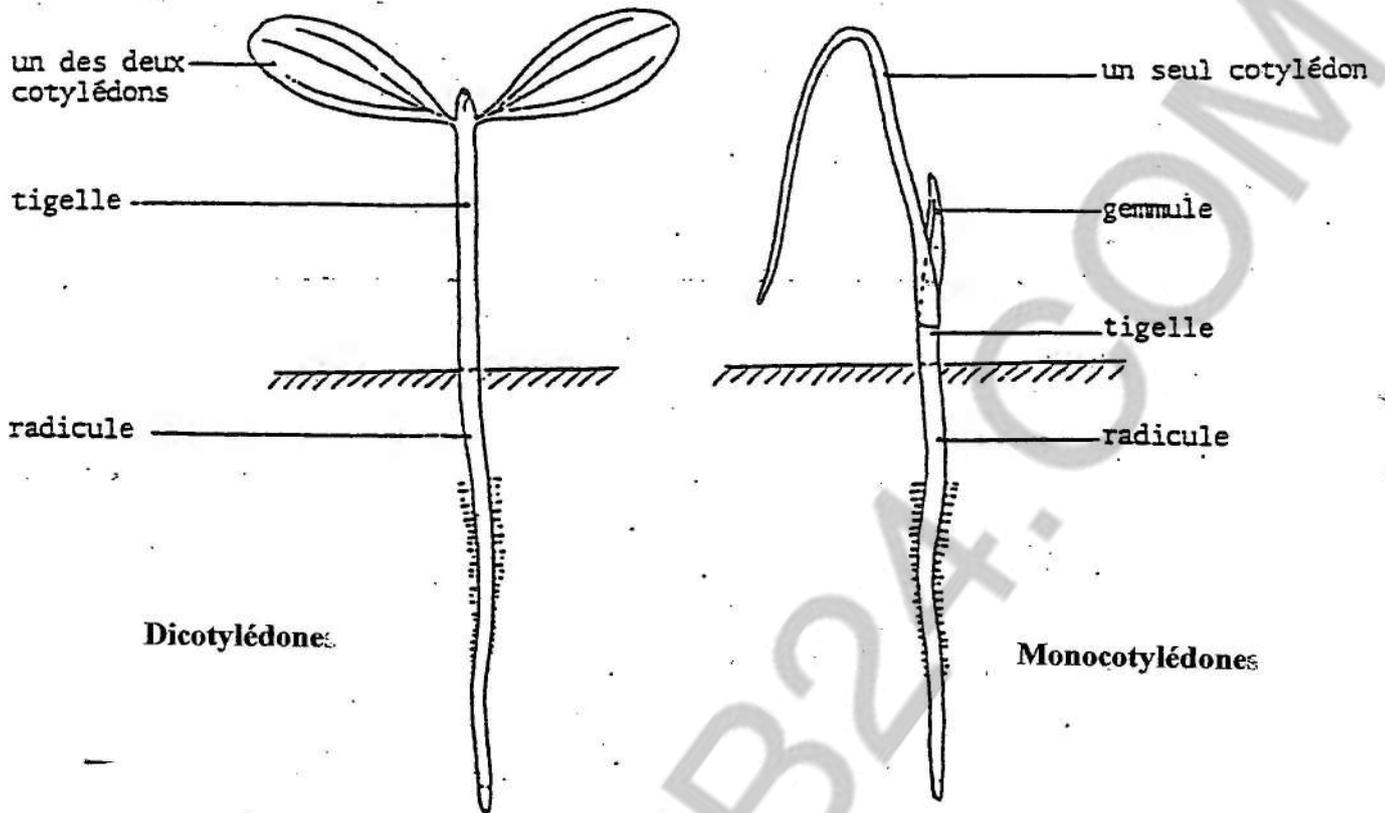


Figure 1 : Plantules d'Angiospermes

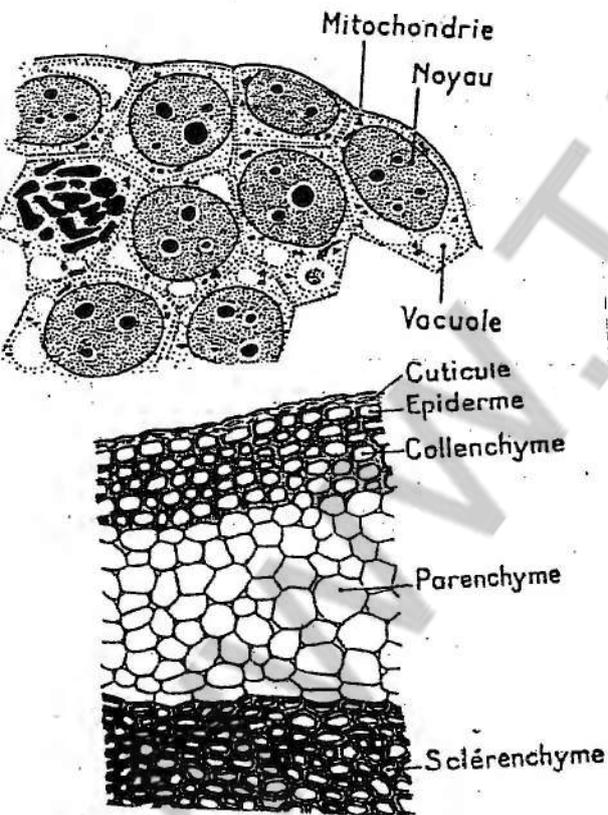


Figure 2 : Méristème primaire

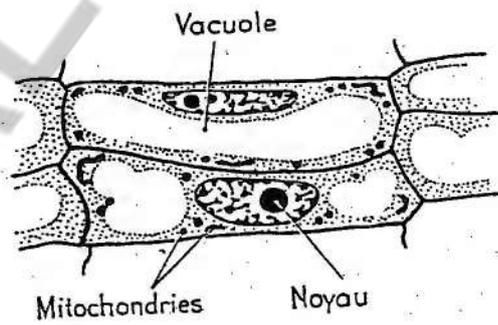
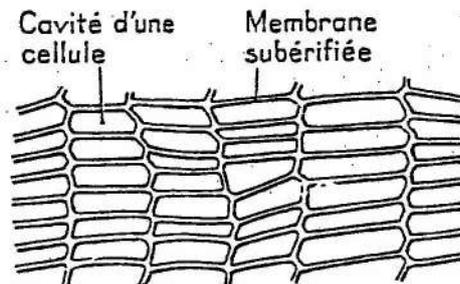


Figure 3 : Méristème secondaire



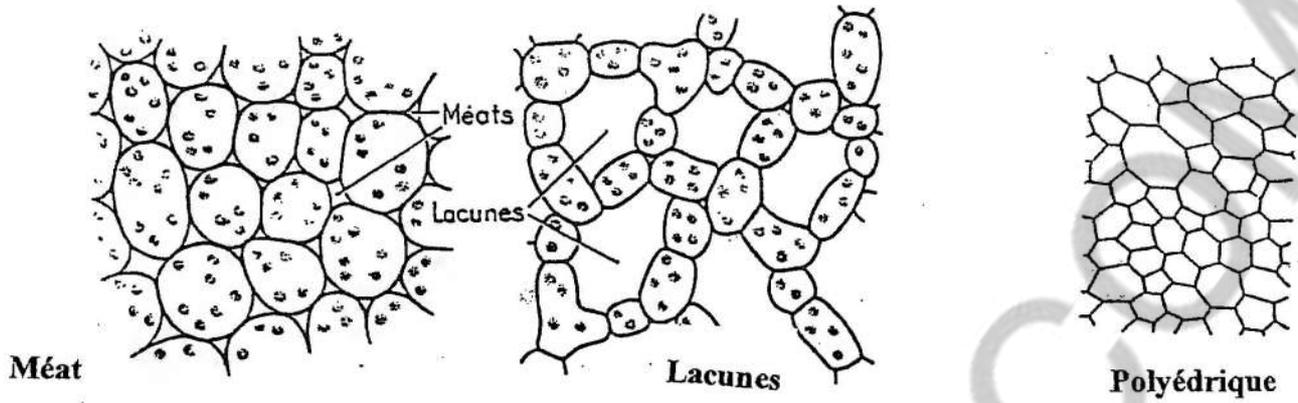


Figure 1 : Parenchymes cellulosiques

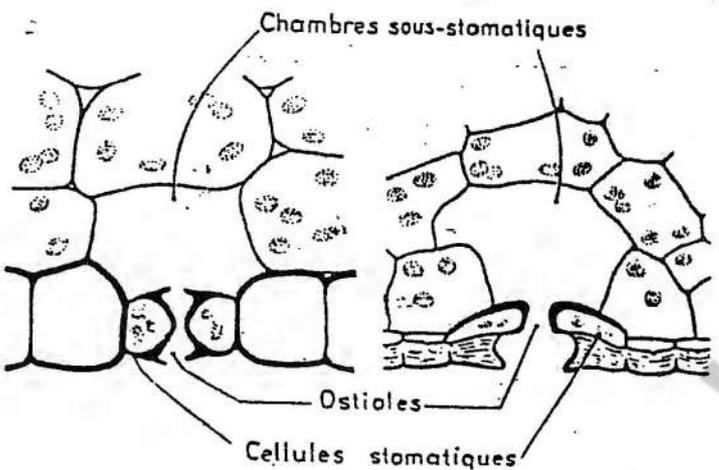


Figure 2 : Stomate aérifère en C.T
a : F.Muguet ; b : F.Houx

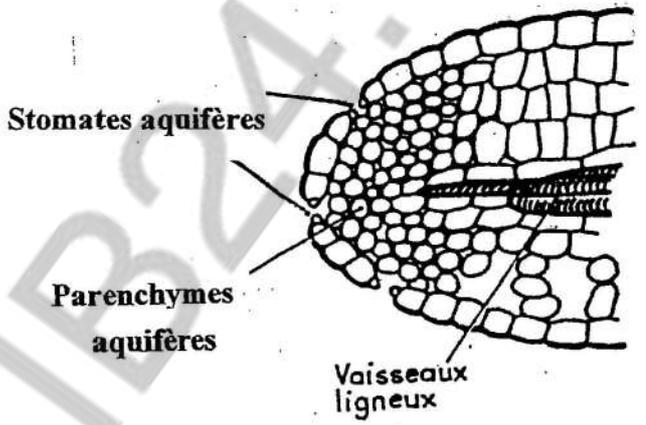


Figure 3 : Stomate aquifère
(Feuille de Choux)

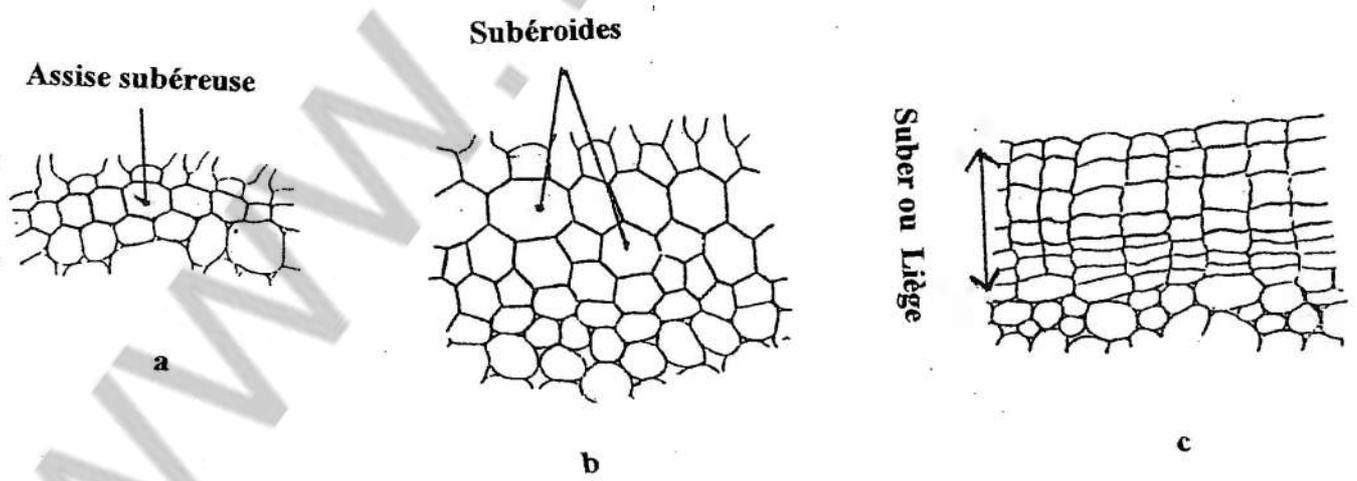
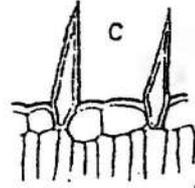
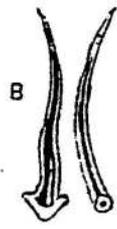


Figure 4 : Tissus subérifiés

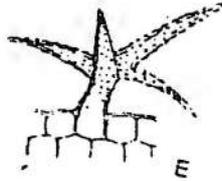
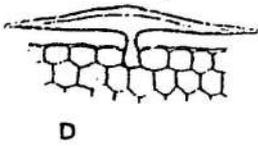
Planche 3



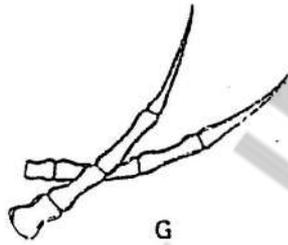
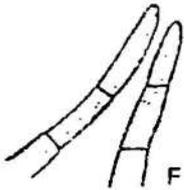
A
Papilles



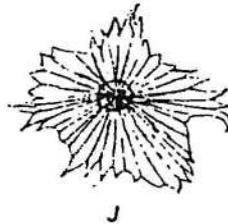
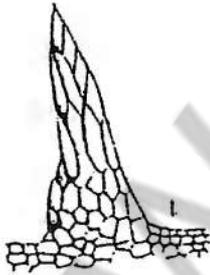
B C
Poils unicellulaires droits (B et C)



D E
Poils unicellulaires ramifiés (D et E)



F G H
Poils pluricellulaires unisériés (F et G), articulés ramifiés (H)



I J
Poils pluricellulaires massifs (I et J)

Les poils tecteurs

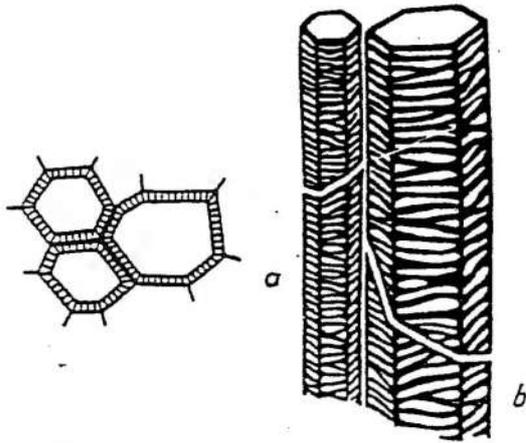


Figure 1 : Tracheïdes scalariformes
Ptéridophytes (Fougère)

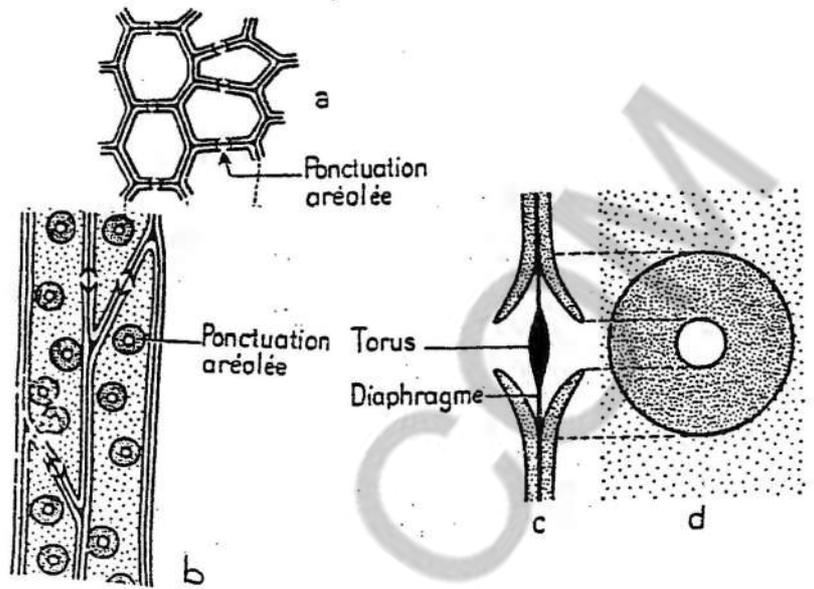


Figure 2 : Tracheïdes aréolées
Gymnospermes (Pin)

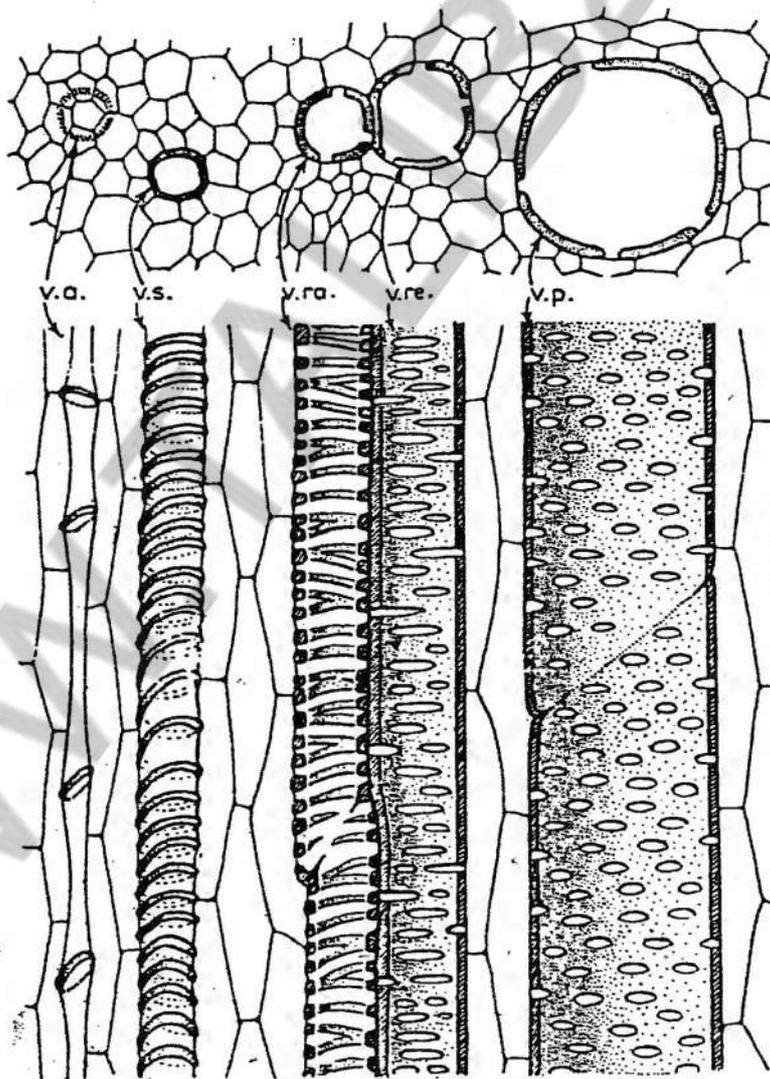


Figure 3 : Vaisseaux ligneux d'une Angiosperme Dicotylédone (T. de Courge)

Planche 5

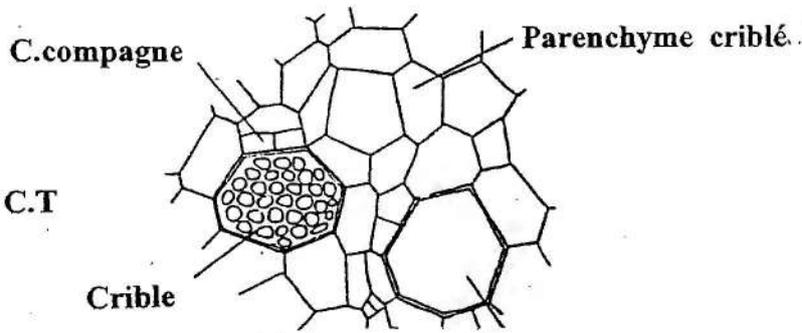


Figure 1 : Eléments du phloème

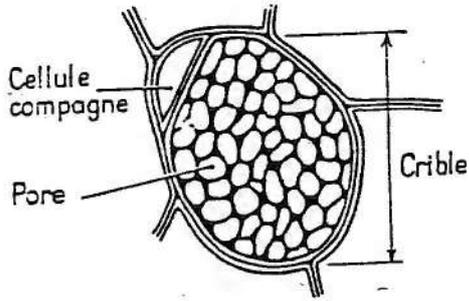


Figure 2 : Crible simple

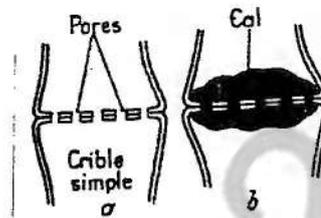


Figure 3 : Obstruction d'un crible simple

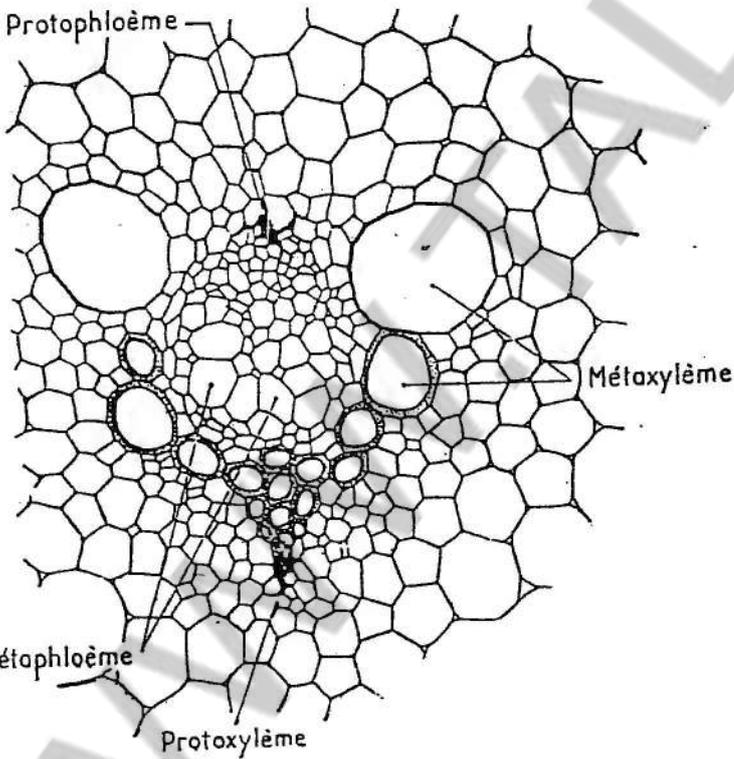
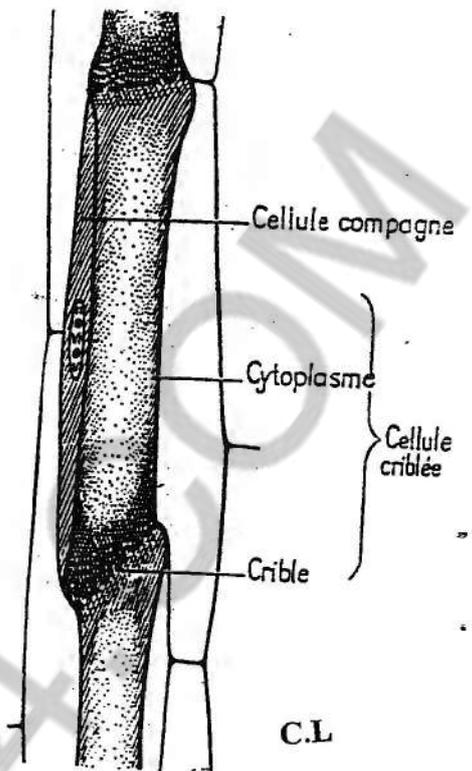


Figure 4 : Faisceau criblovasculaire d'une tige Monocotylédone

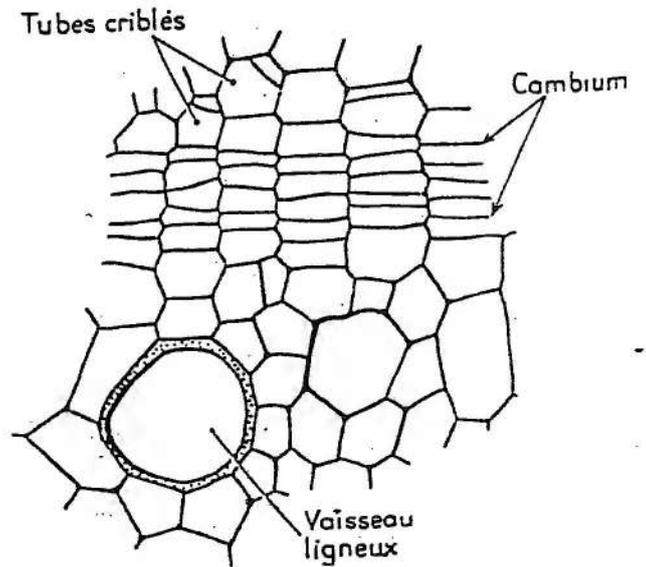


Figure 5 : F.C.V d'une tige Dicotylédone

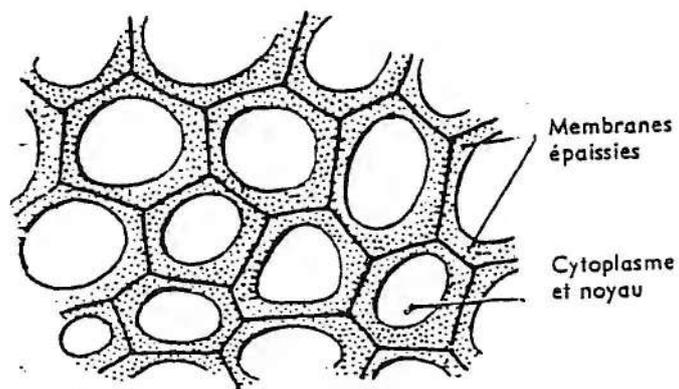


Figure 1 : Collenchyme

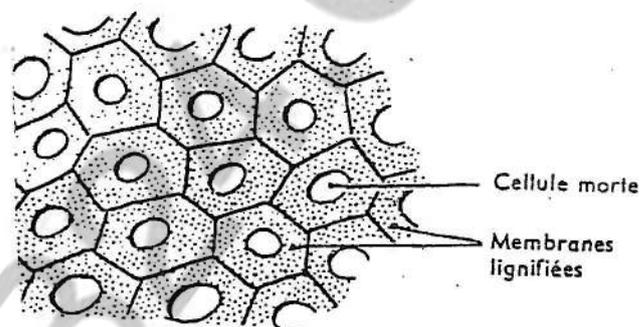


Figure 2 : Sclérenchyme

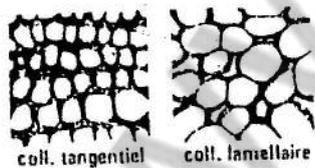
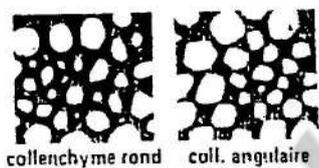


Figure 3 : Les divers types de collenchyme

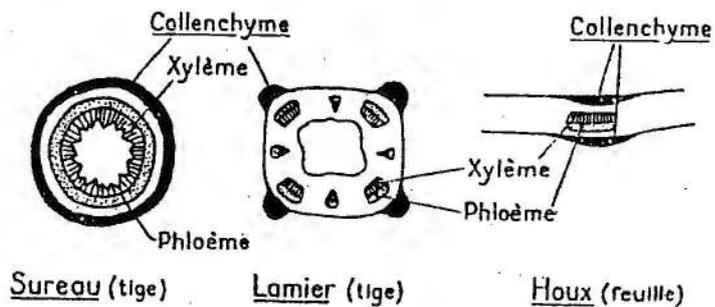


Figure 4 : Localisation du collenchyme

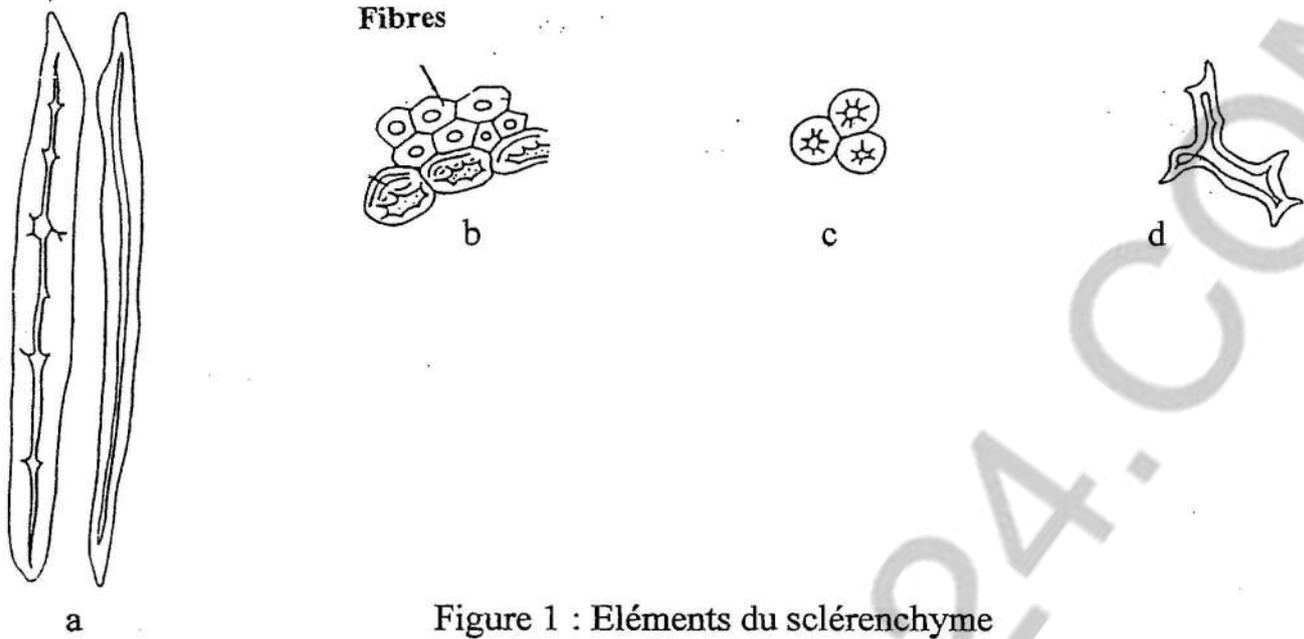


Figure 1 : Eléments du sclérenchyme

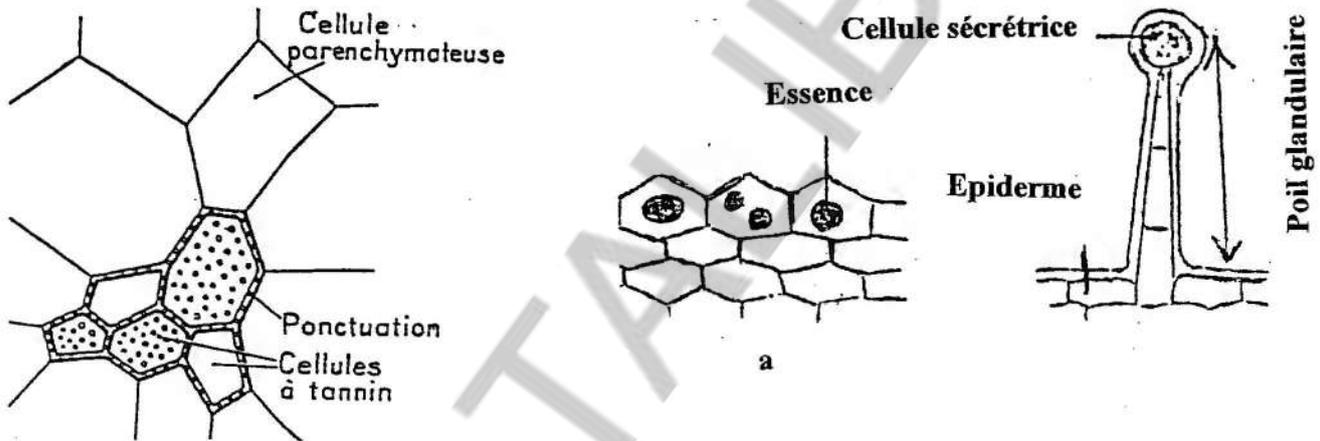


Figure 2 : Cellules à tannin de la moelle des tiges du Rosier

Figure 3 : Epiderme sécréteur d'un pétale de Rose (a). Poil sécréteur de l'épiderme d'une feuille (b)

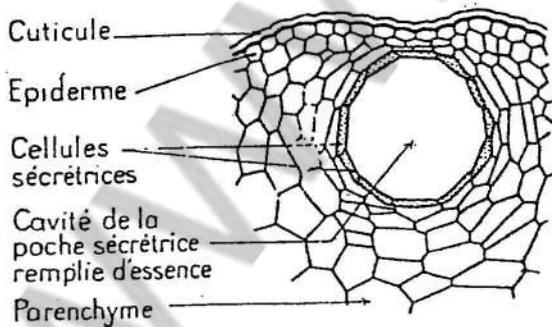


Figure 4 : Poche excrétrice du péricarpe d'une orange

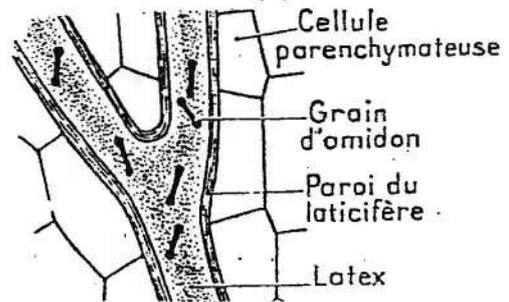
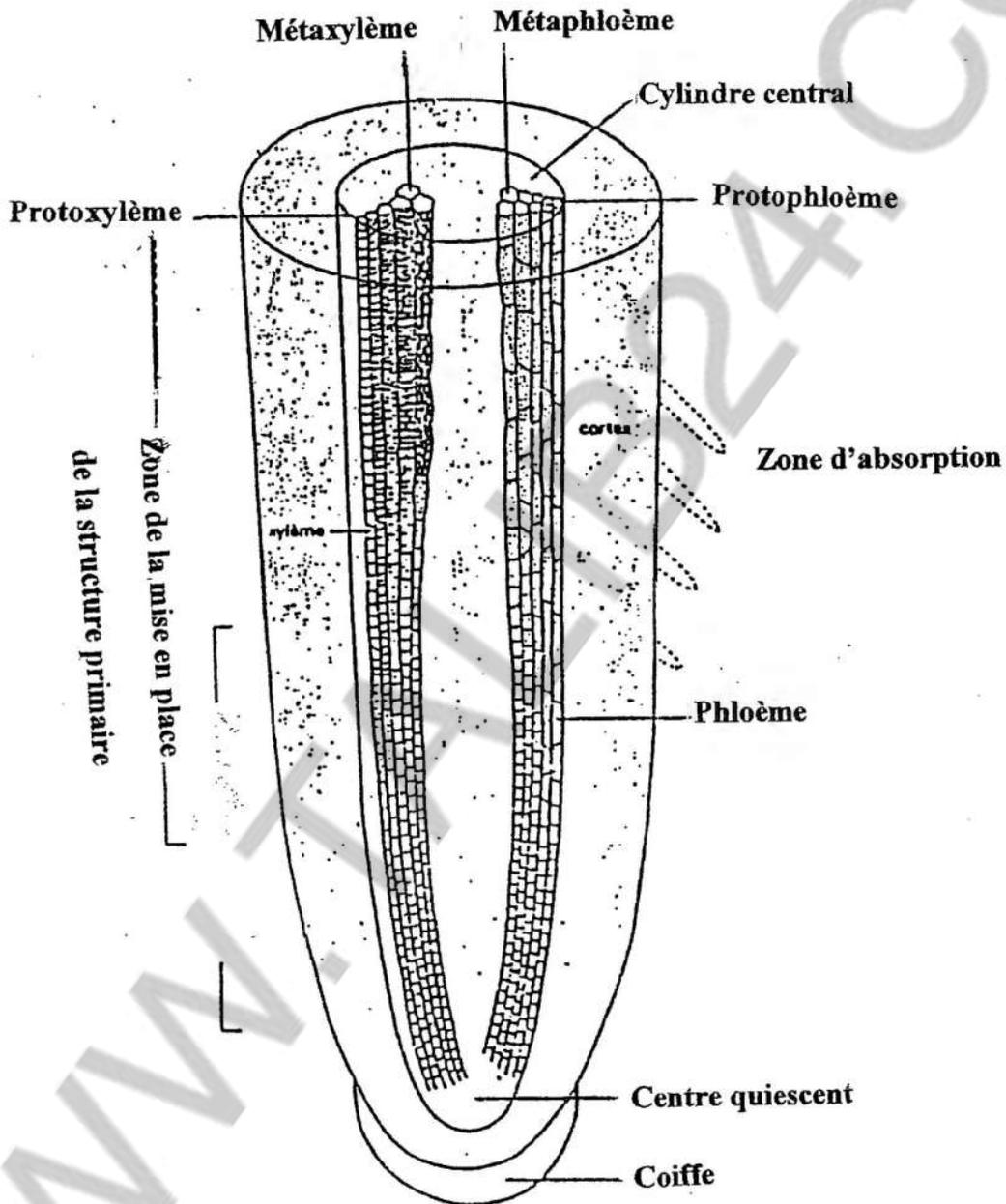
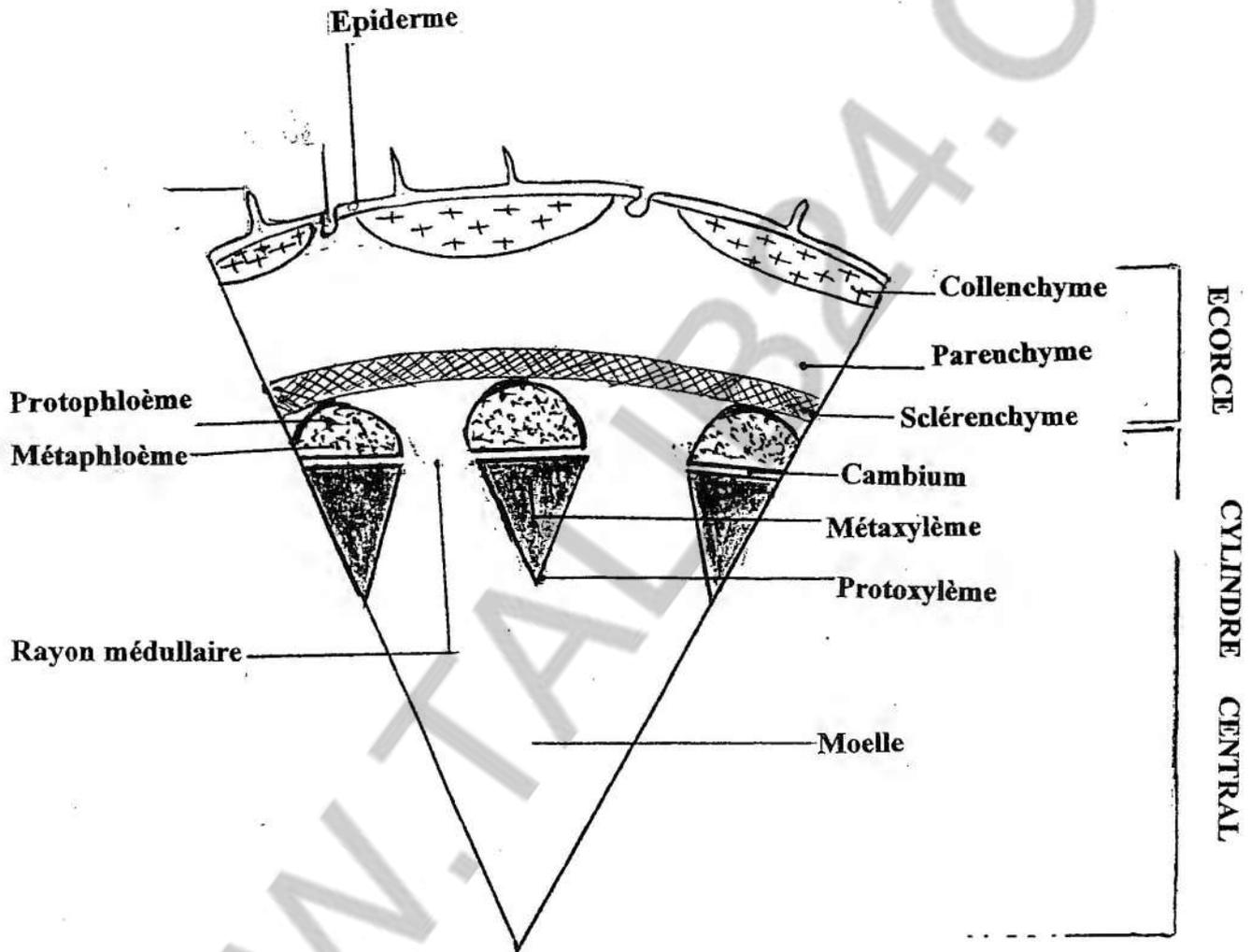


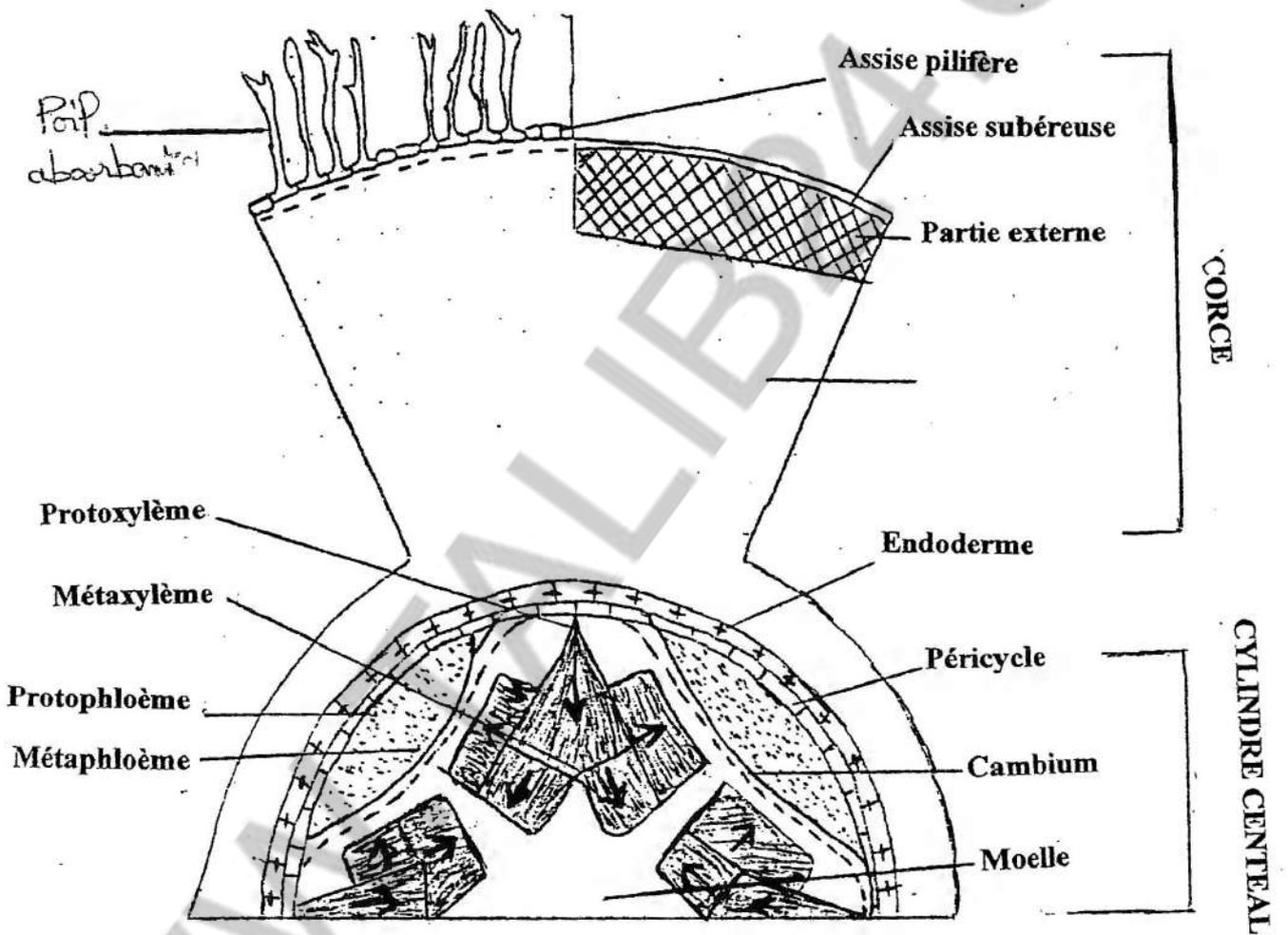
Figure 5 : laticifère d'une tige d'Euphorbe



Apparition programmée de la différenciation des tissus conducteurs
De la racine.



Représentation conventionnelle d'une tige Dicotylédone (C.T)
Structure primaire internodale.



Structure primaire typique de la racine de Dicotylédone ou la racine de Gymnosperme.

Planche 11

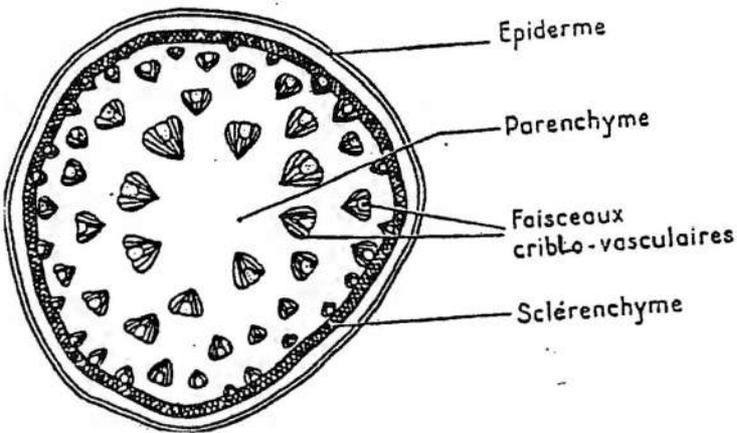


Figure 1 : Structure de la tige Monocotylédone (Asperge)

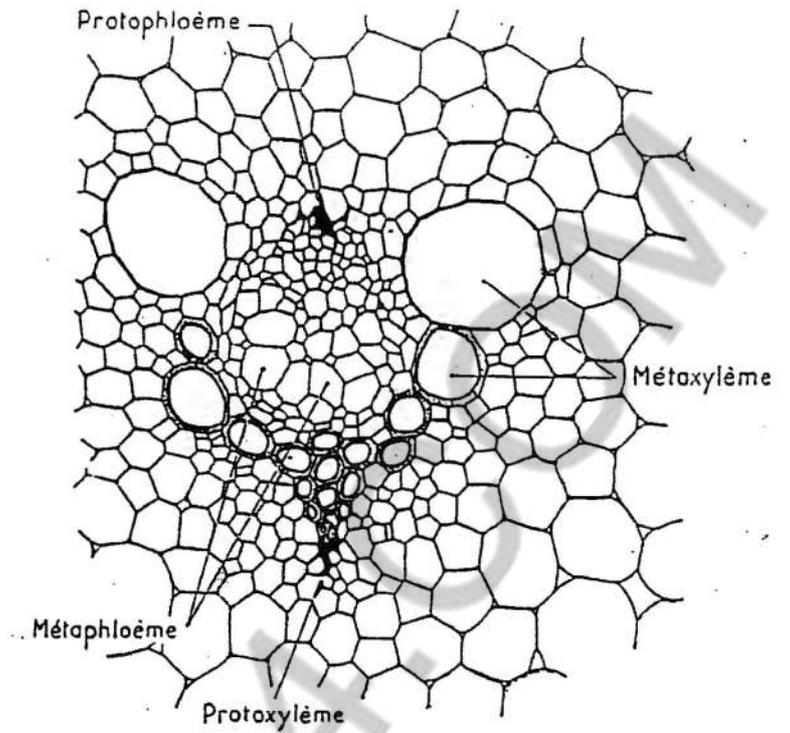


Figure 2 : Tissu conducteur de la Monocotylédone

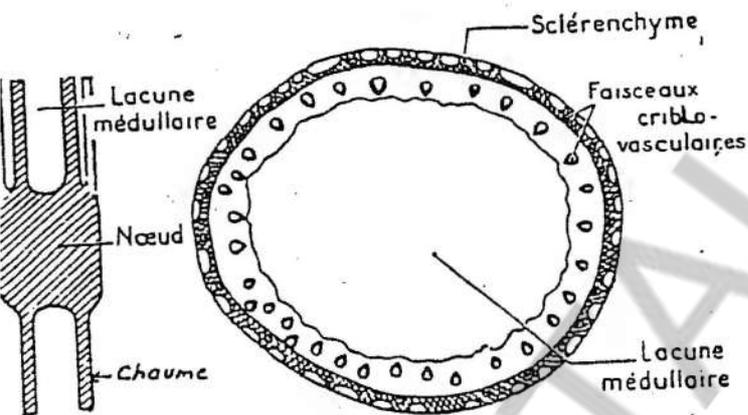


Figure 3 : Chaume des Graminées (Avoine)

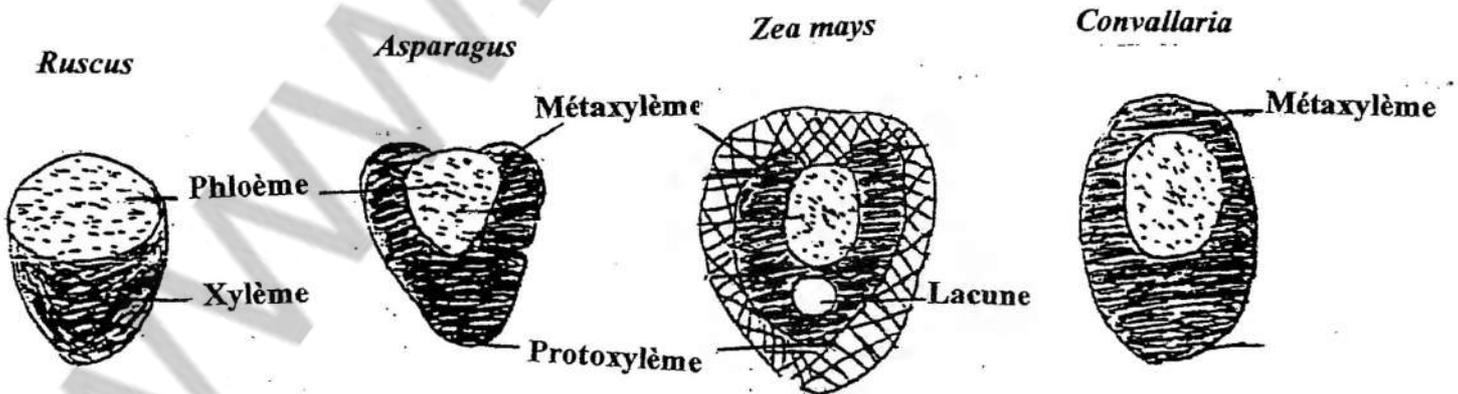
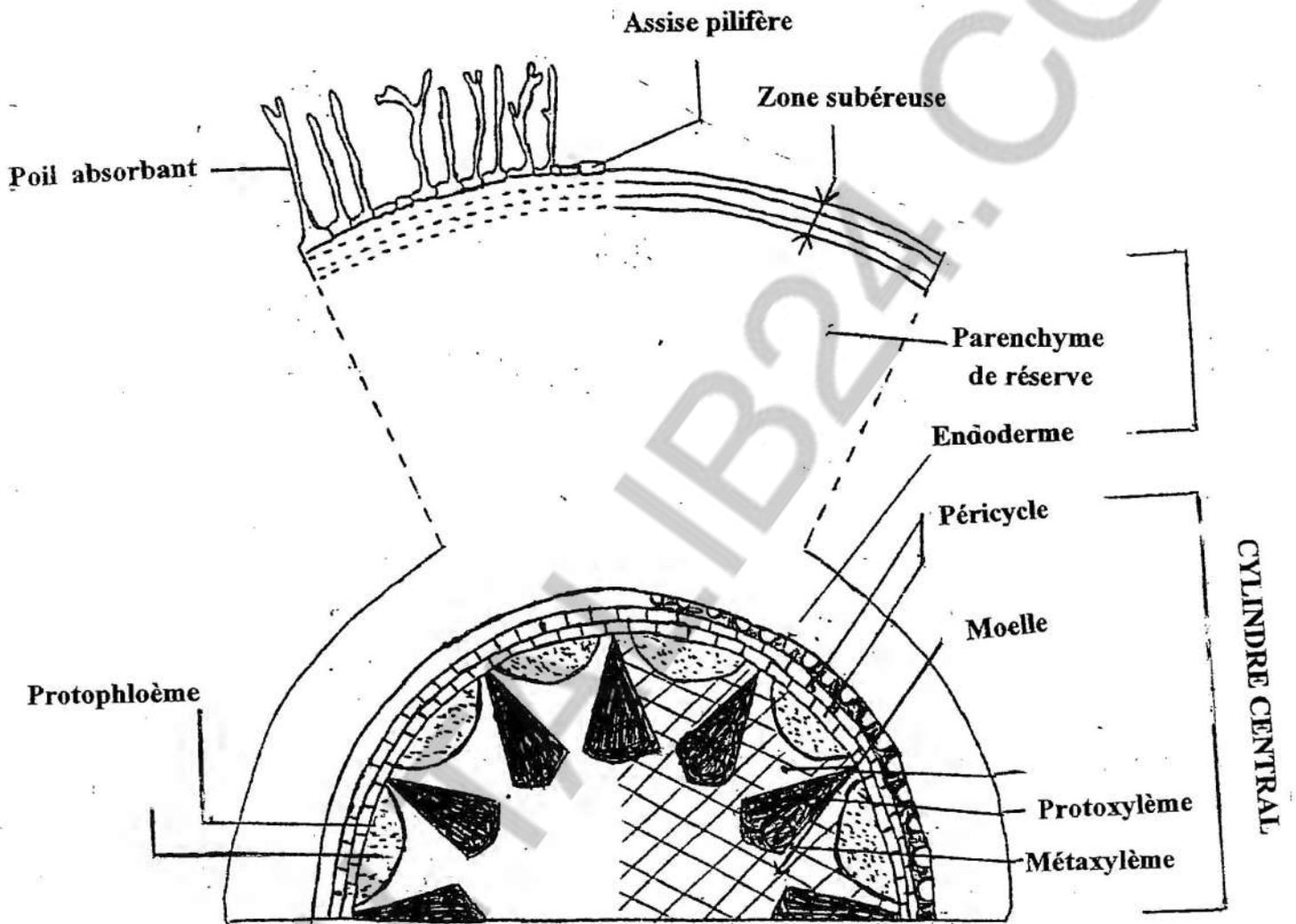


Figure 4 : les différents F.C.V des tiges Monocotylédones.



Représentation conventionnelle d'une racine Monocotylédone en coupe transversale.

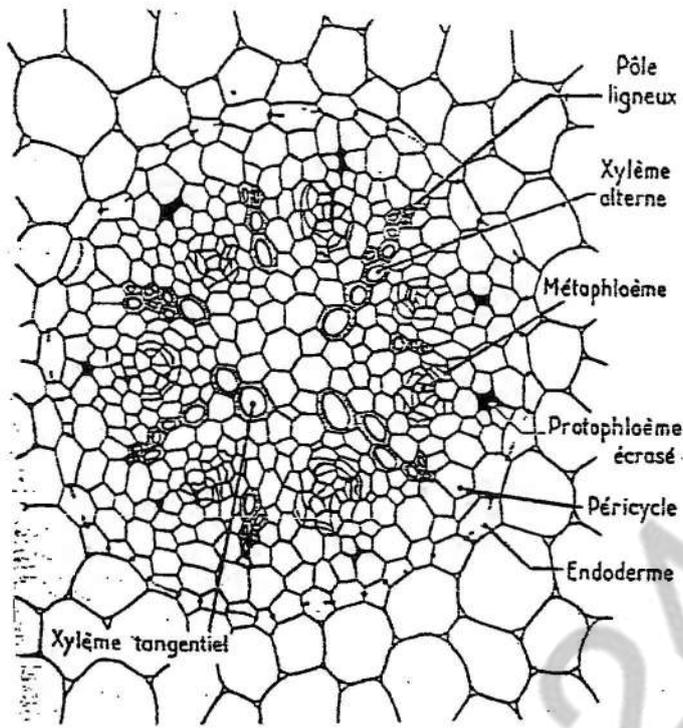


Figure 1 : Structure primaire d'une racine à évolution vasculaire incomplète.

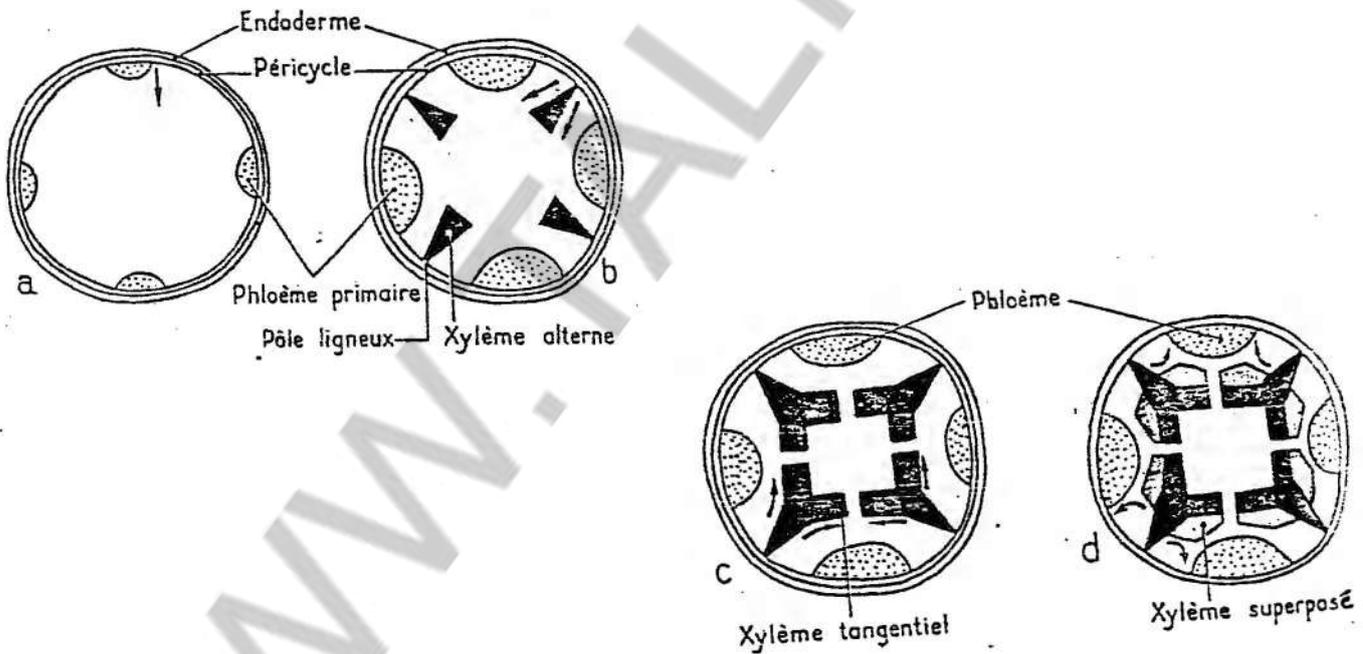


Figure 2 : Schémas figurant l'évolution vasculaire complète dans une racine de Dicotylédone.

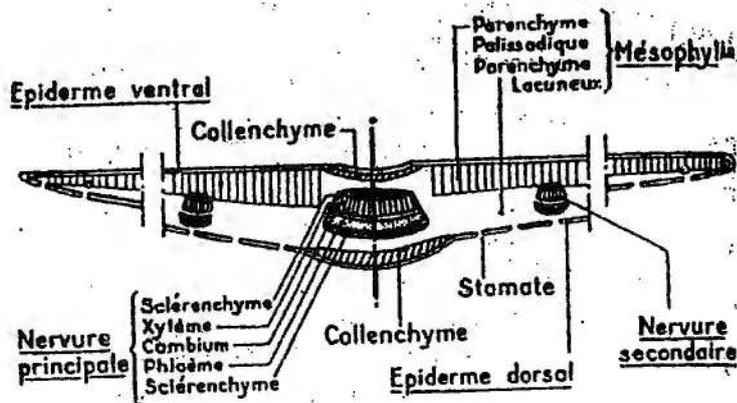


Figure 1 : Schéma d'une C.T dans le limbe d'une Feuille de Houx.

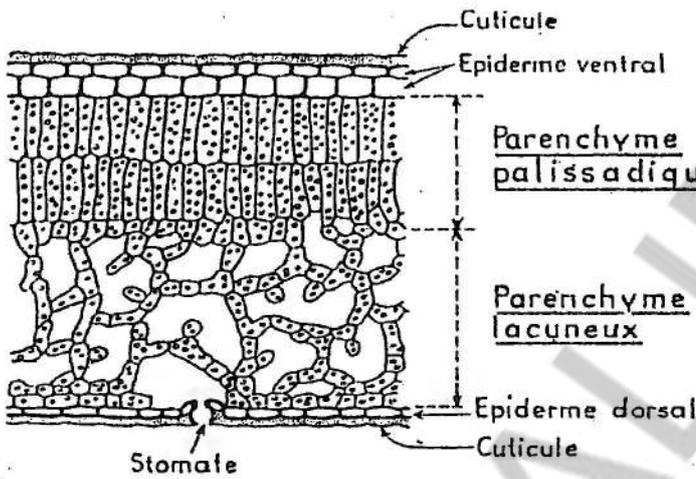


Figure 2 : Dessin de détail du parenchyme Foliaire.

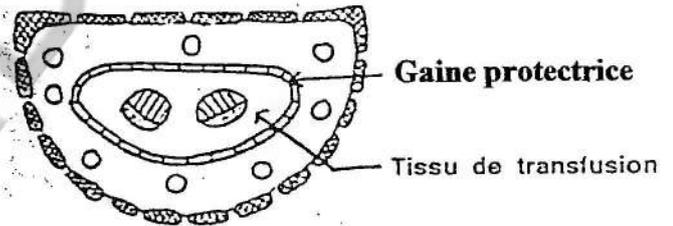


Figure 3 : Structure d'une aiguille d'une Gymnosperme (Pin)

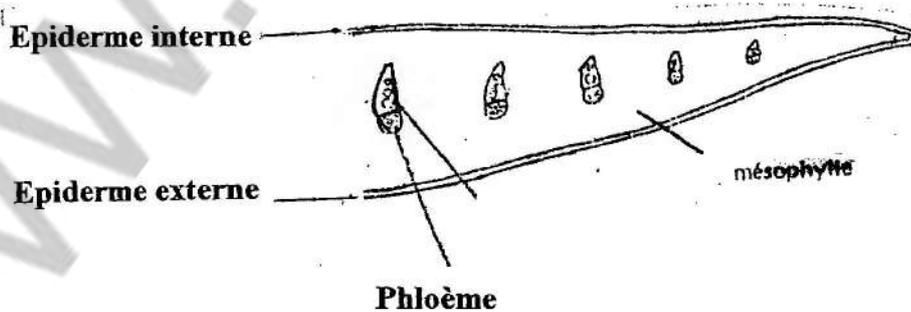


Figure 4 : Structure d'une feuille Monocotylédone

Planche 15

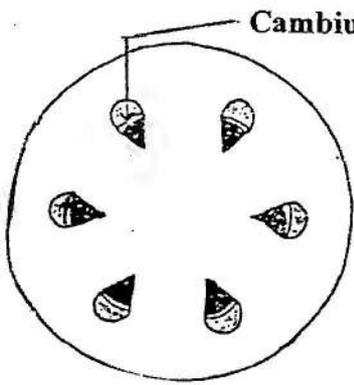
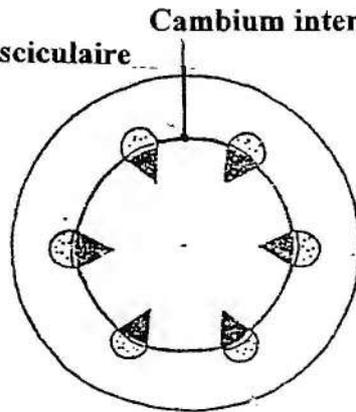


Figure 1 : Formation du cambium



Cambium interfasciculaire

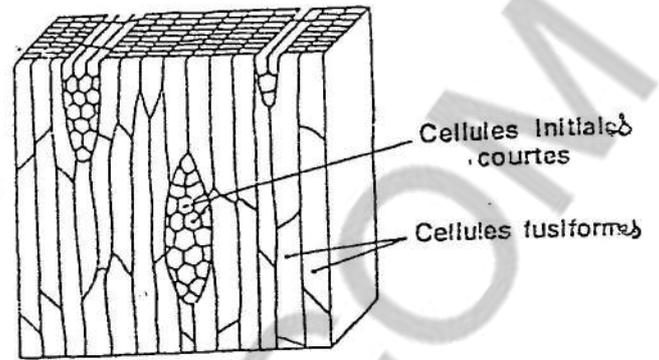


Figure 2 : La structure d'un Cambium

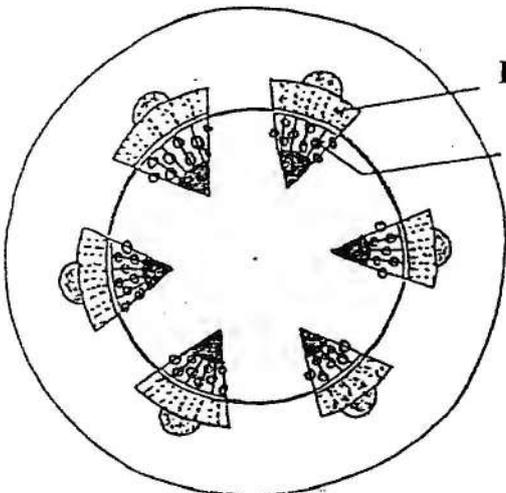


Figure 3 : Pachyte discontinu

Liber

Bois

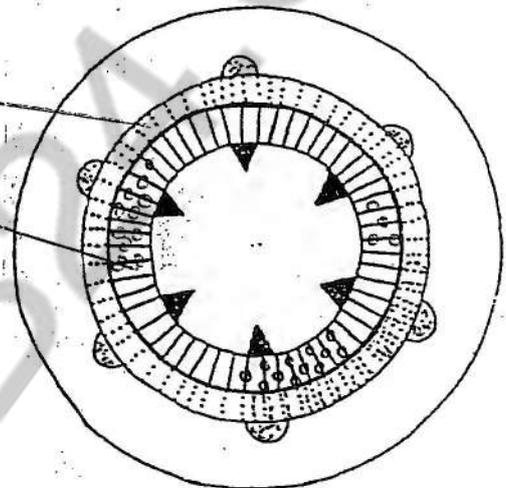


Figure 4 : Pachyte continu

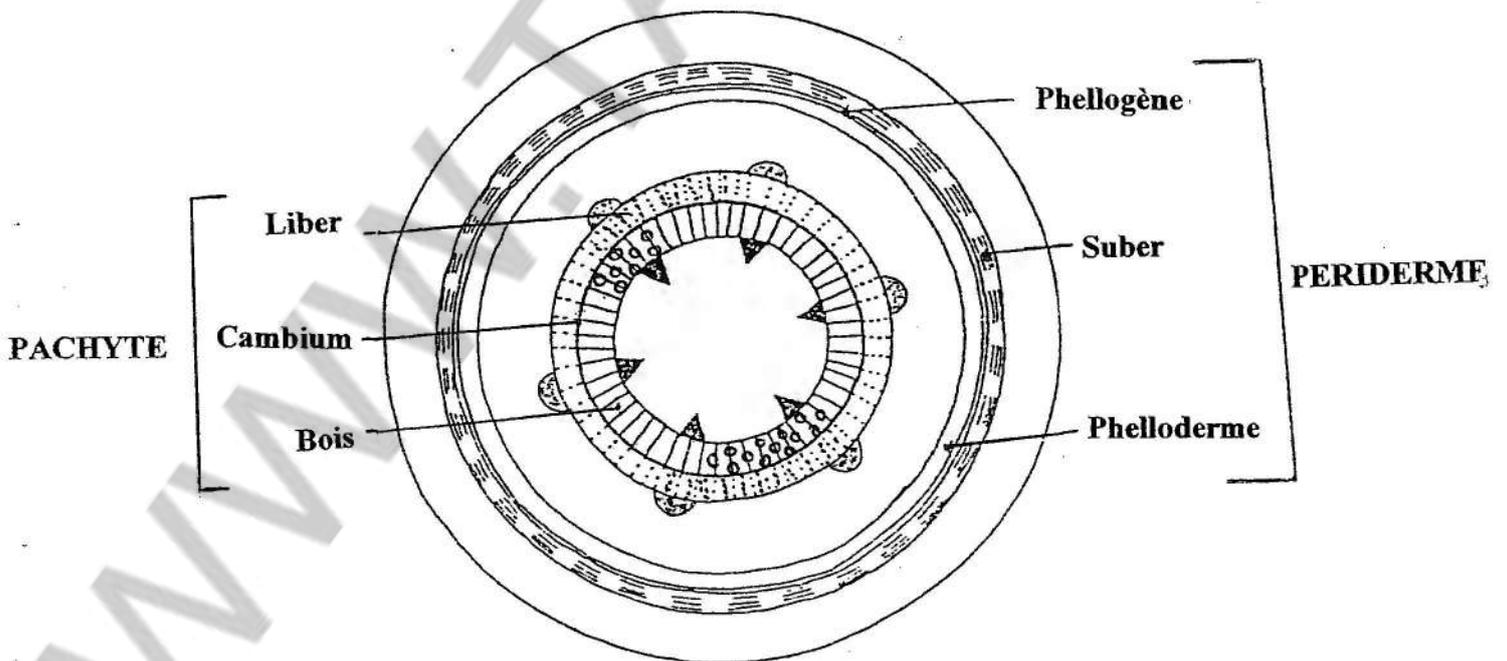


Figure 5 : Fonctionnement du cambium et du phellogène

Planche 16

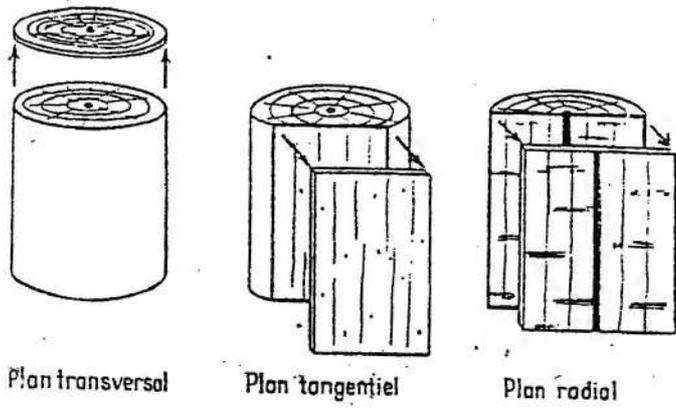


Figure 1 : Plan d'études d'un bois

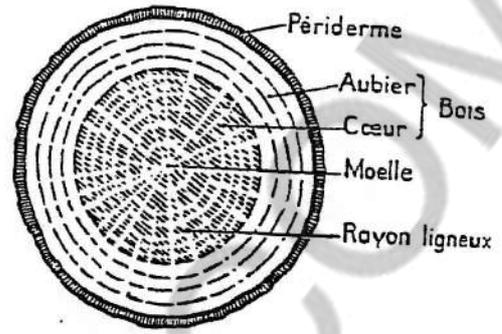
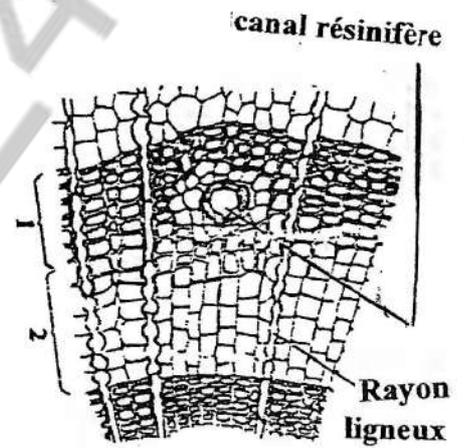
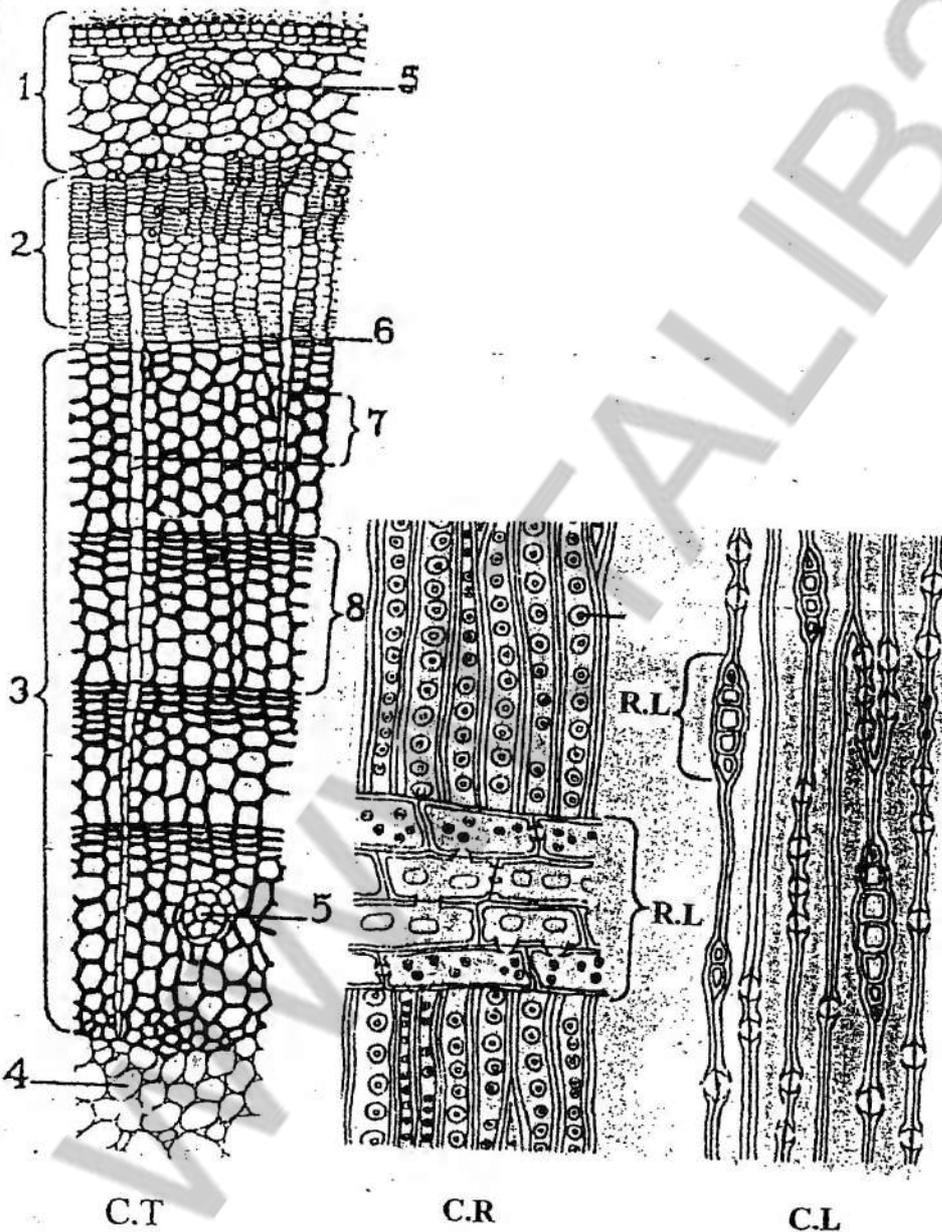


Figure 2 : C.T dans un tronc de Chêne



C.T dans le bois

Figure 3 : Formations Secondaires dans une Tige de Gymnosperme (Pin)

P.A : Ponctuation aréolée

R.L : Rayon ligneux

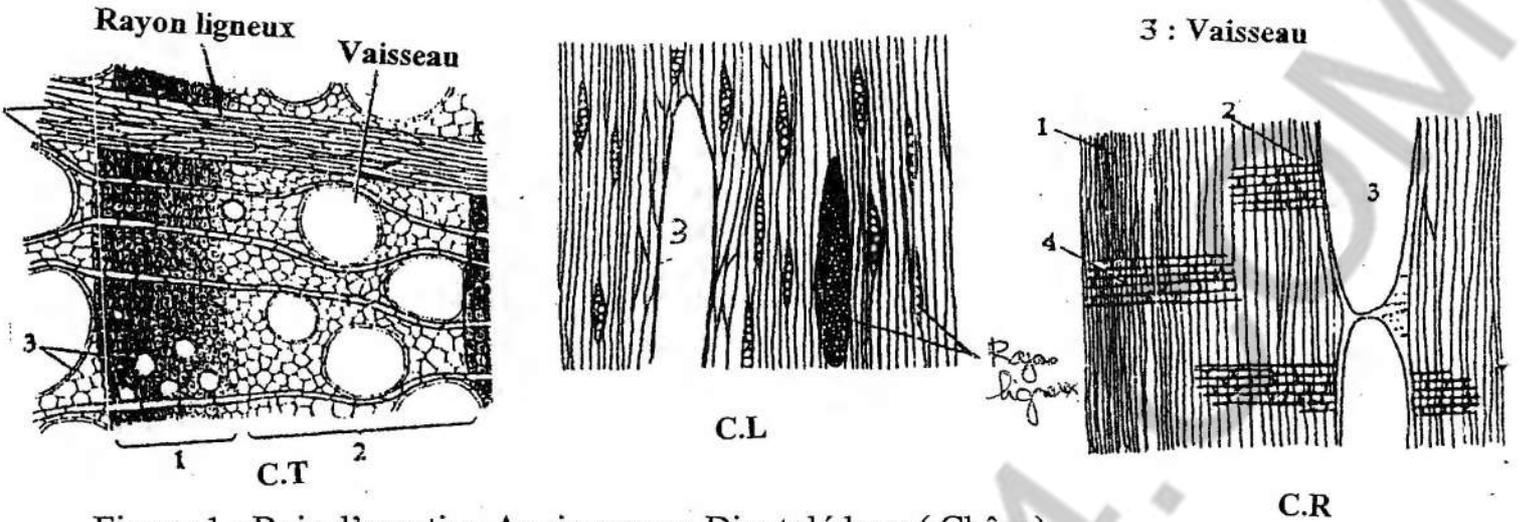


Figure 1 : Bois d'une tige Angiosperme Dicotylédone (Chêne)

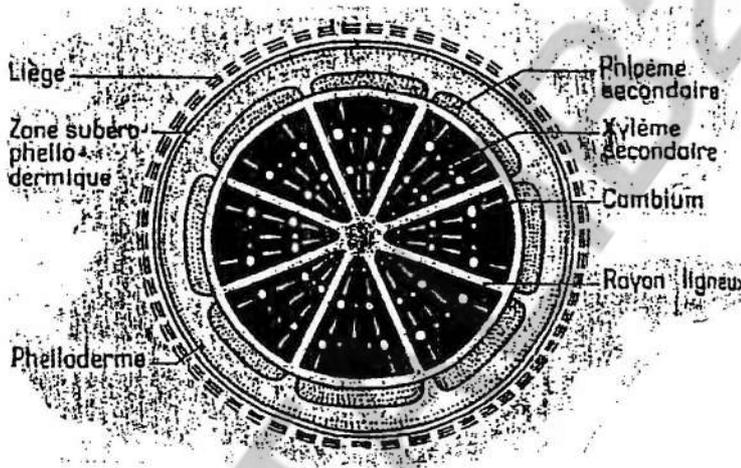


Figure 2 : Tige de Hêtre âgée de trois ans

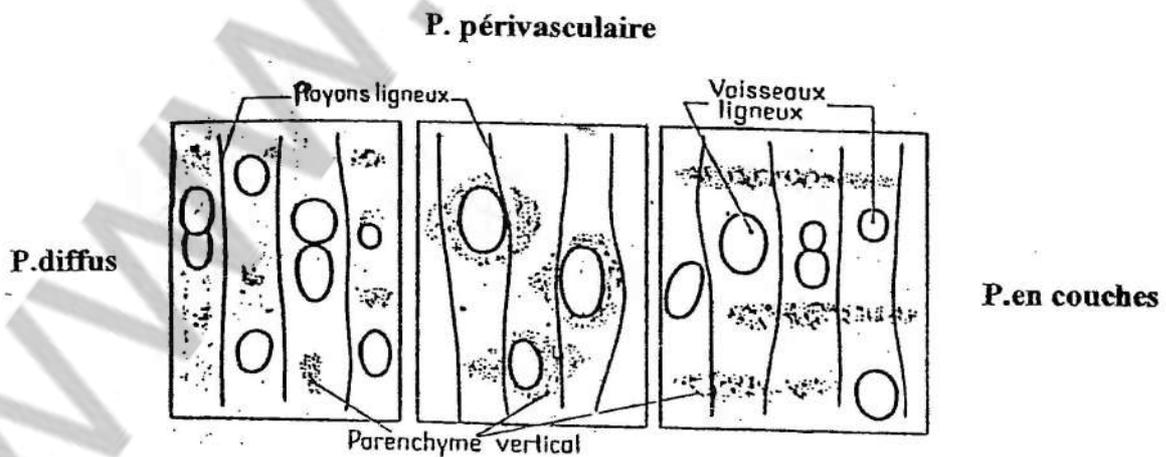


Figure 3 : Modes de répartition du parenchyme ligneux dans un bois.

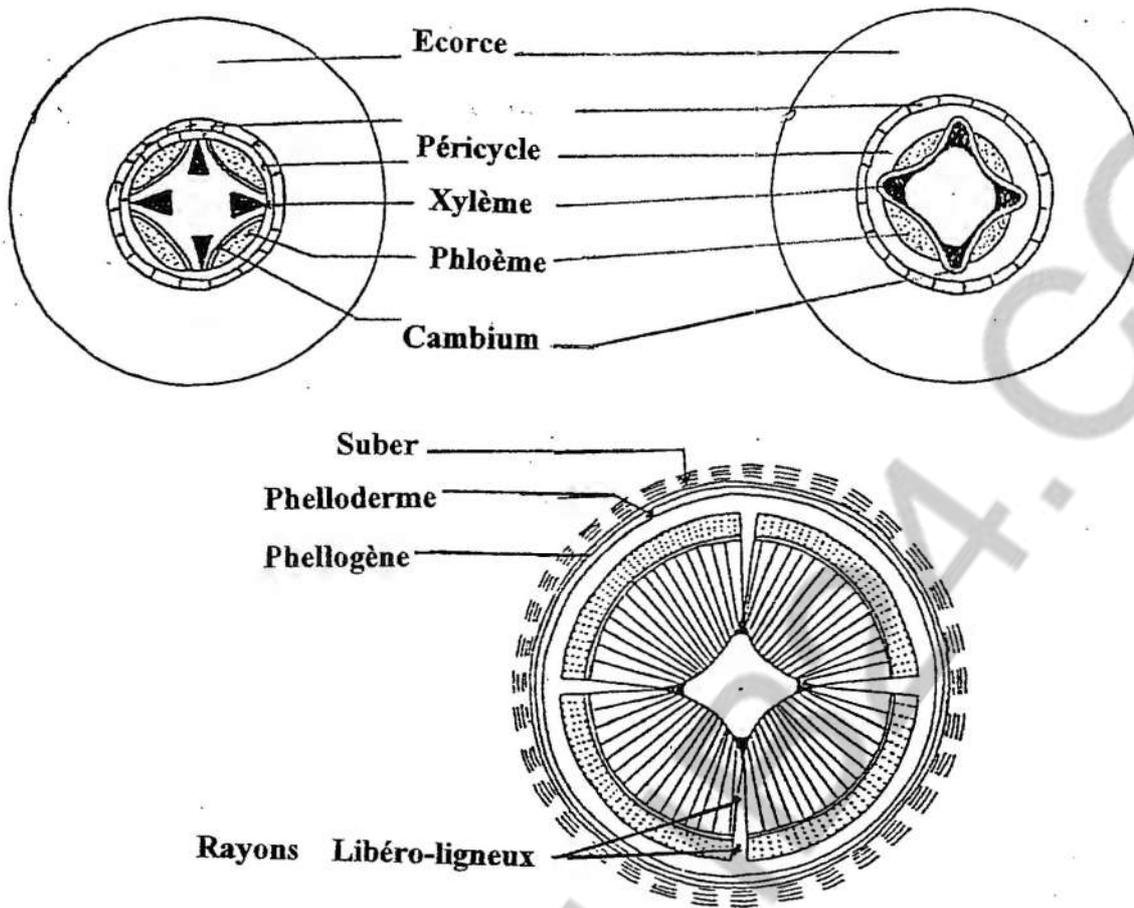


Figure 1 : Structure secondaire dans une racine

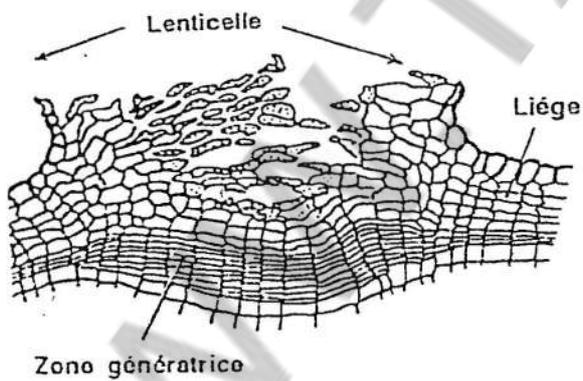


Figure 2 : C.T dans une lenticelle de tige âgée

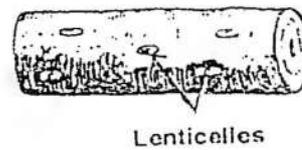
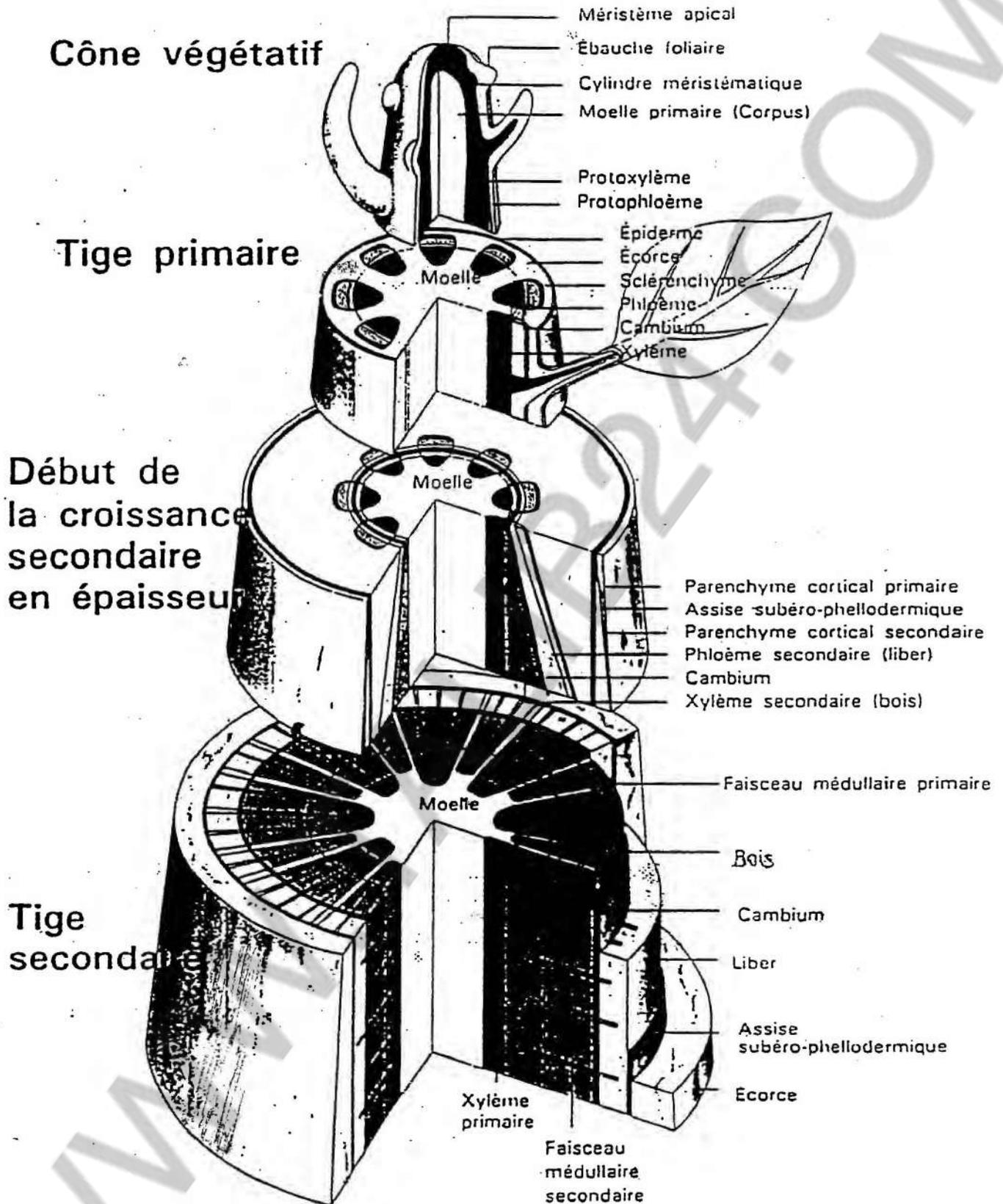
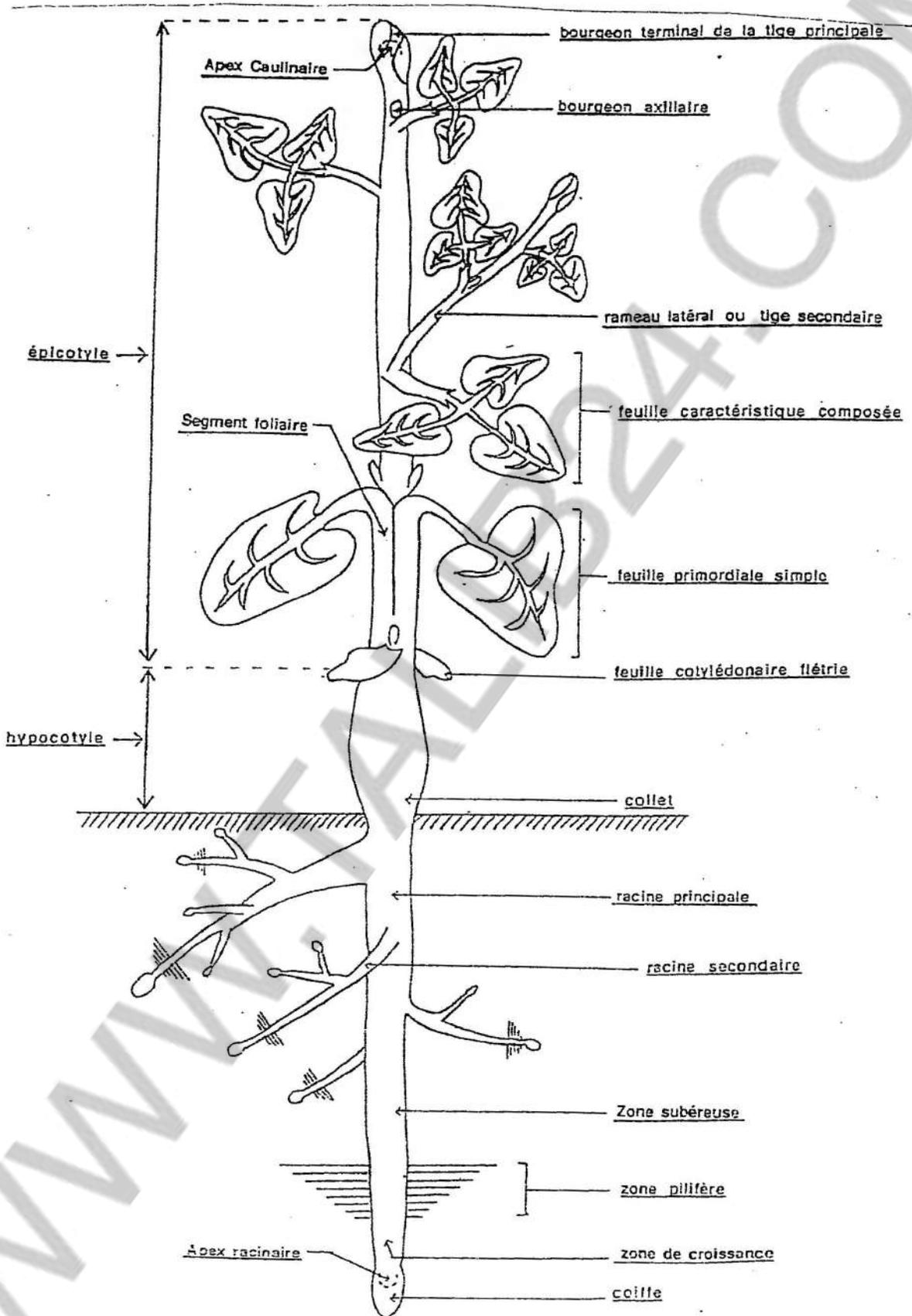


Figure 3 : Lenticelles sur la surface d'une tige de Hêtre



Modèle tridimensionnel de tige Dicotylédone montrant des coupes transversales à différents niveaux de la tige : tige primaire, début de la croissance secondaire en épaisseur et tige secondaire.



Plante d'Haricot à l'état végétatif

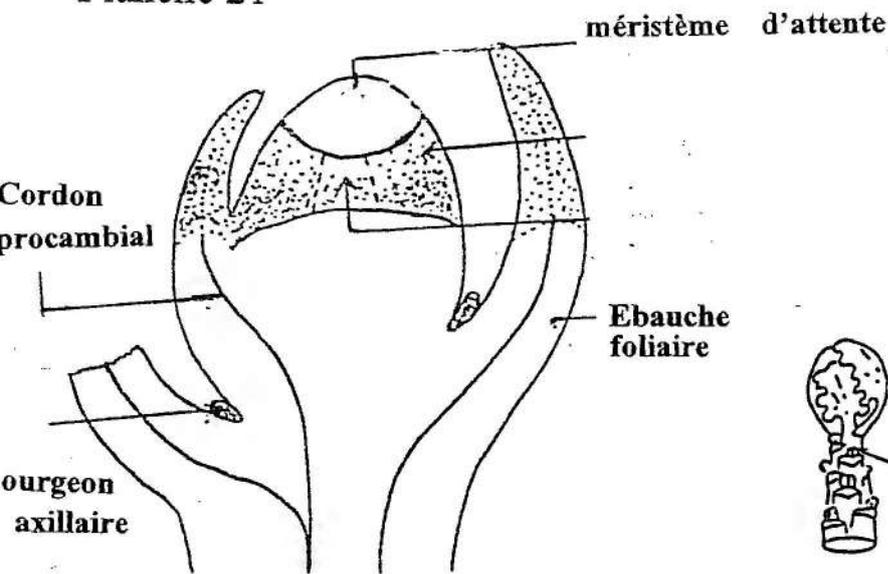


Figure 1 : Apex caulinaire

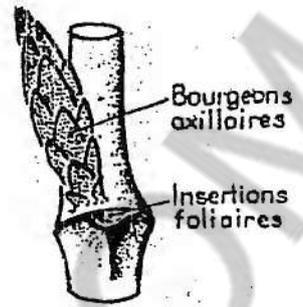


Figure 3 : Bourgeon Axillaire (Hêtre)



Figure 2 : Bourgeons nus Chou de Bruxelles

Bourgeon axillaire

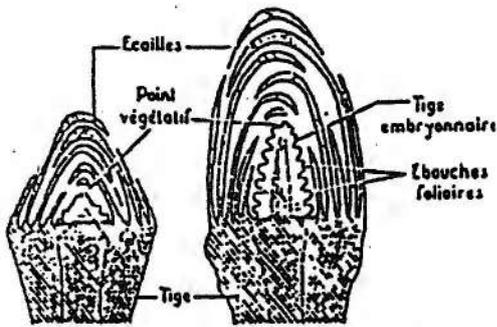


Figure 4 : Bourgeon Ecailleux



Figure 5 : Pousse courte (Poireau)

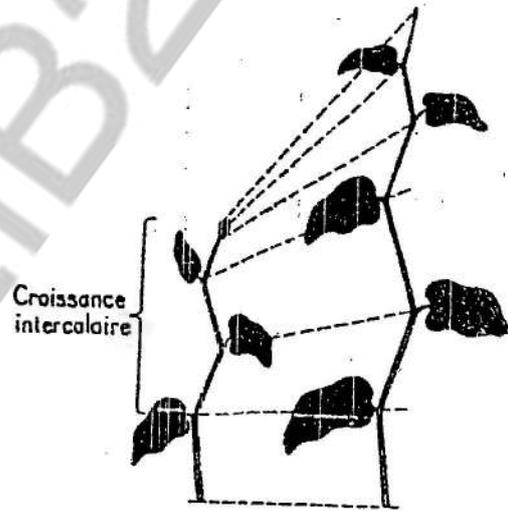


Figure 6 : Croissance intercalaire d'une tige

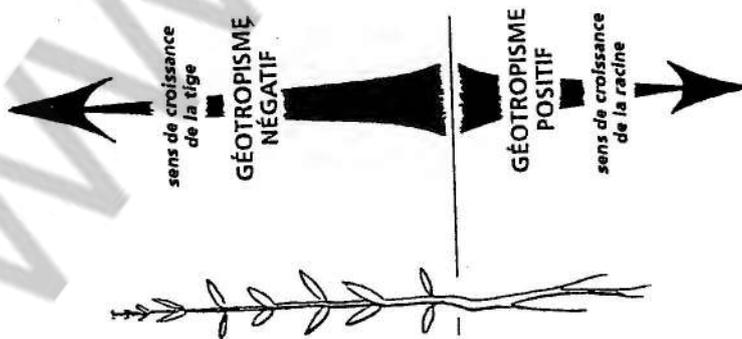


Figure 7 : Orientation de la croissance de la tige

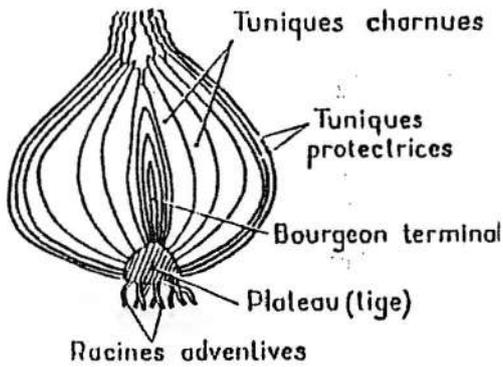


Figure 1 : Bulbe de l'oignon

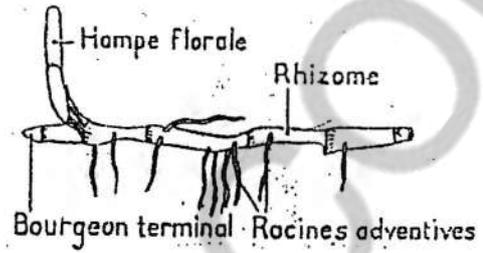


Figure 2 : Rhizome de la Parisette

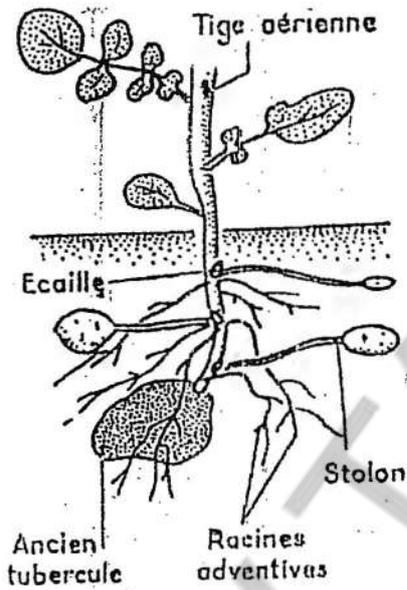


Figure 3 : Tubercule de la Pomme de terre

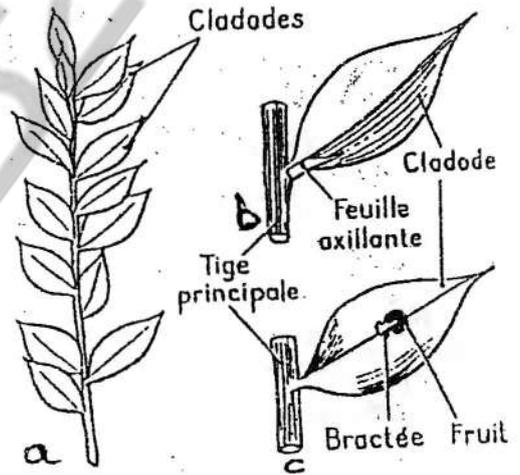


Figure 4 : Cladode du petit Houx

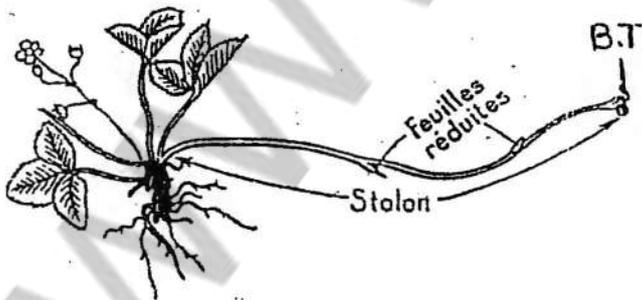


Figure 5 : Stolon du Fraisier

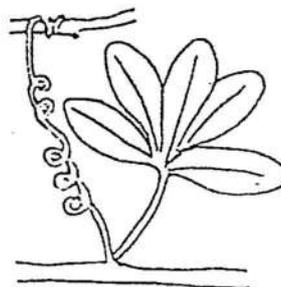


Figure 6 : Tige vrille

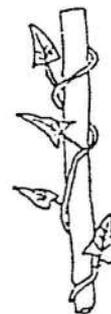


Figure 7 : Tige volubile Liseron

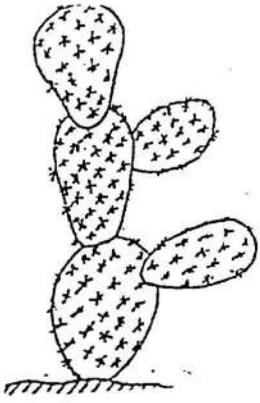


Figure 1 : Tige succulente
Optunia

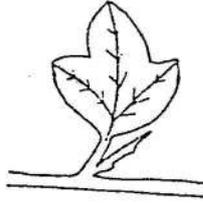


Figure 2 : Tige épine
Aubépine



Figure 3 : Chaume de Blé

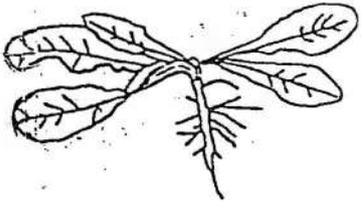


Figure 4 : Plante acaule
Pissenlit



Figure 5 : Tronc d'un arbre

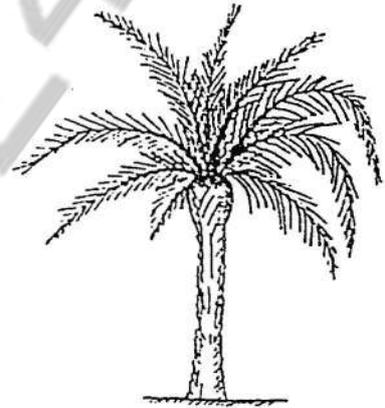


Figure 6 : Stipe du
Palmier

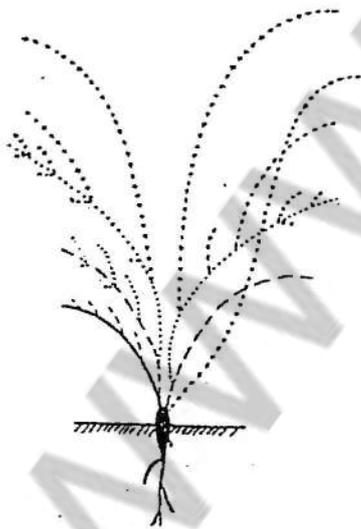


Figure 7 : Port buissonnant

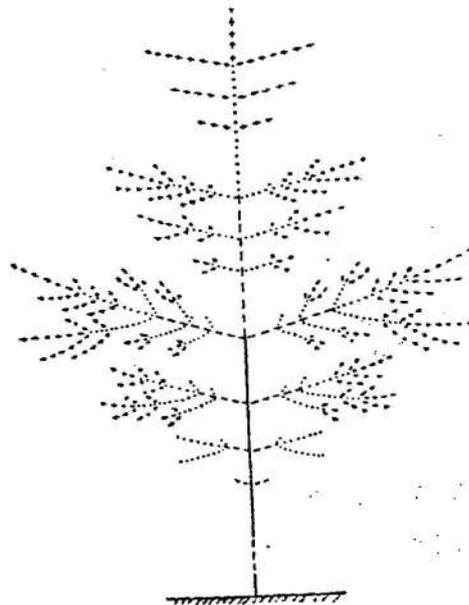


Figure 8 : Port arborescent

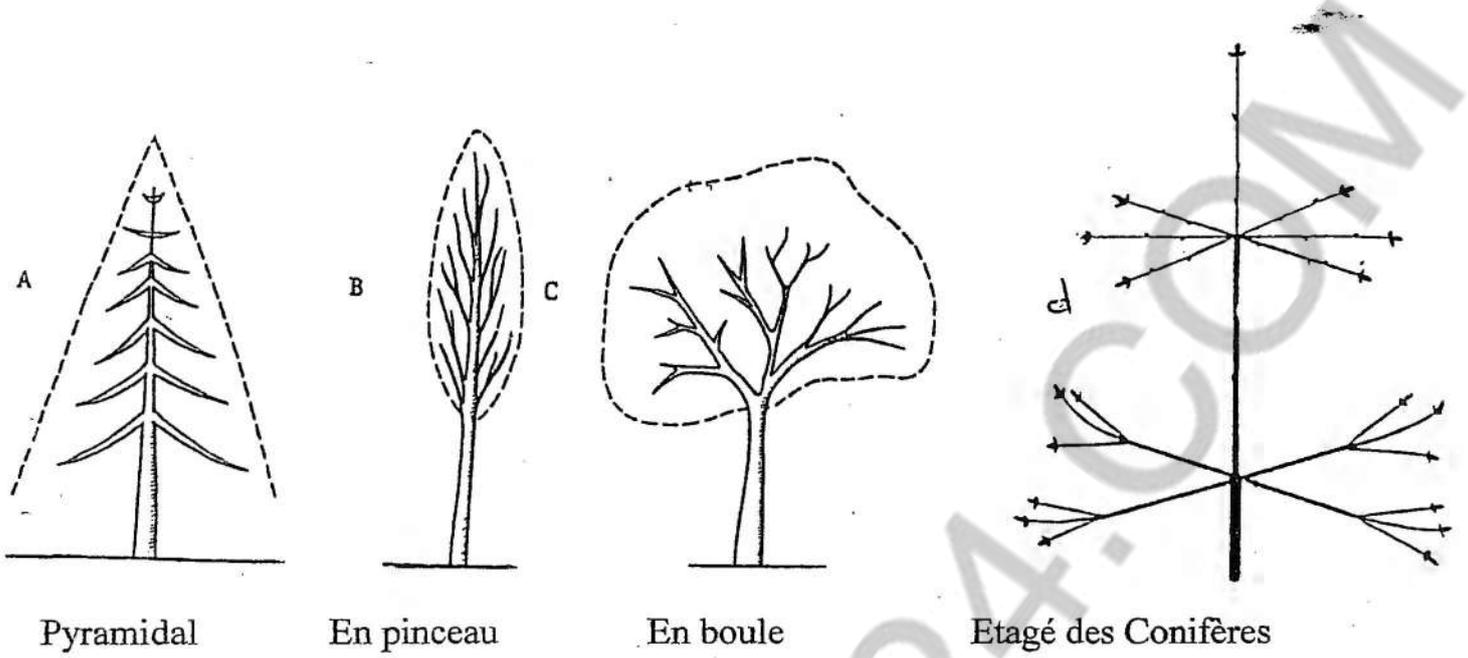


Figure 1 : les différents types de port arborescents

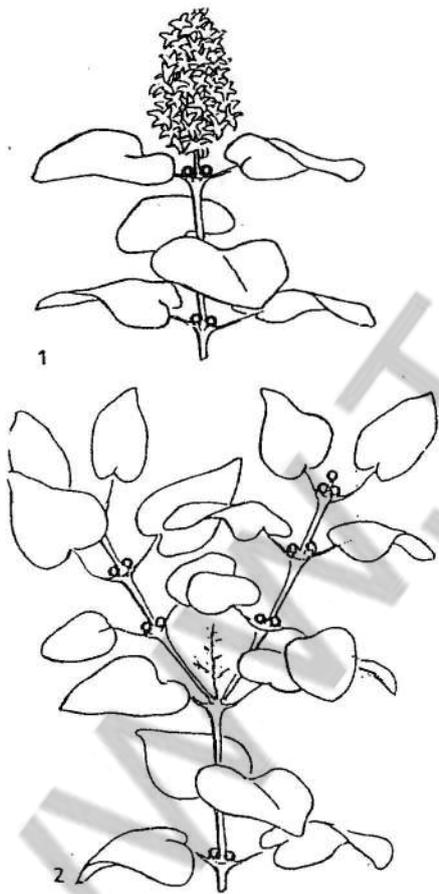


Figure 2 : Croissance sympodiale
Lilas

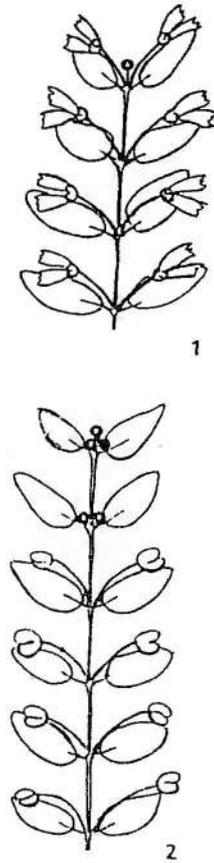


Figure 3 : Croissance monopodiale
Chèvrefeuille

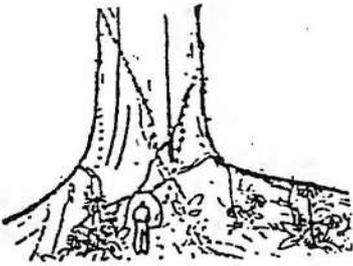


Figure 1 : Racines contreforts

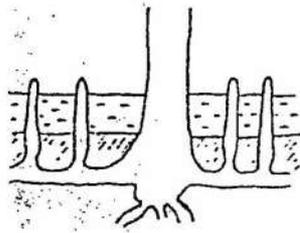


Figure 2 : Pneumatophores d'*Avicennia*



Figure 3 : Racines piliers du *Ficus*

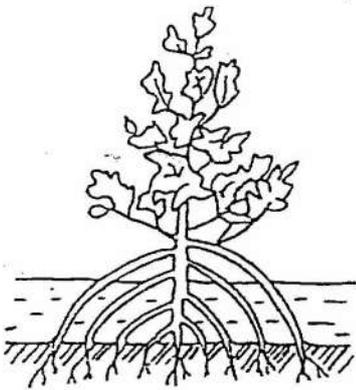


Figure 4 : Racines échasses Palétuvier



Figure 5 : Racines épines

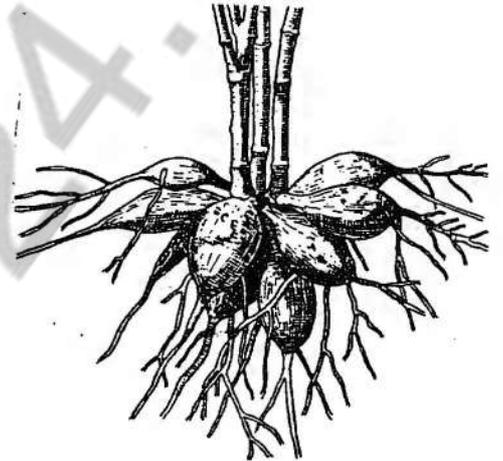


Figure 6 : Racines tubérisées (*Dahlia*)

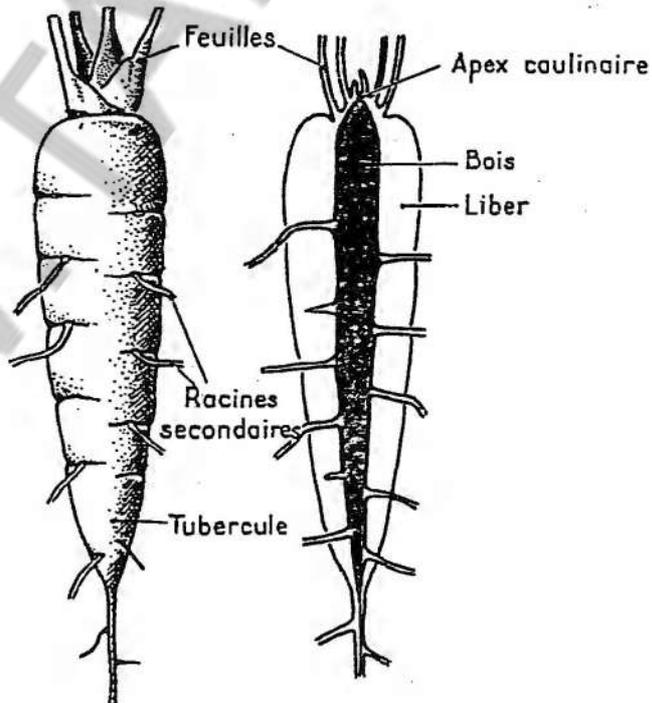


Figure 7 : Tubercule de la carotte cultivée

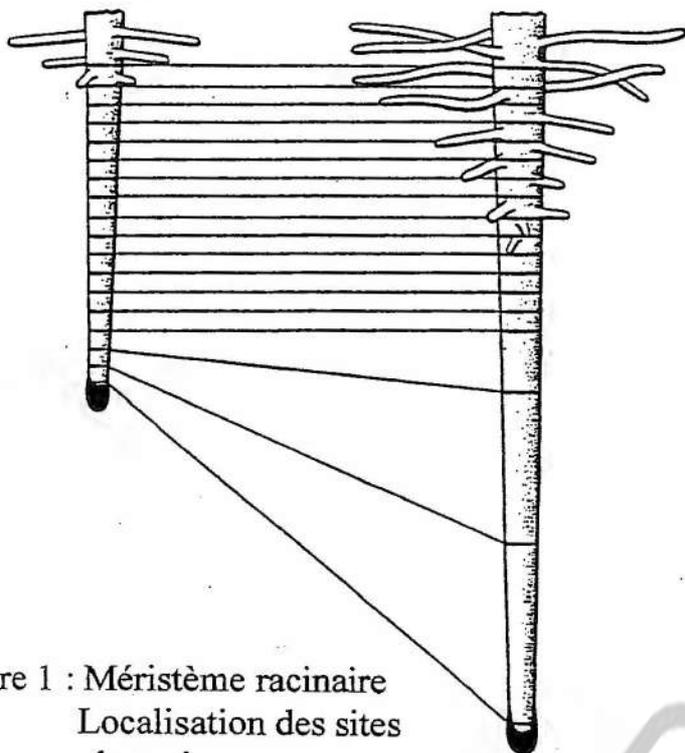


Figure 1 : Méristème racinaire
Localisation des sites
de croissance

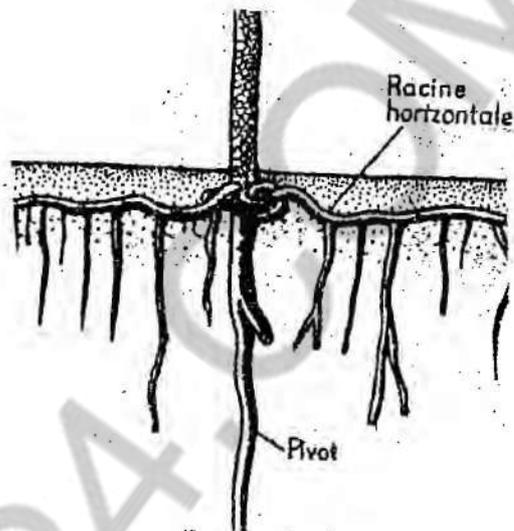


Figure 2 : Racines pivotantes
Pinus sylvestris

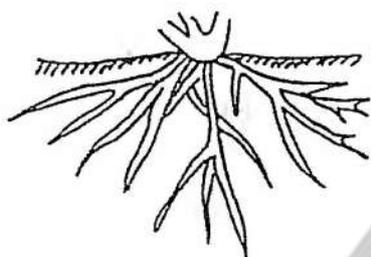


Figure 3 : Racines fasciculées
Avena

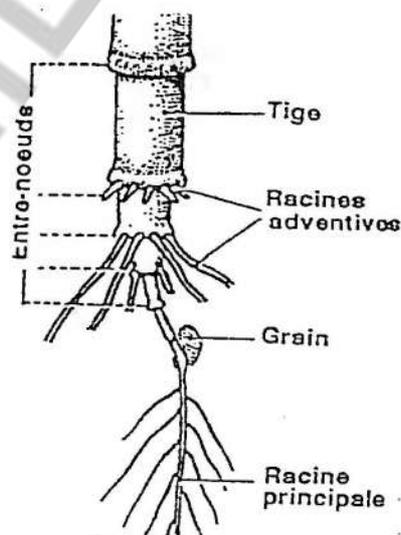


Figure 4 : Développement de la racine
du Maïs



Figure 5 : Vrilles racinaire (Vanillier)

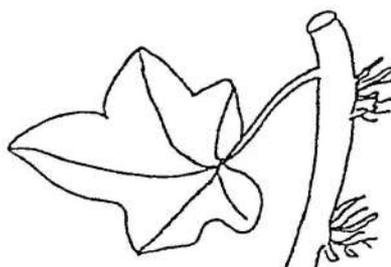


Figure 6 : Racines crampons (Lierre)

Planche 27

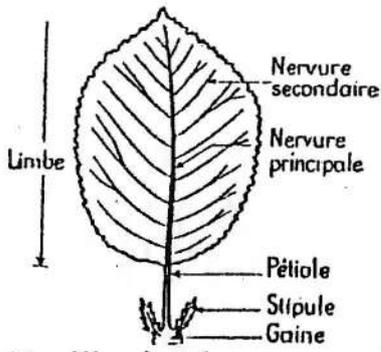


Figure 1 : Feuille simple

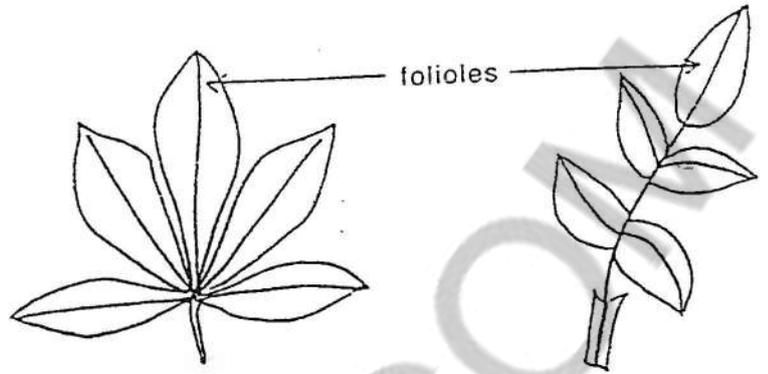
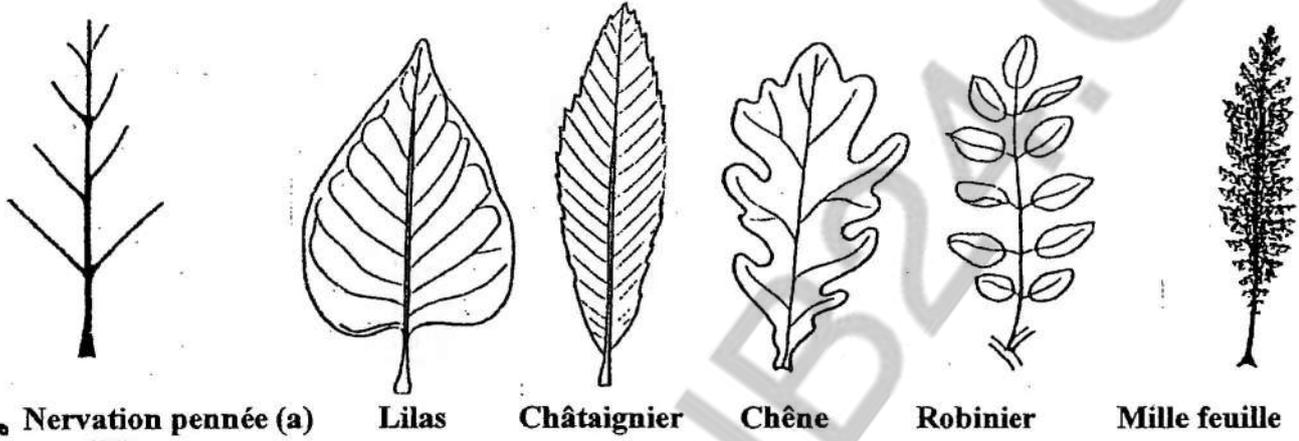


Figure 2 : Feuilles composées



• Nervation pennée (a)

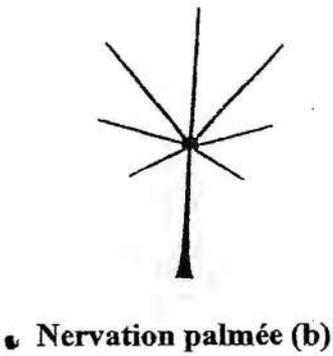
Lilas

Châtaignier

Chêne

Robinier

Mille feuille



• Nervation palmée (b)

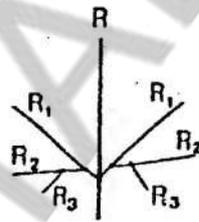
Lilas

Châtaignier

Chêne

Robinier

Mille feuille



• Nervation pédalée (c)



Platane

Figure 3 : Nervation des feuilles Dicotylédones

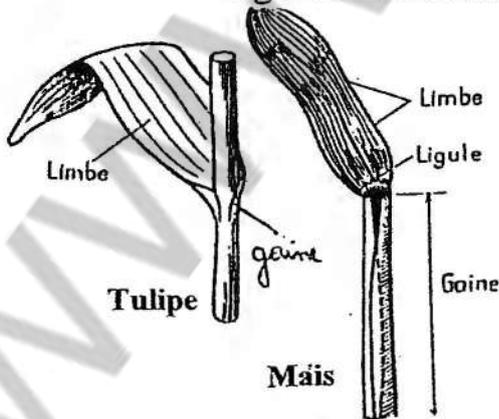


Figure 4 : Nervation des feuilles Monocotylédones

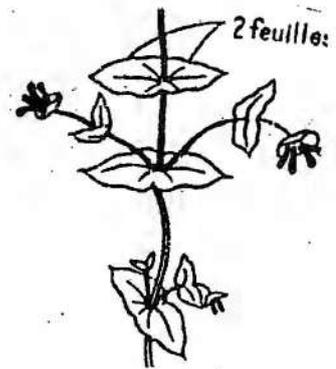


Figure 5 : Feuilles sessiles

Planche 28

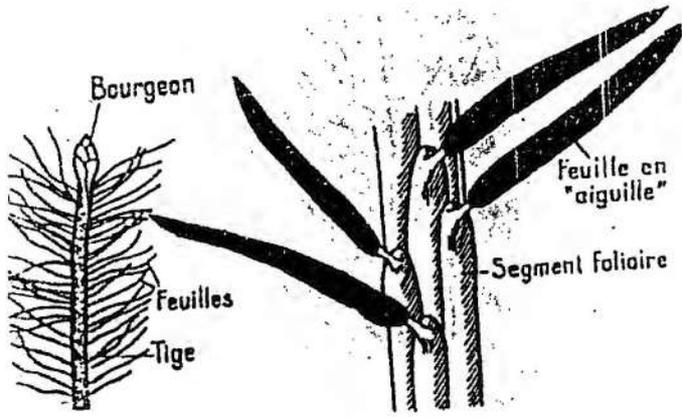


Figure 1 : Feuilles des Gymnospermes
Epicea

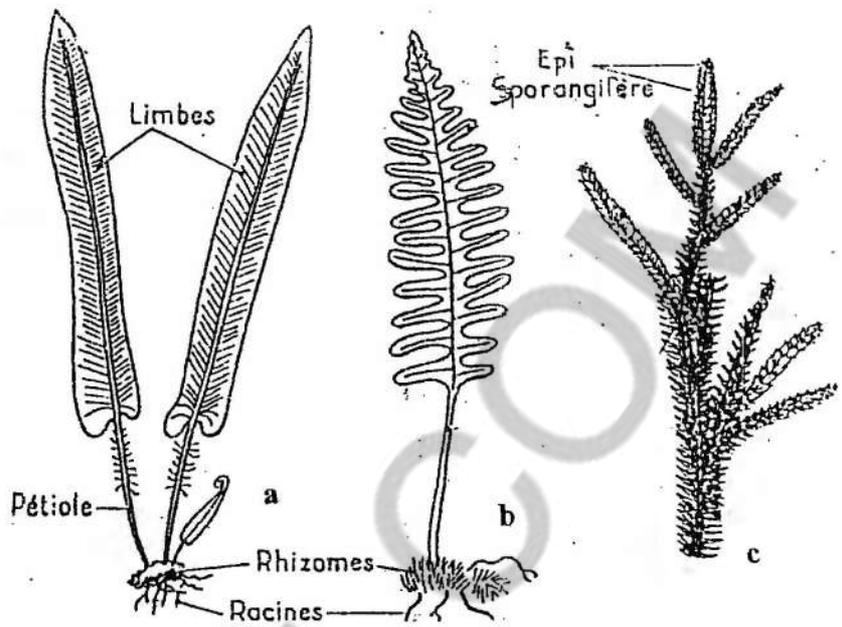
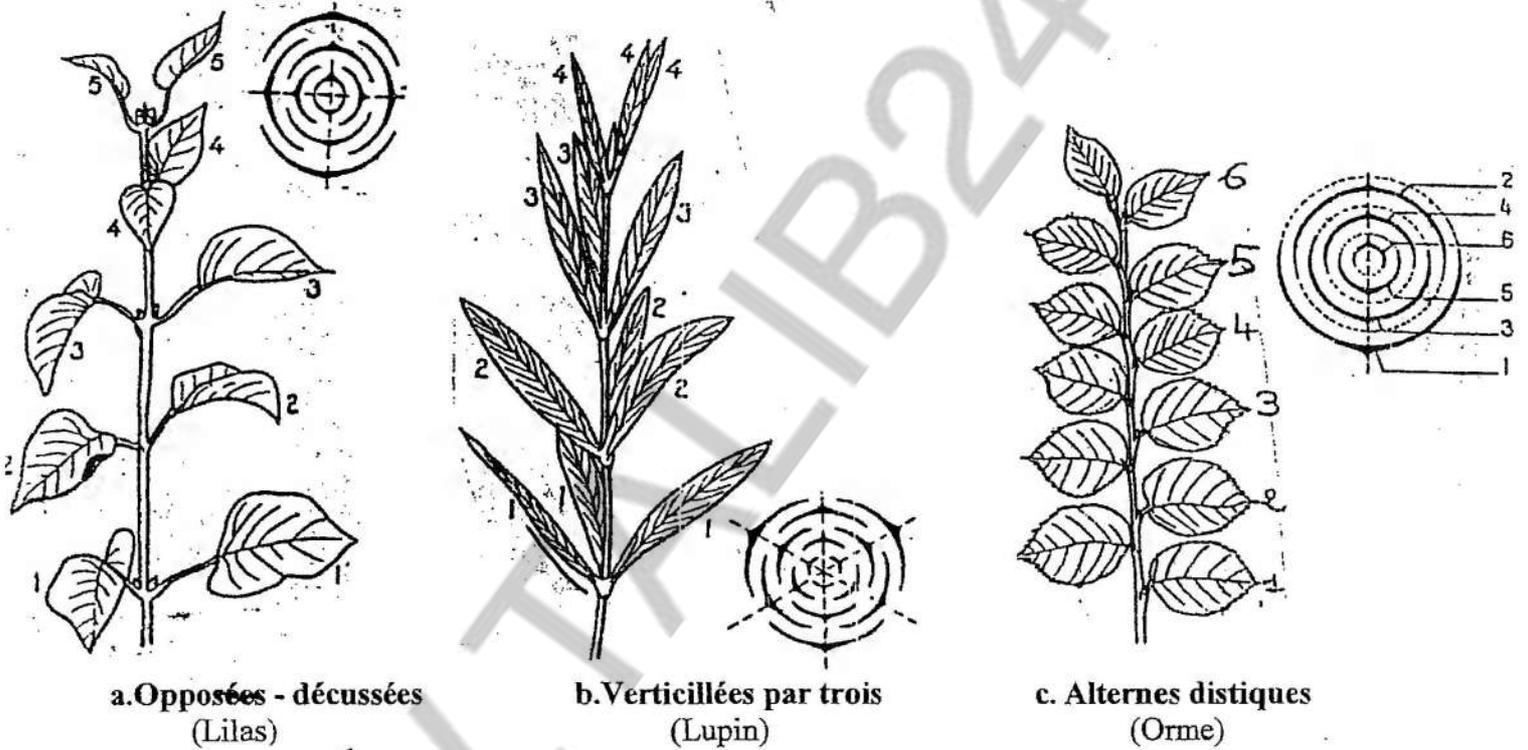


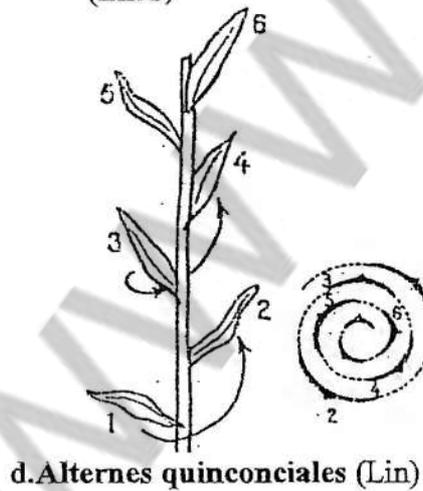
Figure 2 : Feuilles des Ptéridophytes



a. Opposées - décussées
(Lilas)

b. Verticillées par trois
(Lupin)

c. Alternes distiques
(Orme)



d. Alternes quinconciales (Lin)

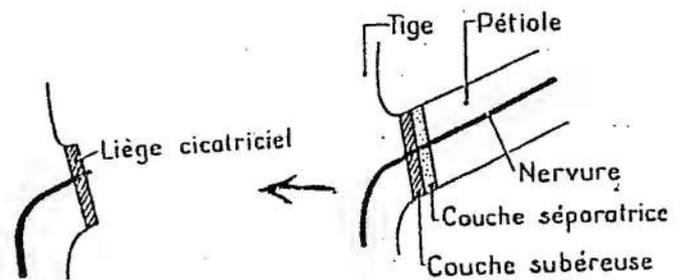


Figure 4 : Chute des feuilles.

Figure 3 : Phyllotaxie

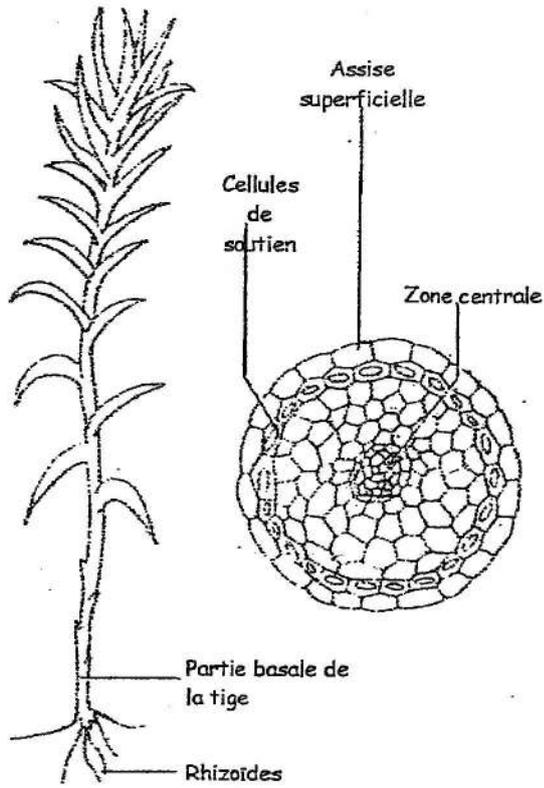


Fig.1: *Polytrichum formosum*

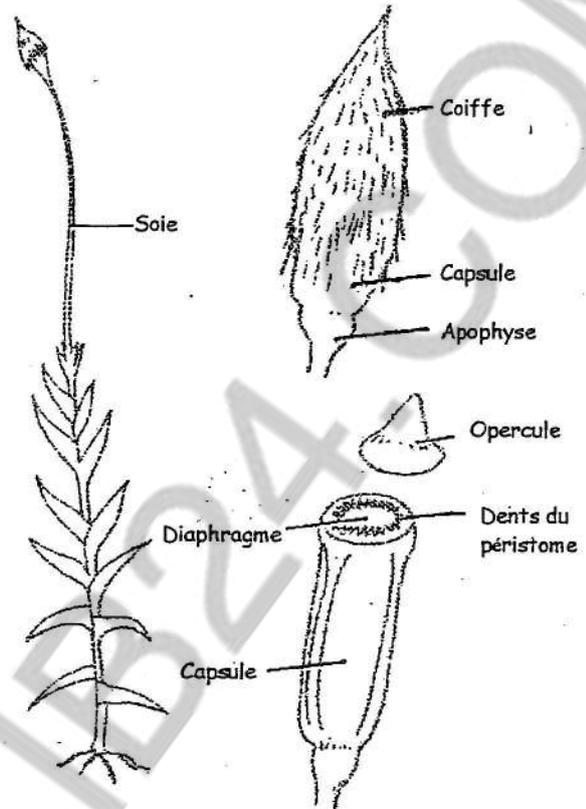


Fig.2 : Le sporogone du polytric

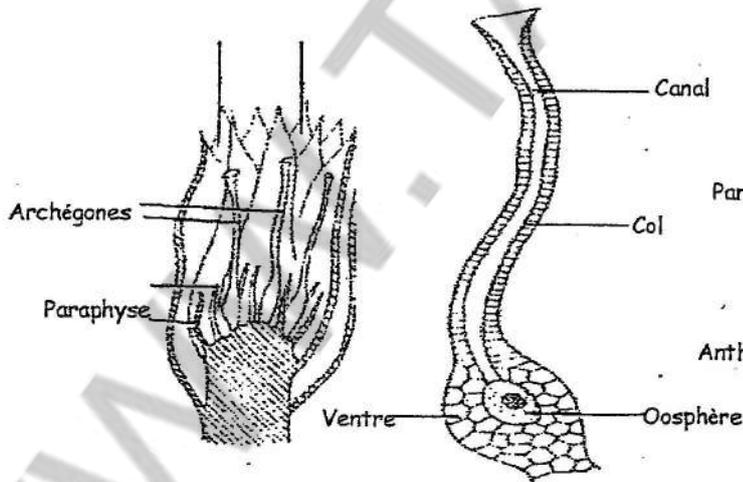


Fig.3: Archégonies d'une Mousse

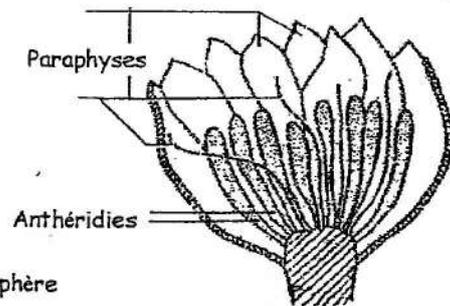


Fig.4: Anthéridies d'une Mousse

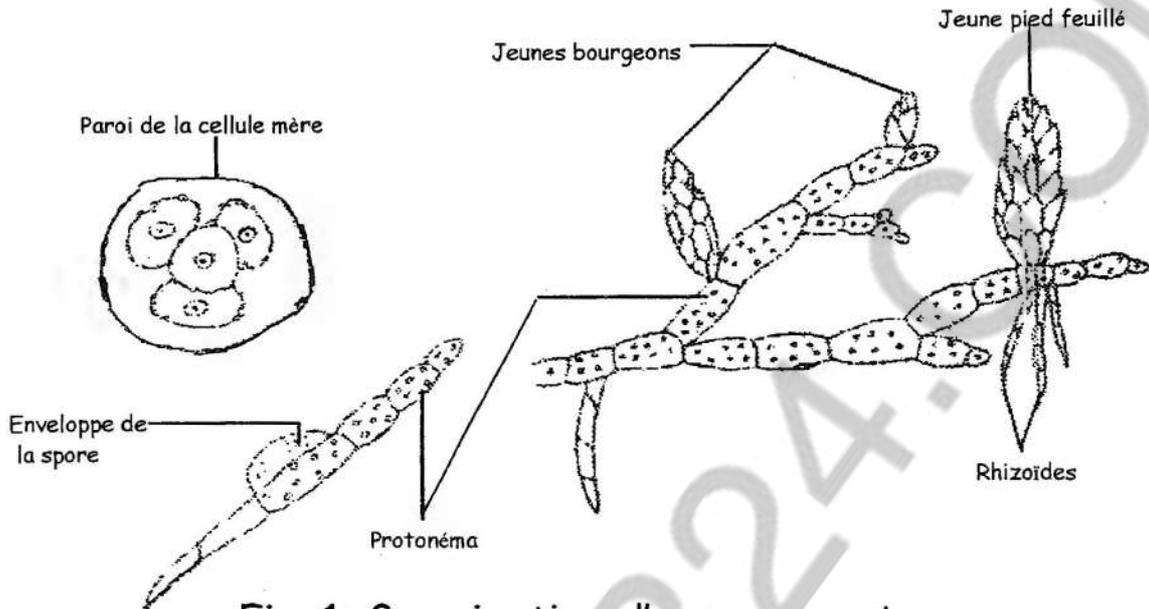


Fig. 1: Germination d'une spore et développement jeunes pied de Mousse

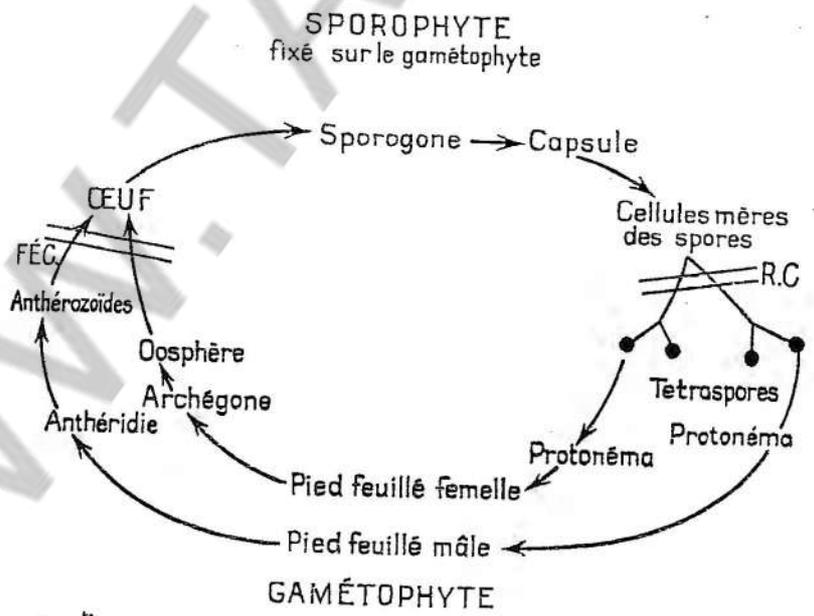


Fig. 2. — Cycle de développement du Polytrich, Mousse dioïque.

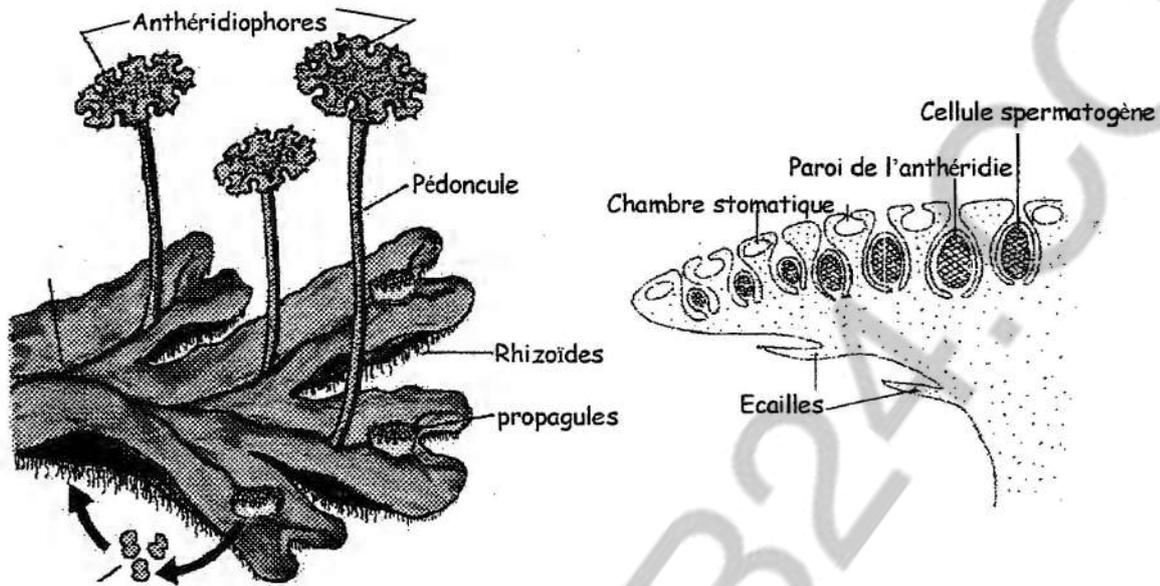


Fig.1: Thalle mâle de *Marchantia polymorpha*

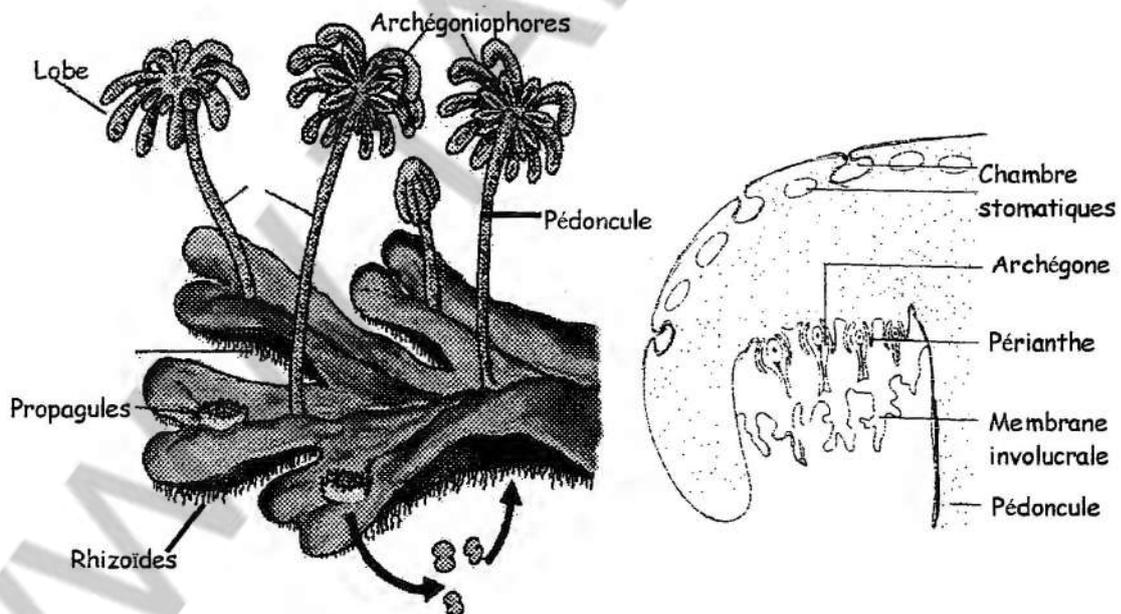


Fig.2: Thalle femelle de *Marchantia polymorpha*

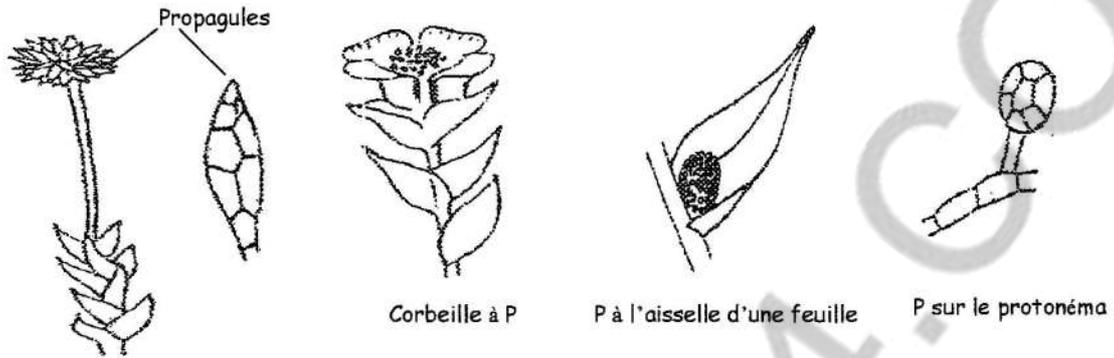


Fig.1: Multiplication végétative chez les Mousses (propagules)

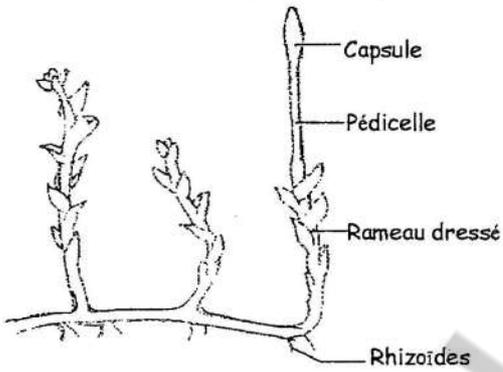


Fig.2: Hépatique à feuille de *Calobryum*

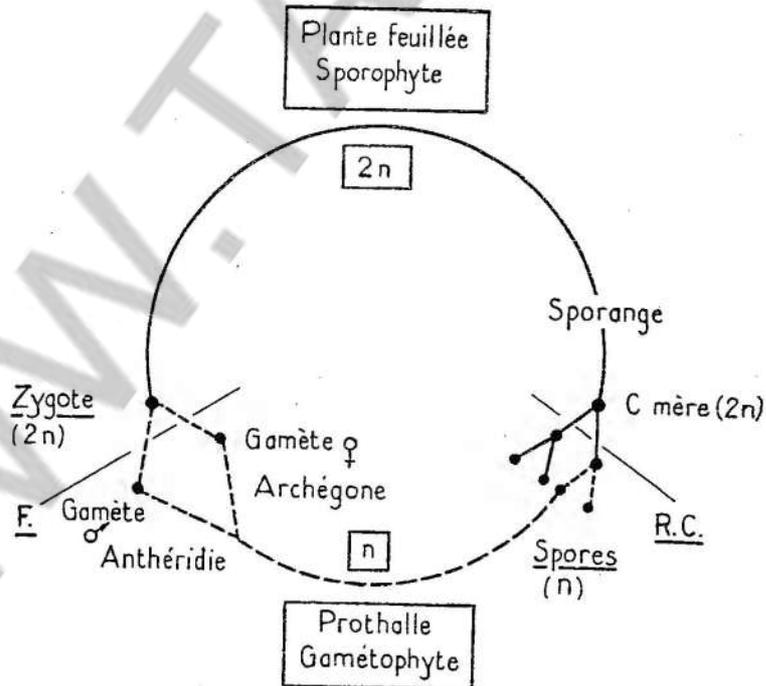


Fig.3 — Cycle de développement d'une Fougère.

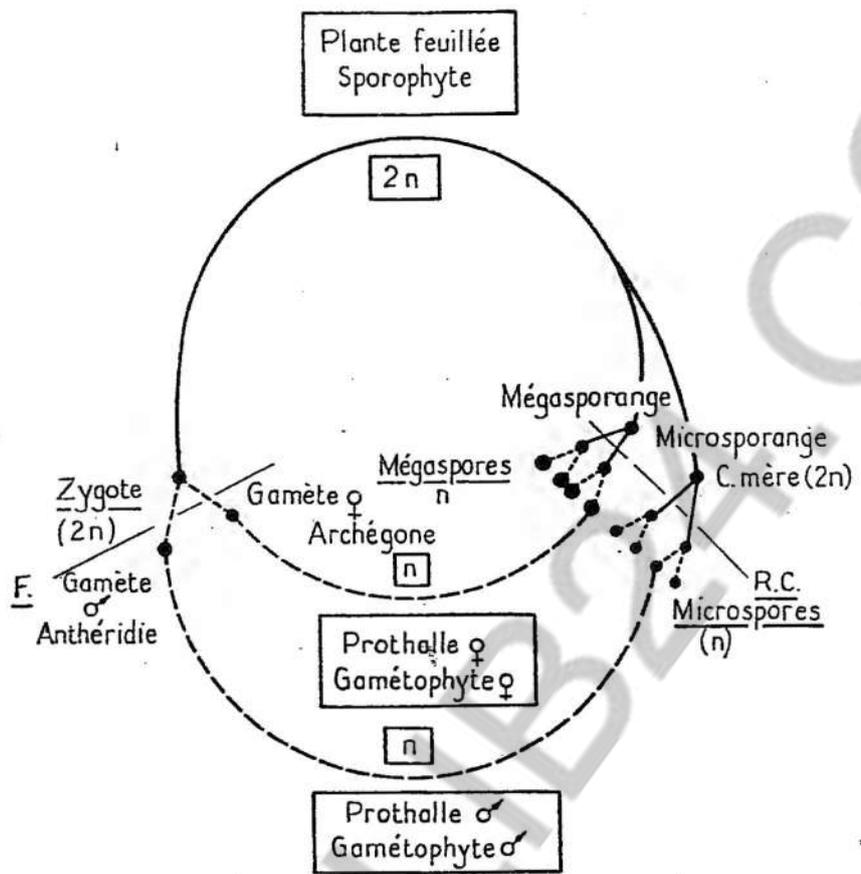


FIG. 1 — Cycle de développement d'une Sélaginelle.

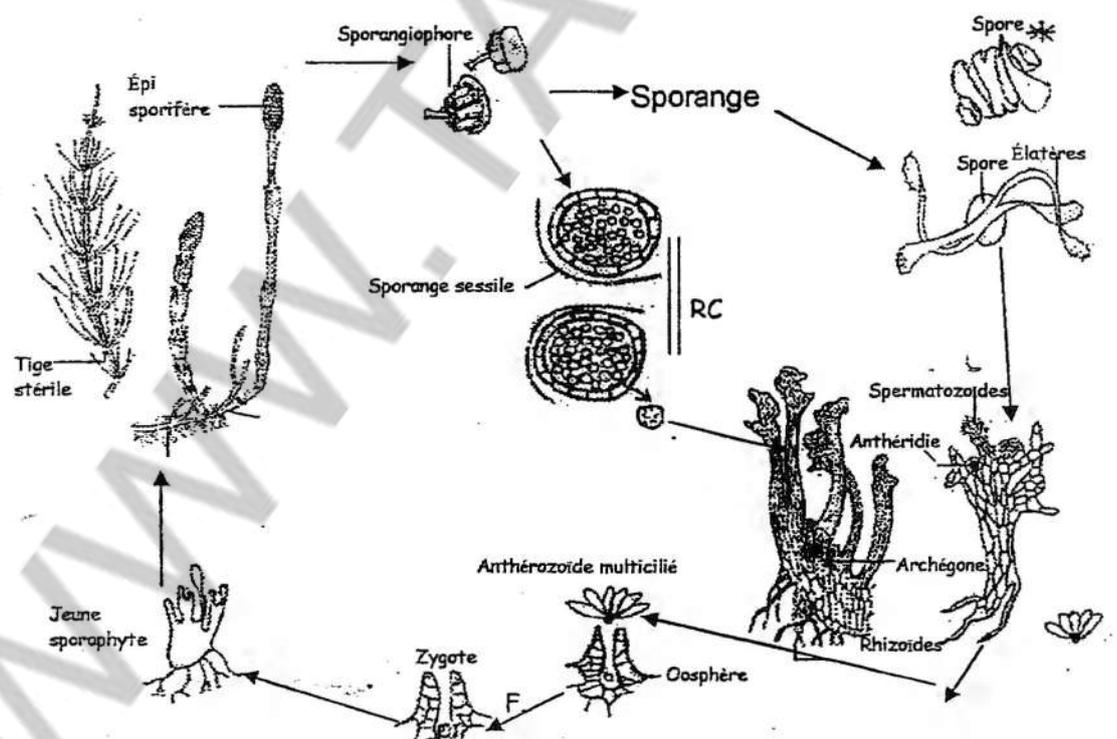


Fig. 2: Cycle de développement de *Equisetum arvense*

Planche 34

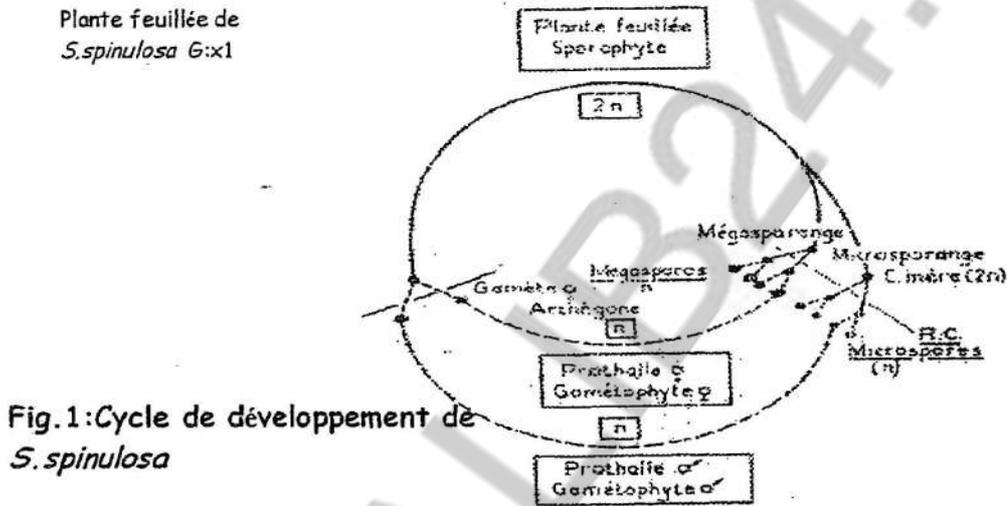
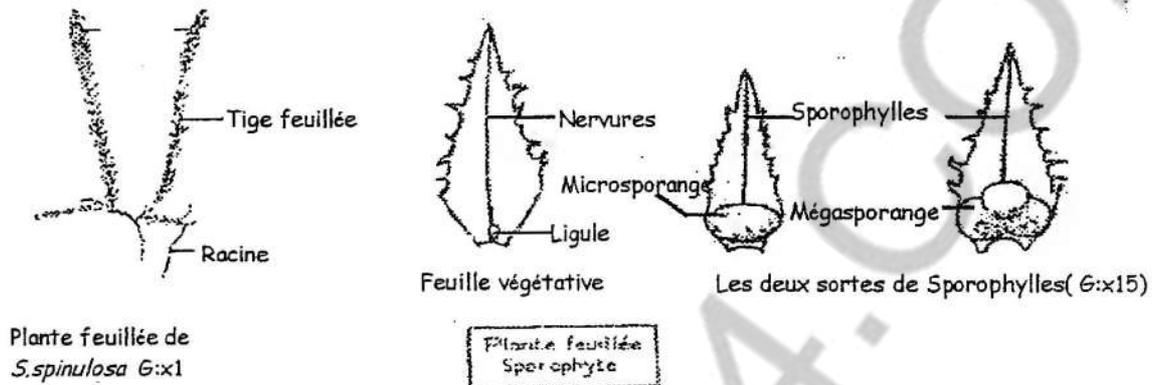


Fig.1: Cycle de développement de *S. spinulosa*

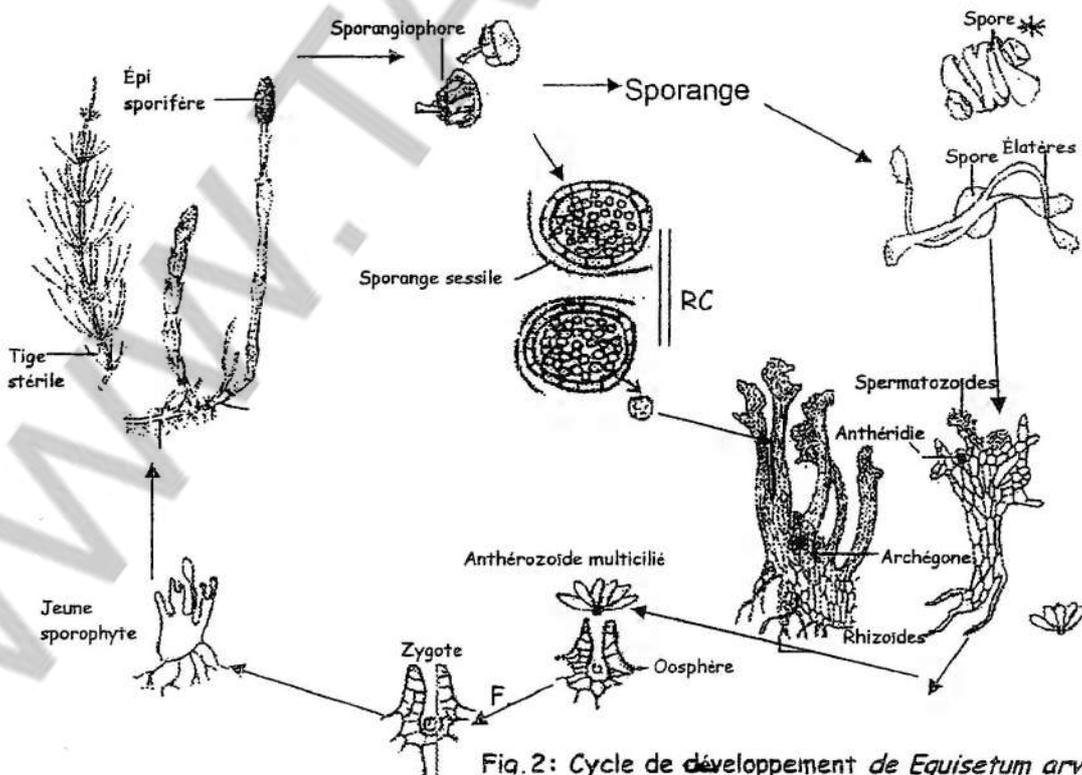


Fig.2: Cycle de développement de *Equisetum arvense*

Planche 35

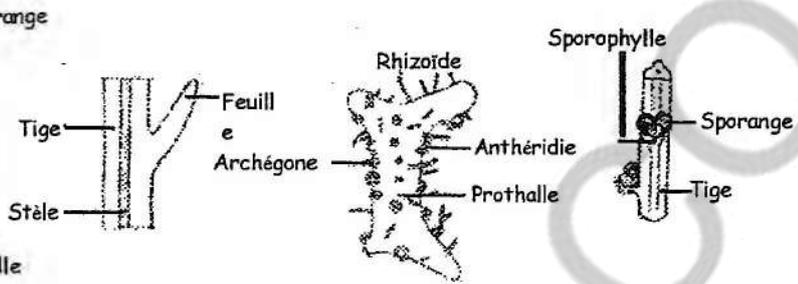
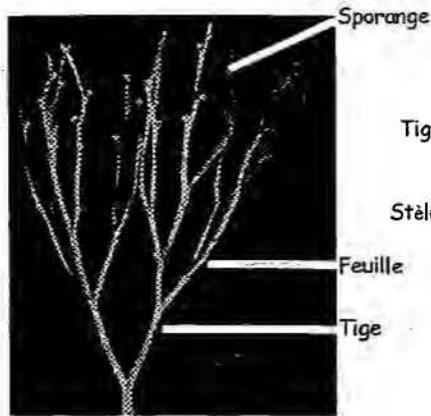


Fig.1: *Psilotum nudum*

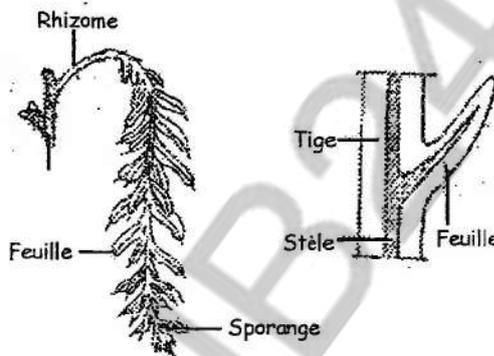
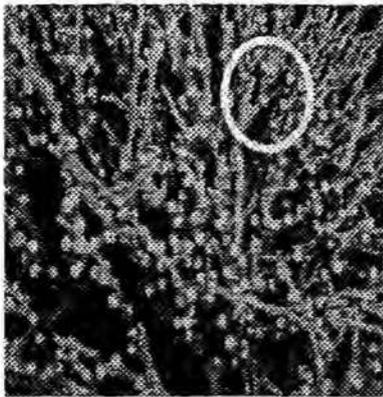


Fig.2: *Tmesipteris tannensis*

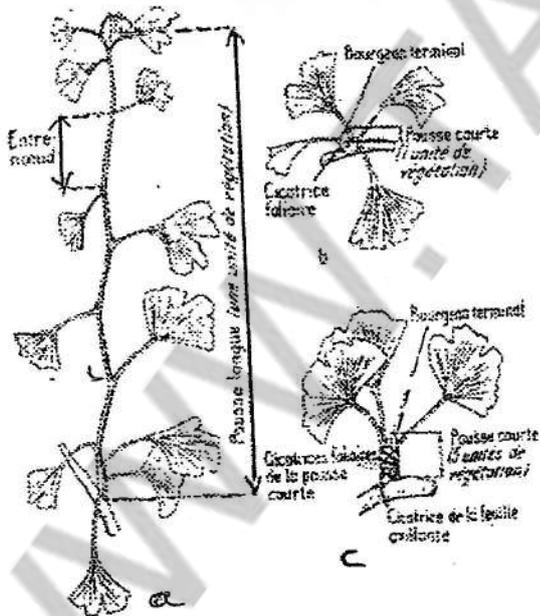


Fig.3: Pousse longue et pousse courte de *Ginkgo biloba*

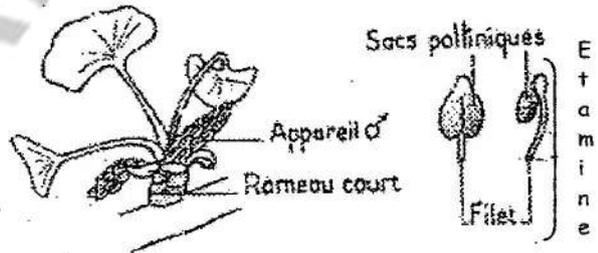


Fig.4: Appareil reproducteur mâle

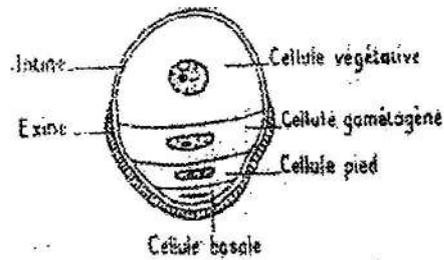


Fig.5: Organisation du grain de pollen

Planche 36

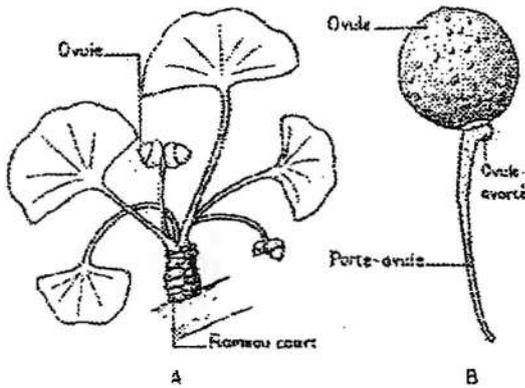


Fig.1: Apparail reproducteur femelle: Ovule de *G. biloba*

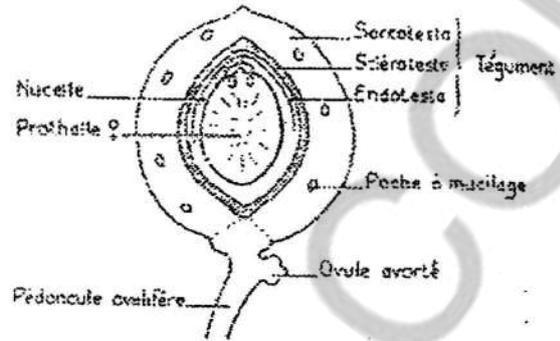


Fig.2: C.L. dans un ovule mûr de *G. biloba*

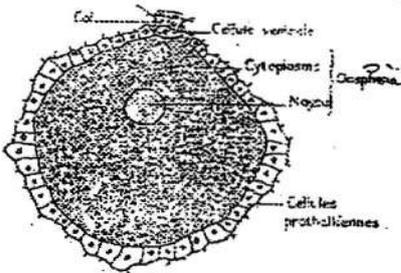


Fig.3: Archégone

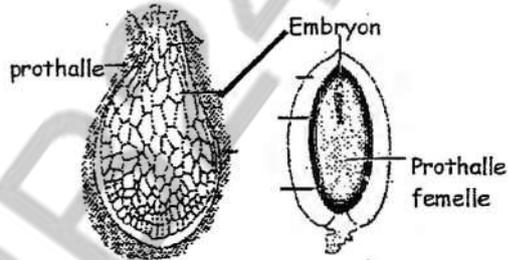


Fig.4: Embryon cellulaire indifférencié avec ovule embryonné (à droite)

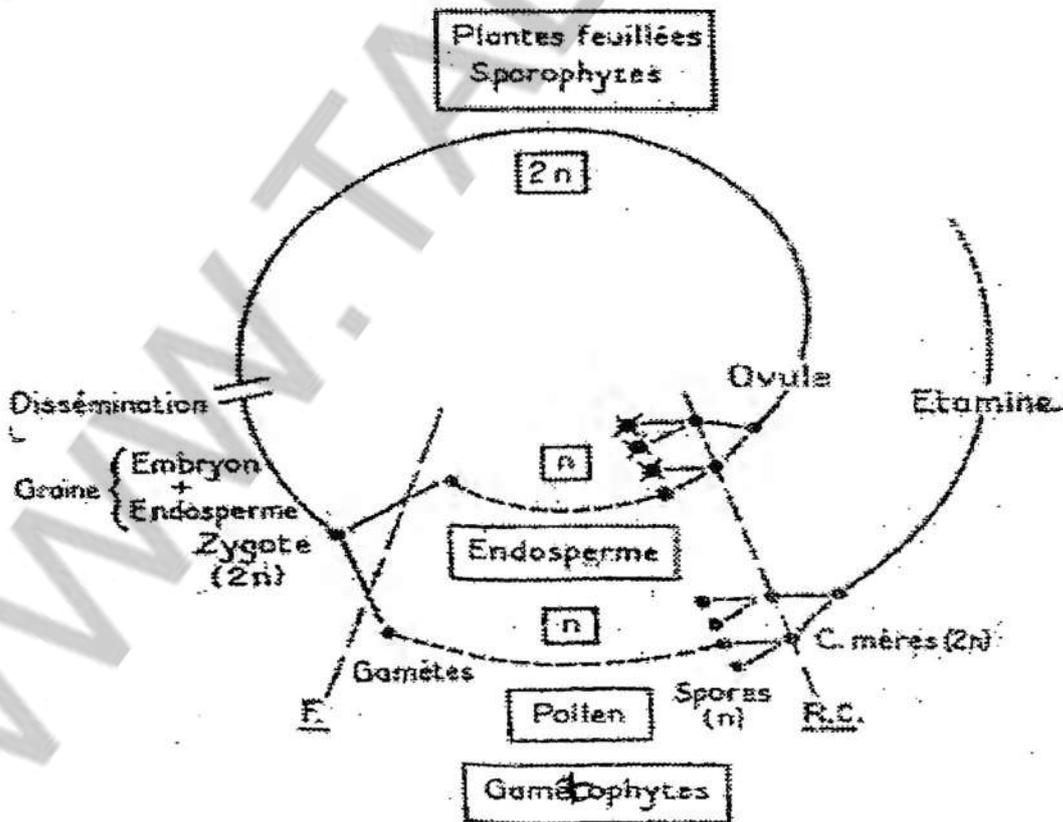


Fig.5: Cycle de développement de *Ginkgo biloba*

Planche 37

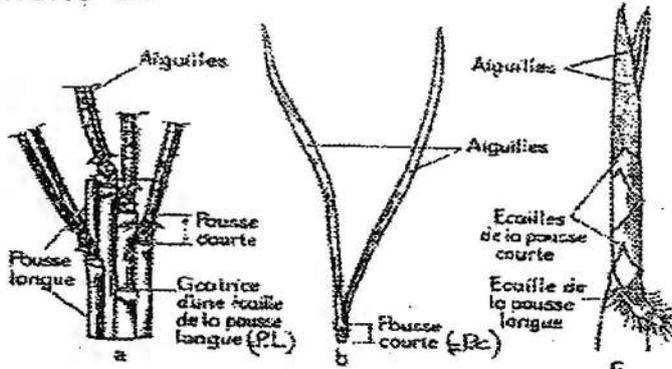


Fig.1: Les sortes de rameaux chez un Pin

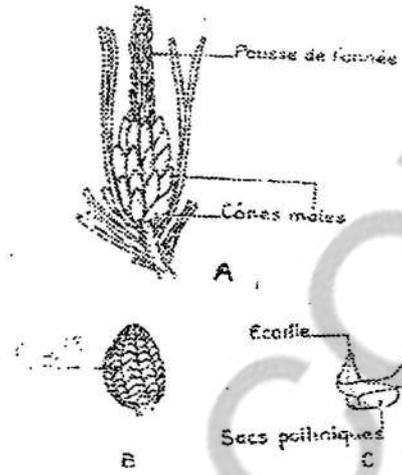


Fig.2: Cône mâle de Pin

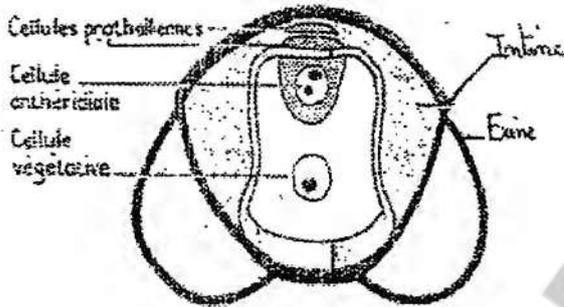


Fig.3: Organisation du grain de pollen d'un Pin

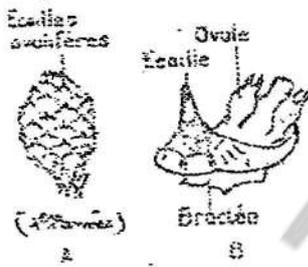


Fig.4: Cône femelle d'un Pin

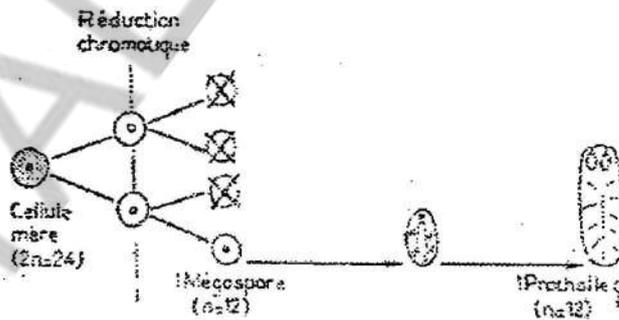


Fig.5: représentation schématique de la formation de l'endosperme chez un Pin

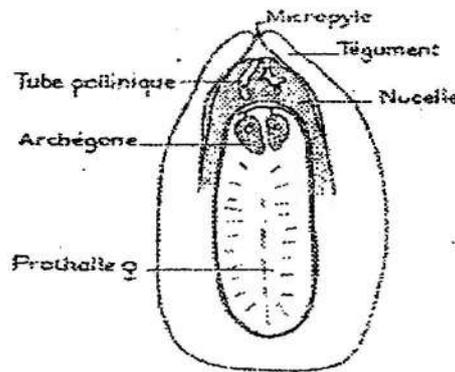
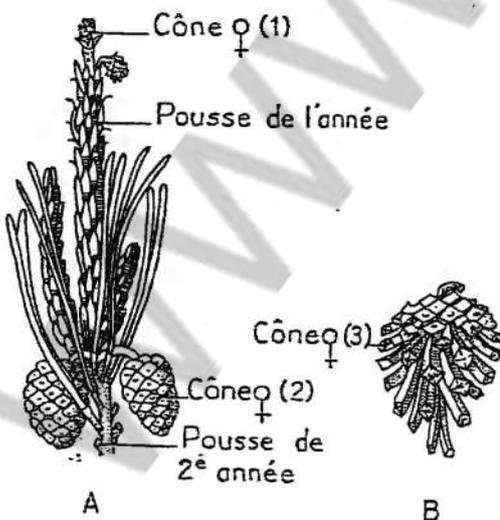


Fig.6: Ovule mûr d'un Pin

Planche 38

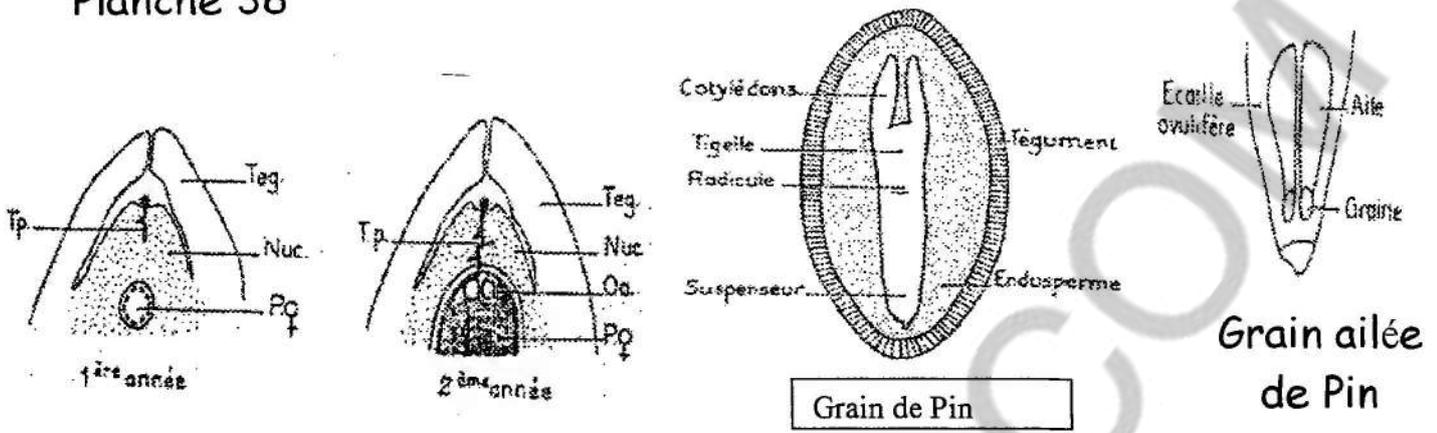


Fig.1: croissence d'un tube pollinique dans un ovule

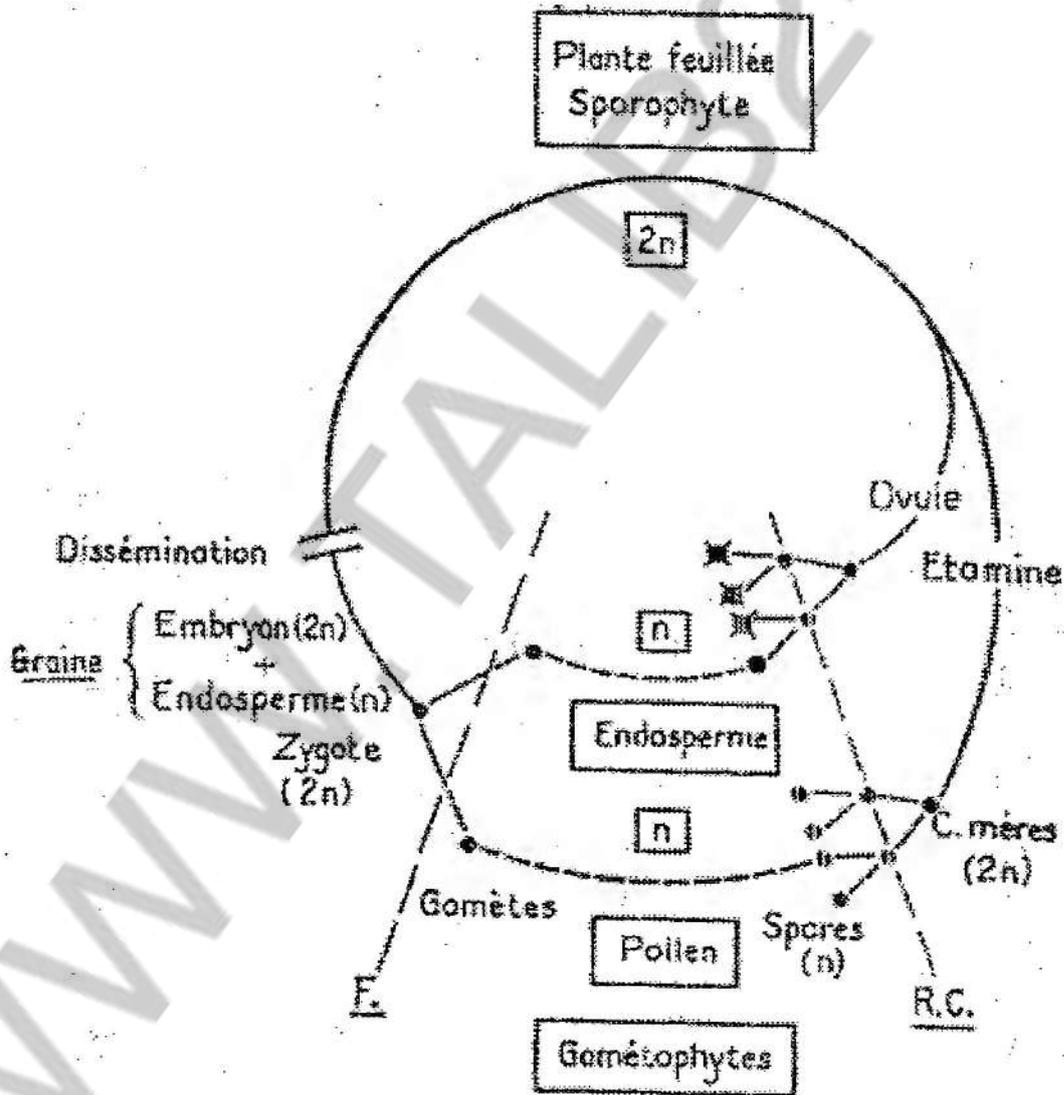


Fig.2: Cycle de développement d'un Pin

Planche 38

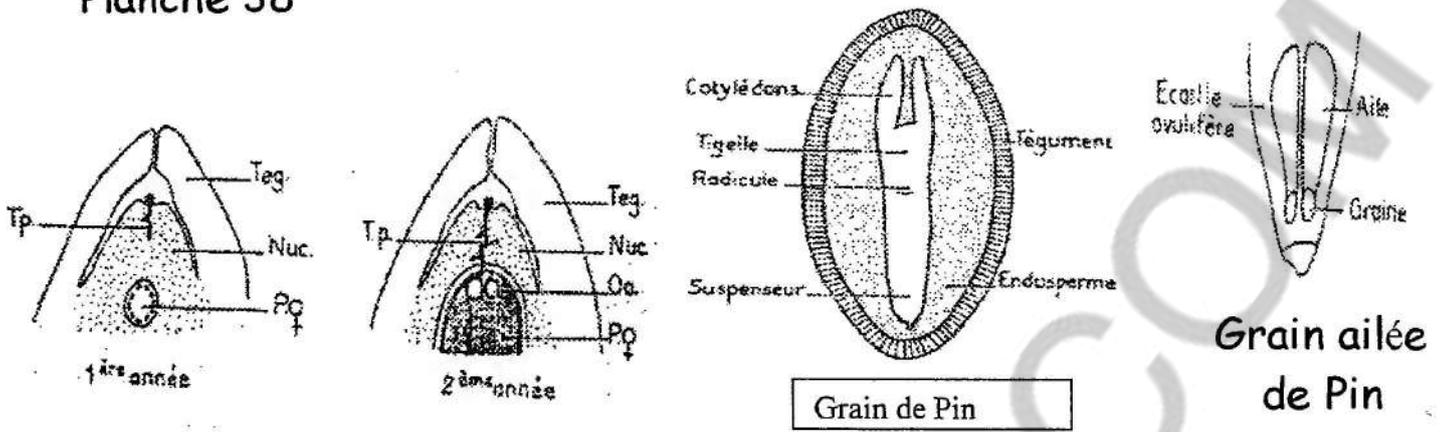


Fig.1: croissance d'un tube pollinique dans un ovule

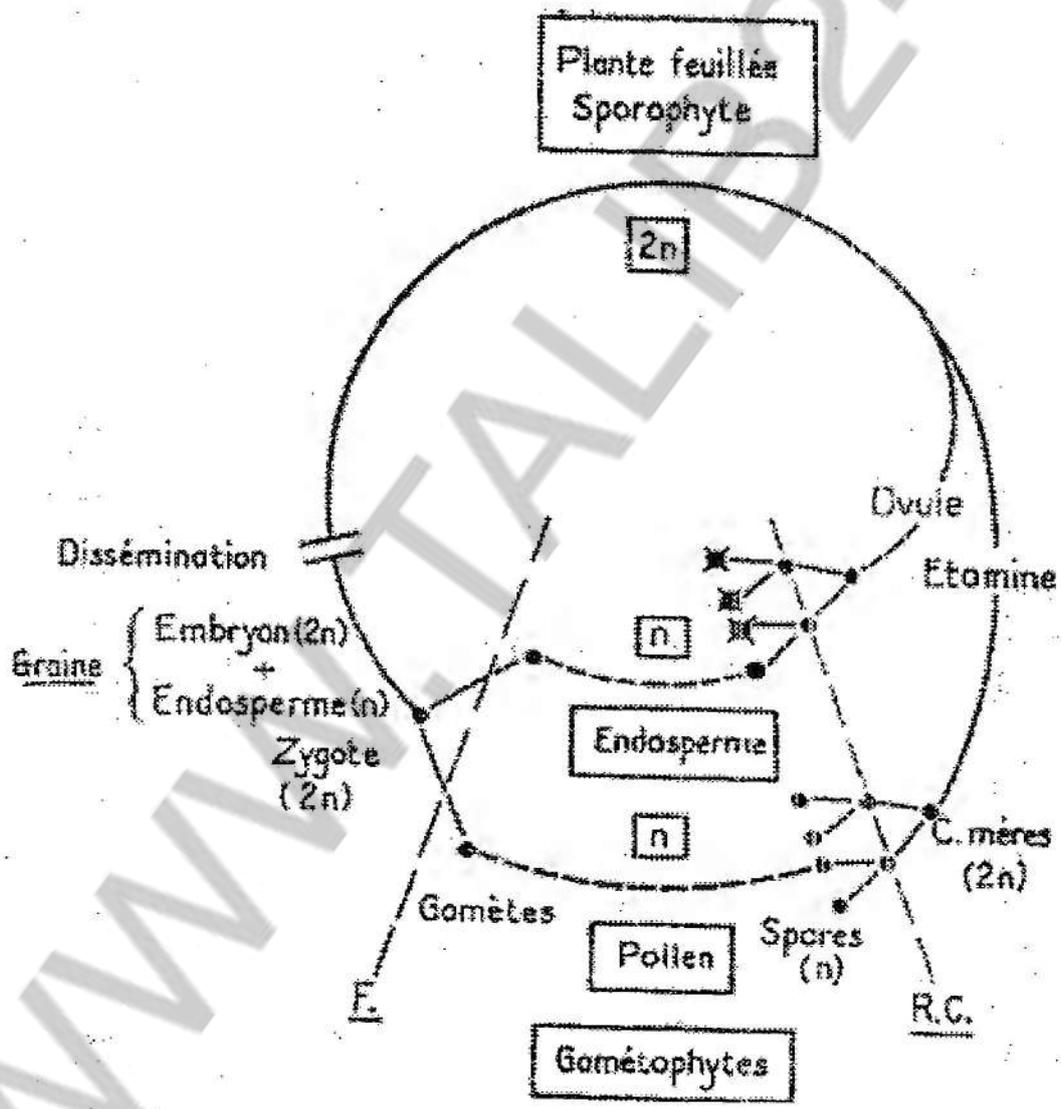


Fig.2: Cycle de développement d'un Pin

Planche 38

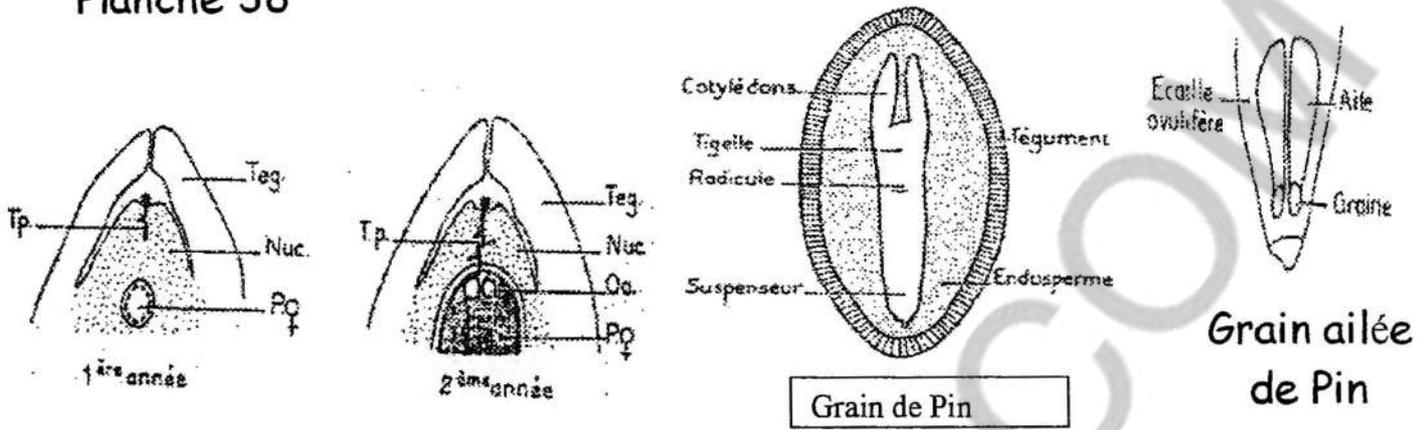


Fig.1: croissance d'un tube pollinique dans un ovule

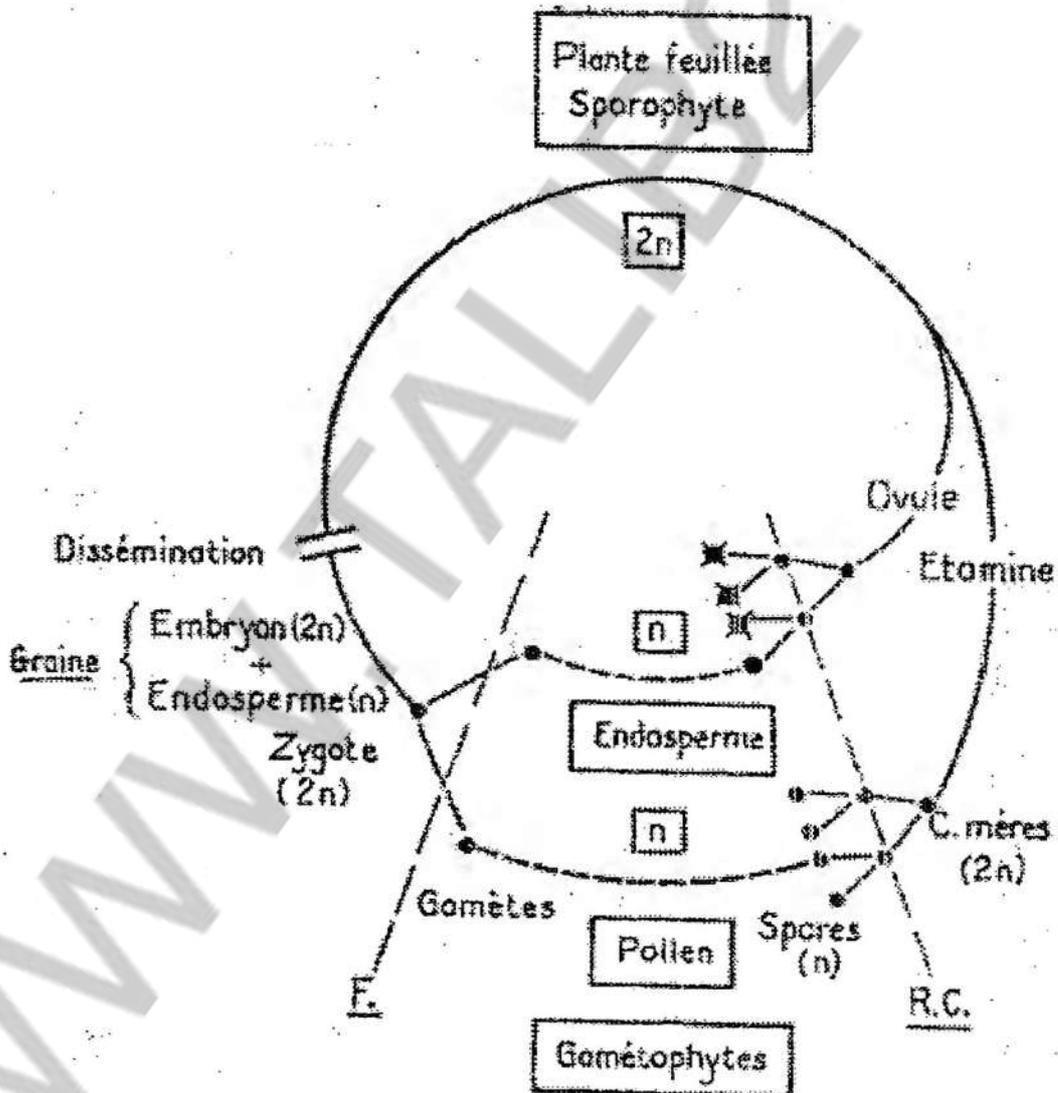


Fig.2: Cycle de développement d'un Pin

Planche 39

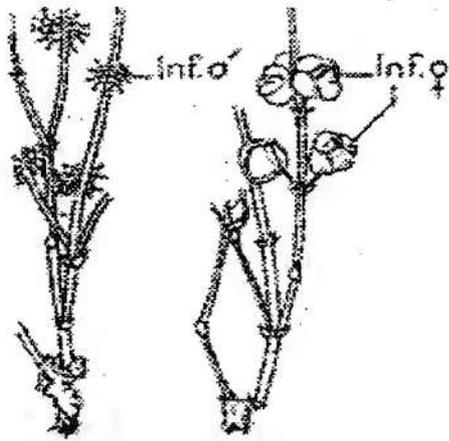


Fig.1: *Ephedra distachya*

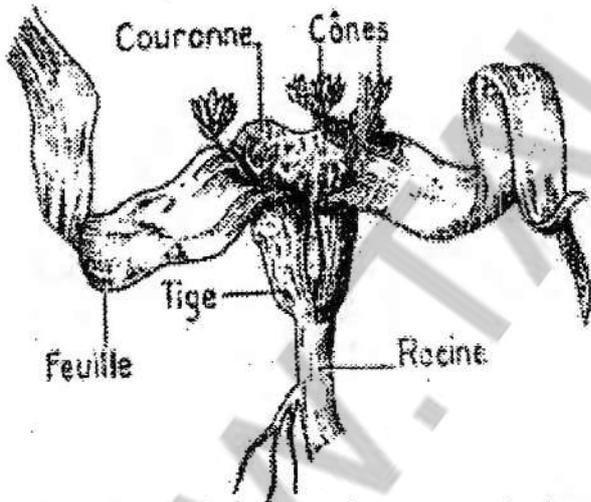
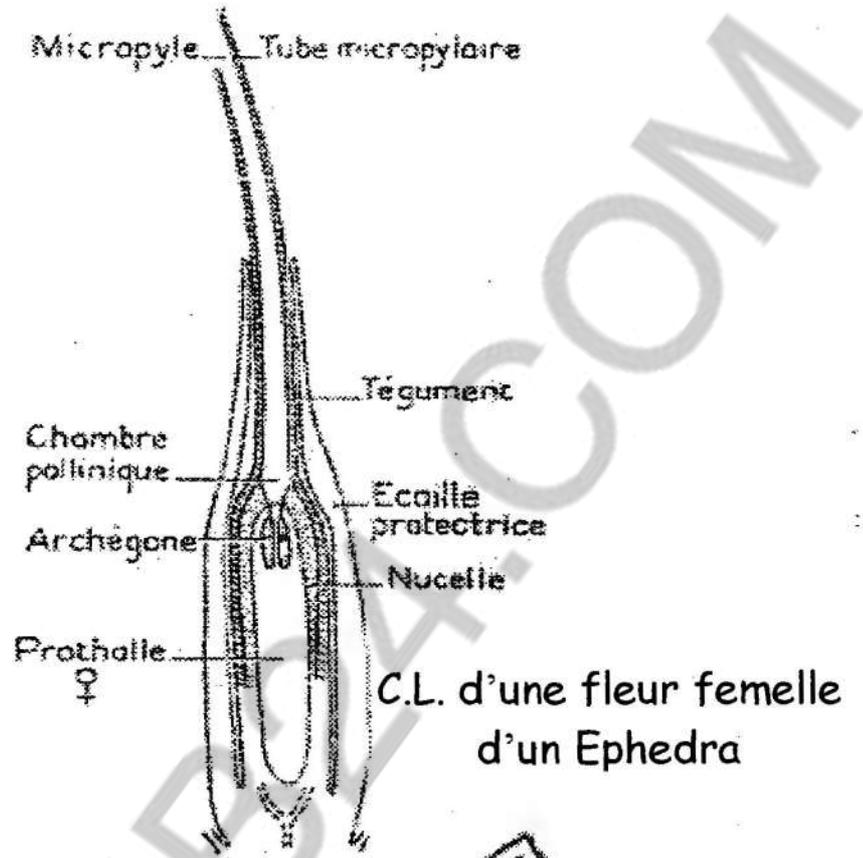


Fig.2: *Welwitschia mirabilis*

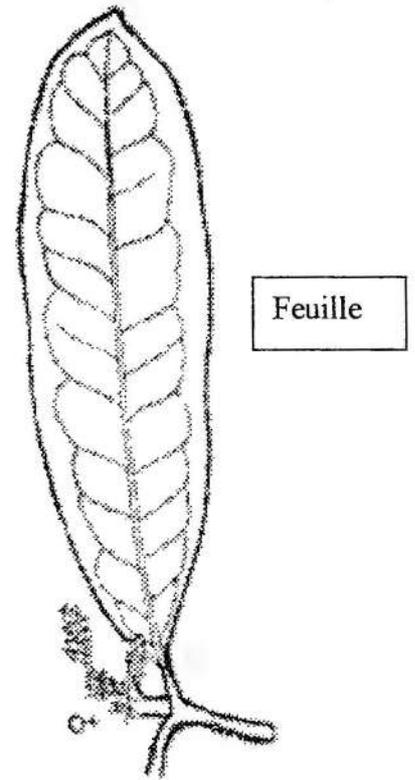


Fig.3: *Gnetum gnemon*

Planche 40

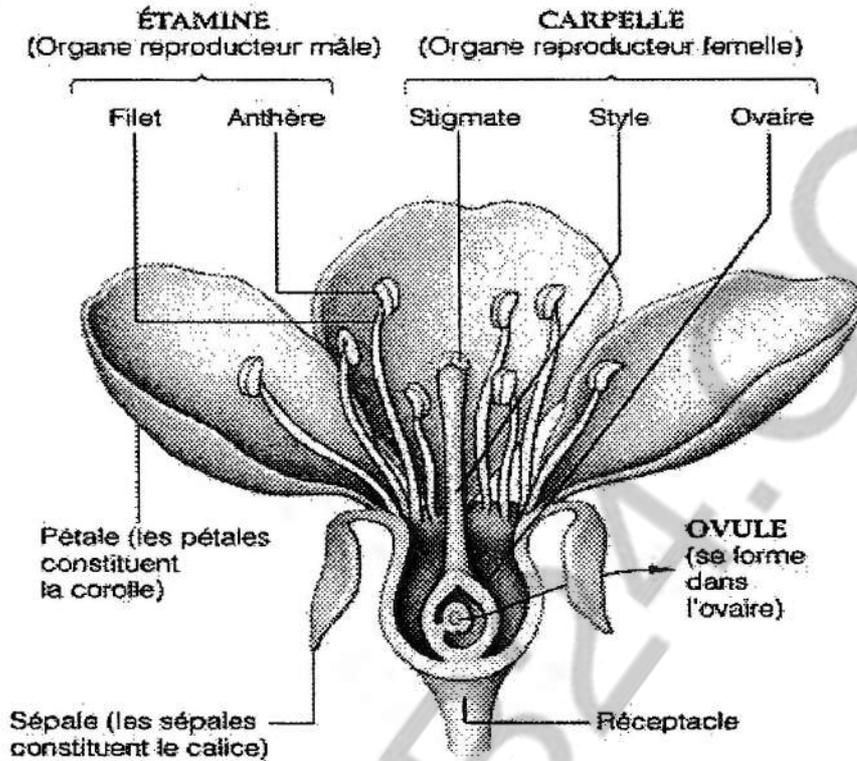


Fig.1: Fleur hermaphrodite



Fig.2: Fleurs régulières gamopétales

A: Campanule B: Liseron C: Pomme de terre

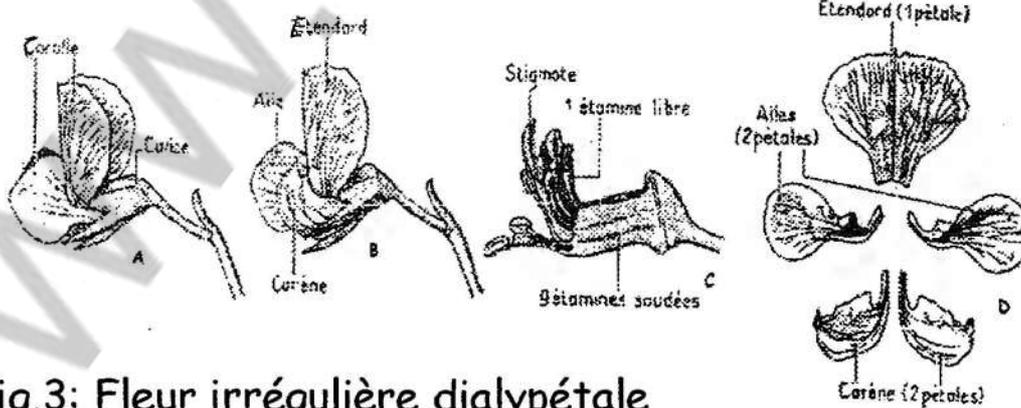


Fig.3: Fleur irrégulière dialypétale de *Pisum sativum* (Pois)

A: Fleur entière B: La carène est visible C: Androcée D: Les 5 pétales séparés

Planche 41

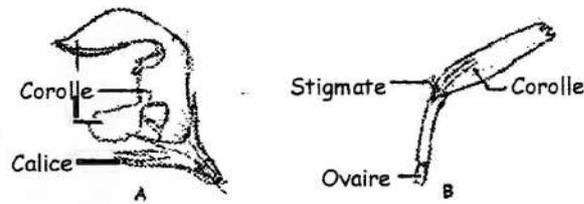


Fig.1: fleurs irrégulières gamopétales. A: Fleur d'une labiée B: Fleur ligulée d'une Composée

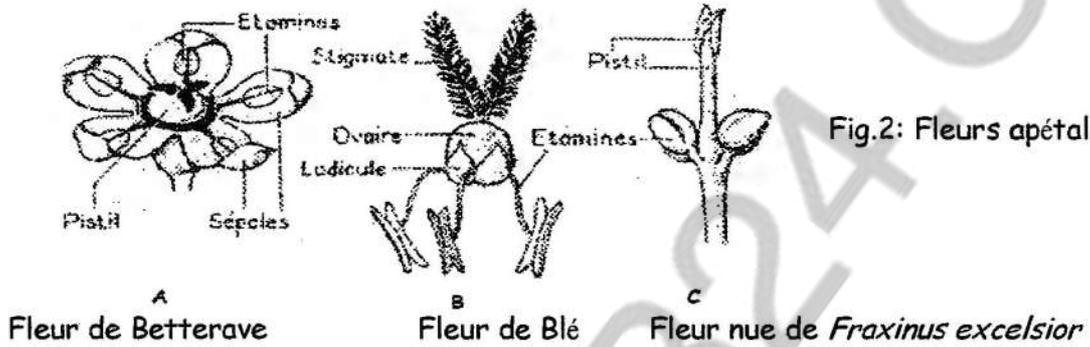


Fig.2: Fleurs apétales

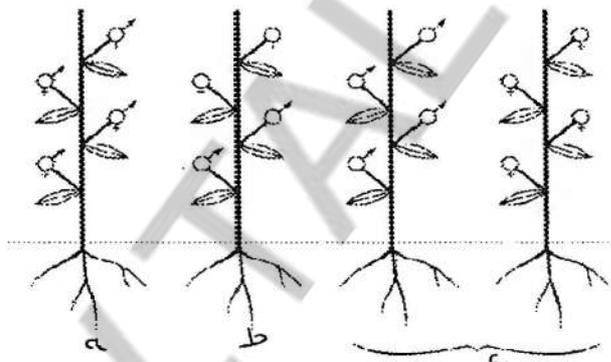


Fig.3: Répartition des sexes chez les Angiospermes
a. plante à fleurs hermaphrodites - b. plante monoïque - c. plantes dioïques

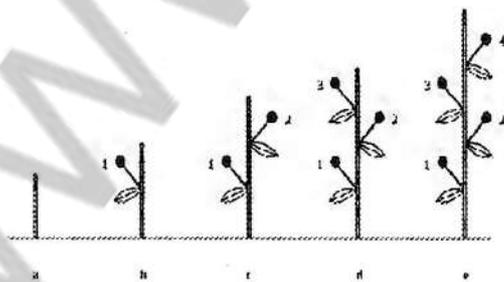


Fig.4: Formation des fleurs dans un racème
(Croissance indéfinie)

Planche 42

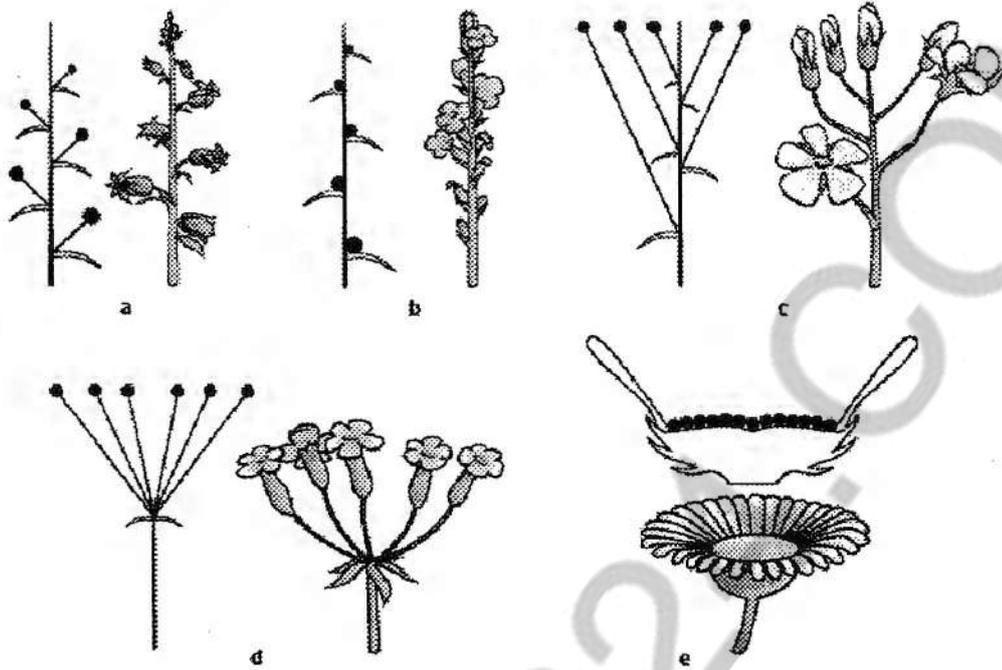


Fig.1: Inflorescences indéfinies : a. Grappe - b. Epi - c. Corymbe - d. Umbelle - e. Capitule

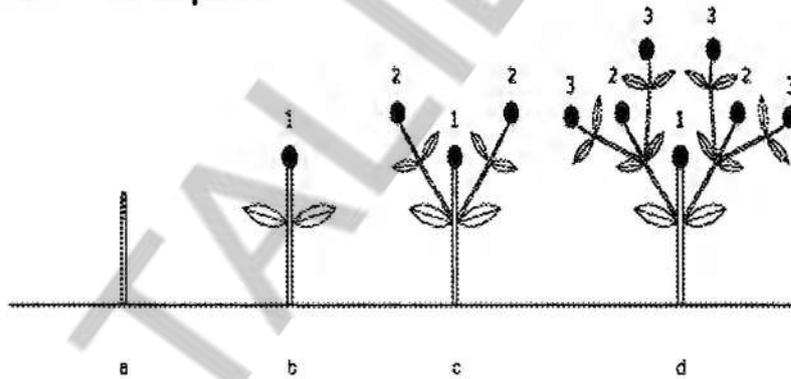


Fig.2: Formation des fleurs dans une cyme (croissance définie)

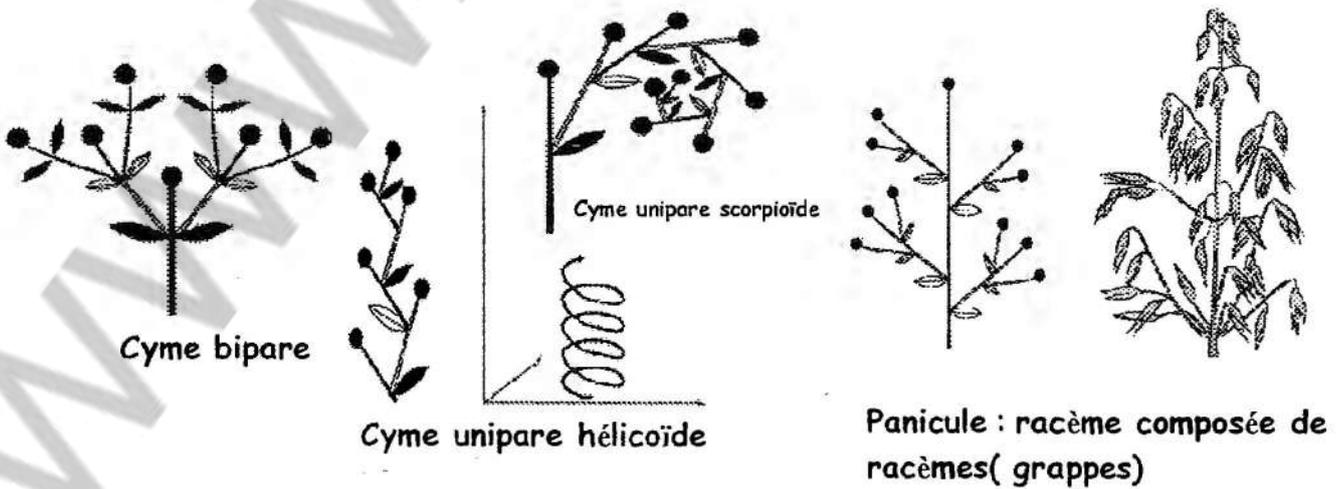


Planche 43

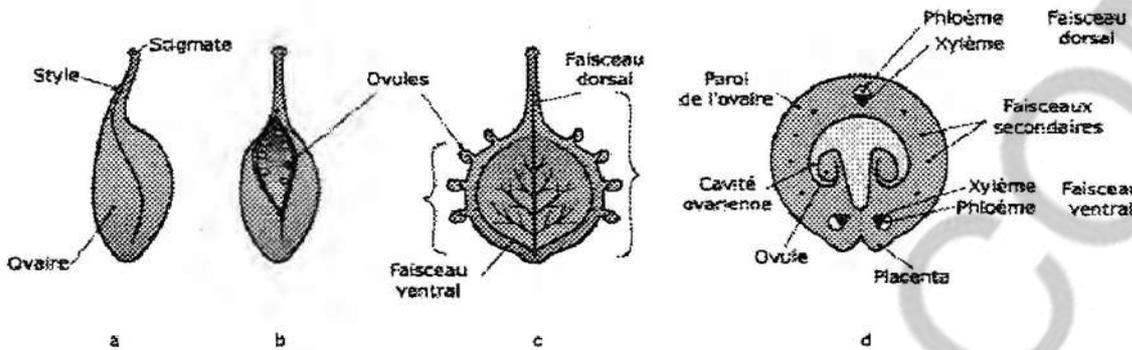


Fig.1: Carpelle d'hellébore : a. vue légèrement de profil - b. vue partiellement ouverte - c. lame carpellaire étalée - d. coupe transversale d'un carpelle fermé

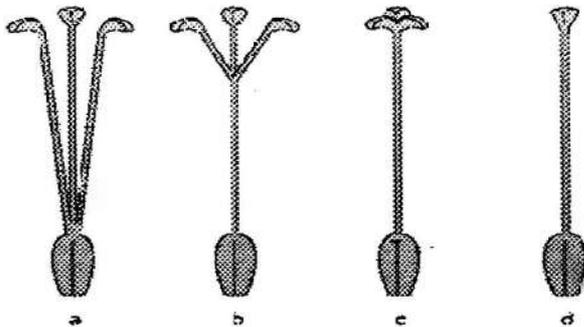


Fig.2: Gynécée syncarpe
a) union totale des ovaires, - b) union totale des ovaires, union partielle des styles - c) union totale des ovaires et des styles, les stigmates demeurant libres - d) union totale des ovaires, styles et stigmates.

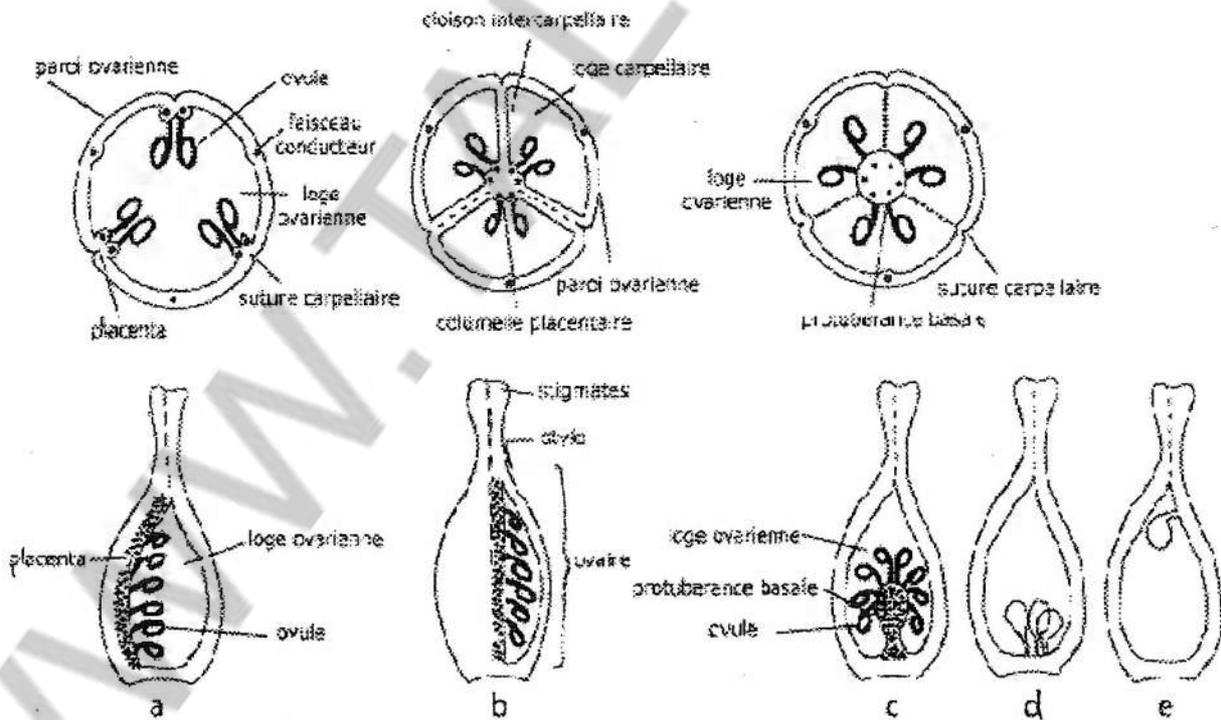


Fig.3: Différents types de groupements de carpelles : a. pariétale - b. axile - c. centrale - d. basale - e. subapicale

Planche 44

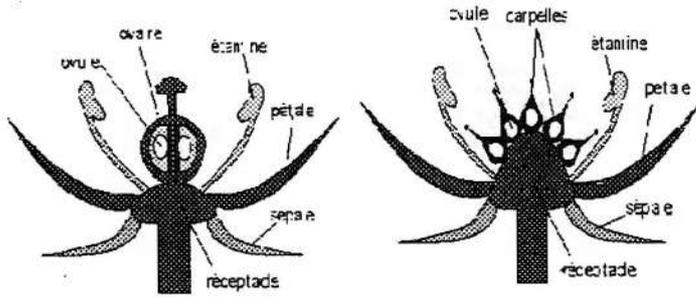


Fig.1: Fleurs à ovaire supère (fleur hypogynes)

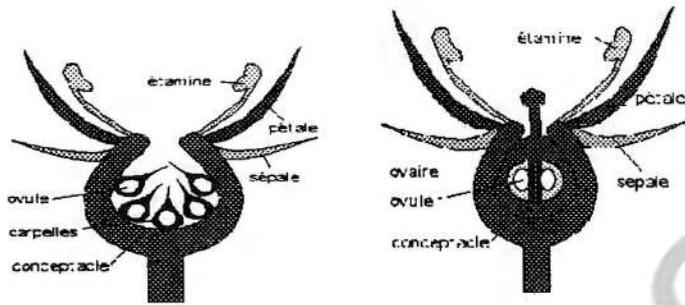


Fig.2: Fleurs à ovaire infère (fleur épigynes)

Ovaire infère libre

Ovaire infère adhérent

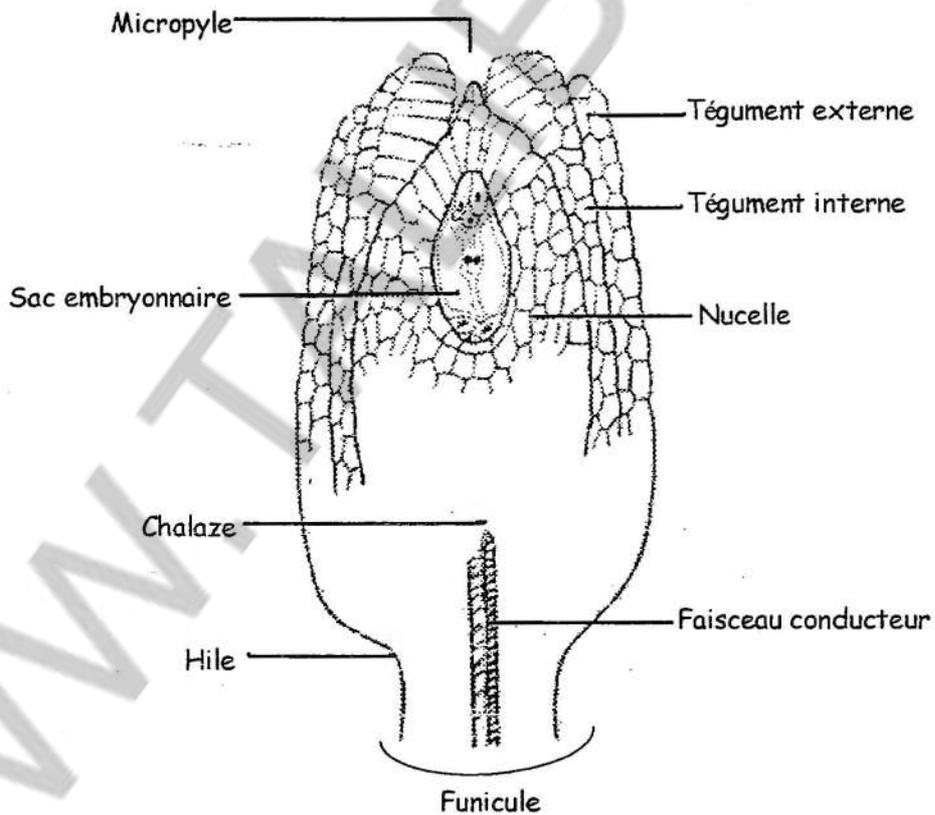
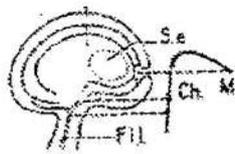


Fig. 3: Organisation d'un ovule d'Angiospermes

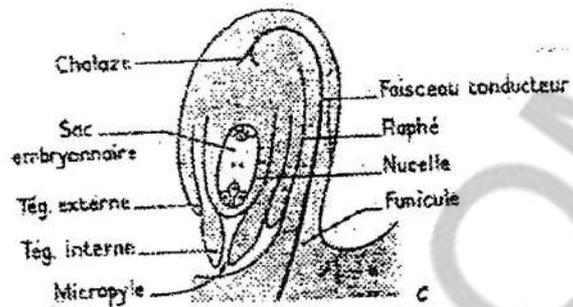
Planche 45



A
Ovule orthotrope



B
Ovule campylotrope



C
Ovule anatrophe

Fig.1: Les différents types d'ovules

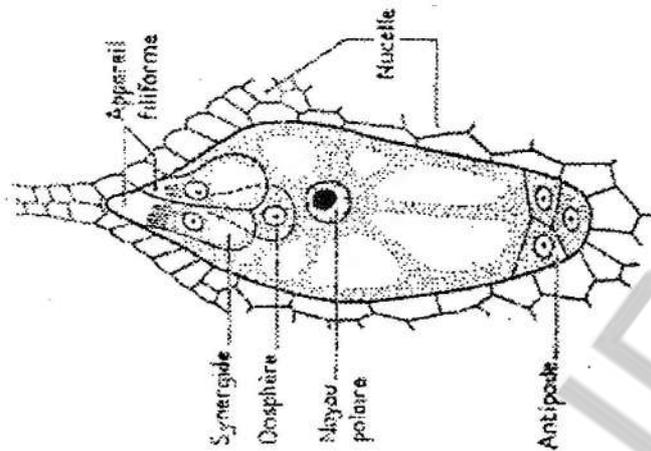


Fig.2: Sac embryonnaire (type polygonum)

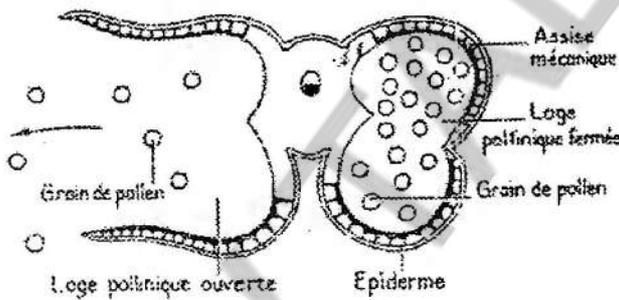


Fig.3: Déhiscence de l'anthere d'une étamine

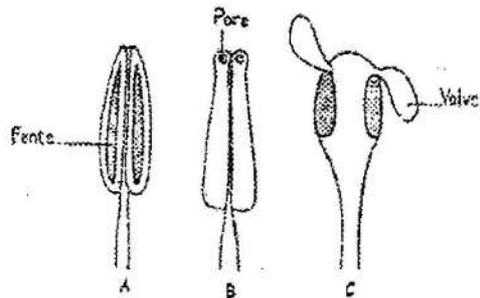
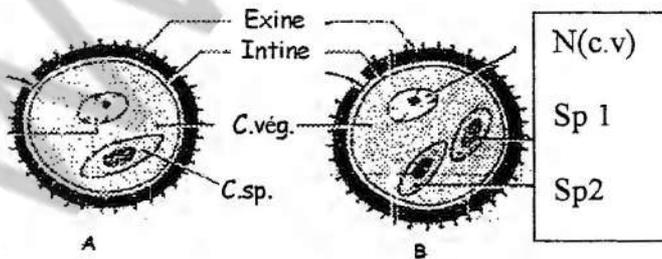
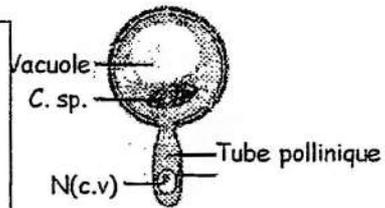


Fig.4: Différents modes de déhiscence des étamines



A
Grain de pollen bicellulaire

B
Grain de pollen tricellulaire



Germination du grain de pollen

Planche 46

Types de déhiscences

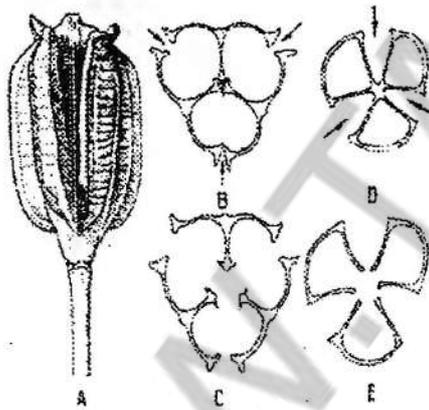
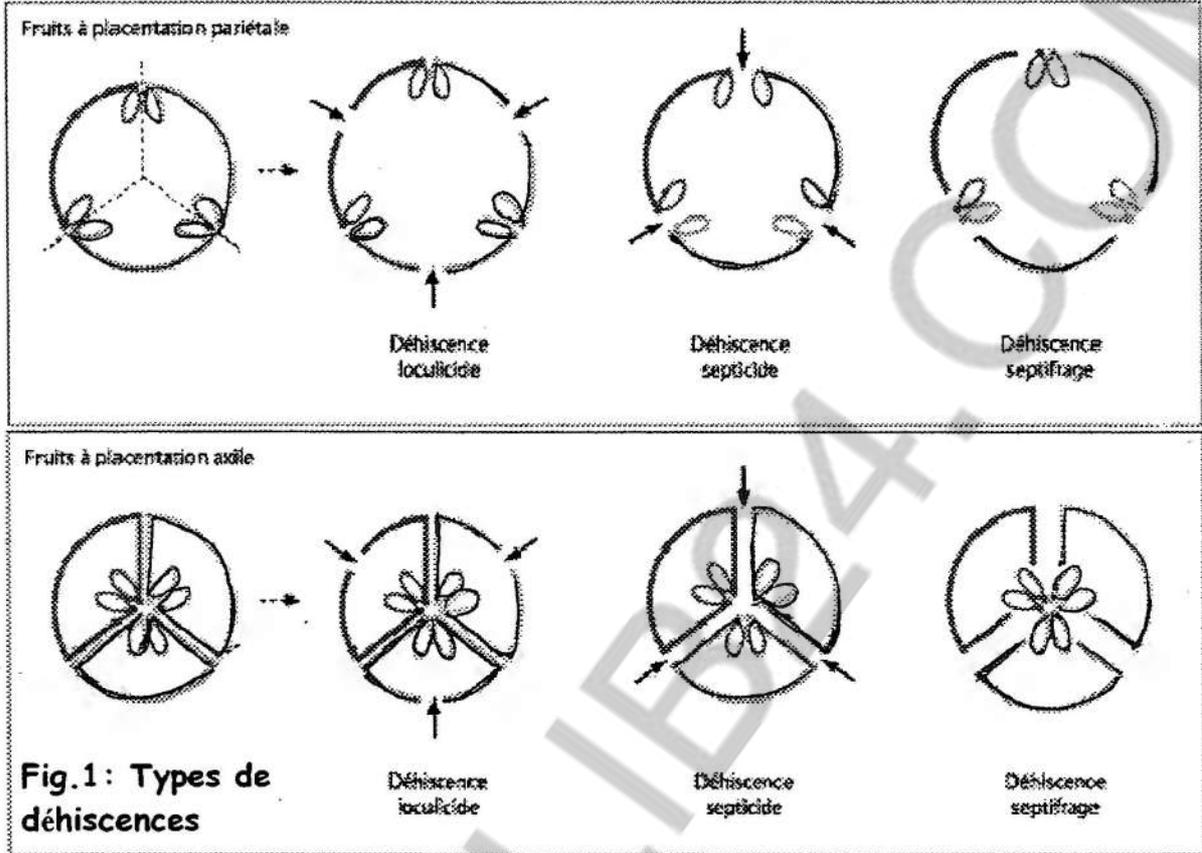


Fig.2: Capsule de Tulipe

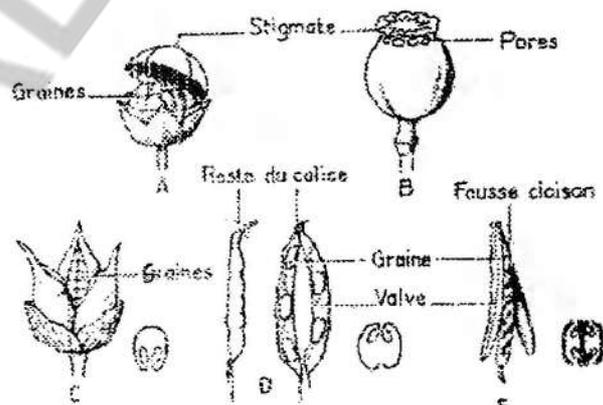


Fig.3: Fruits secs déhiscents

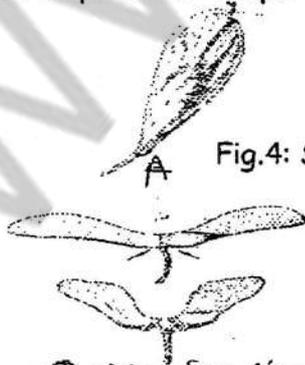


Fig.4: Samare(Frêne)

B: Disamare (Érable)

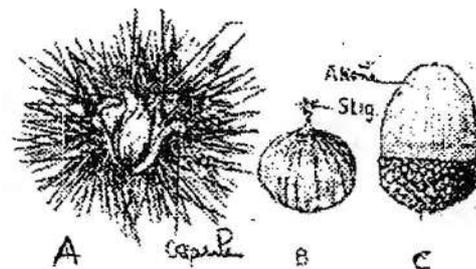


Fig.5: Akènes

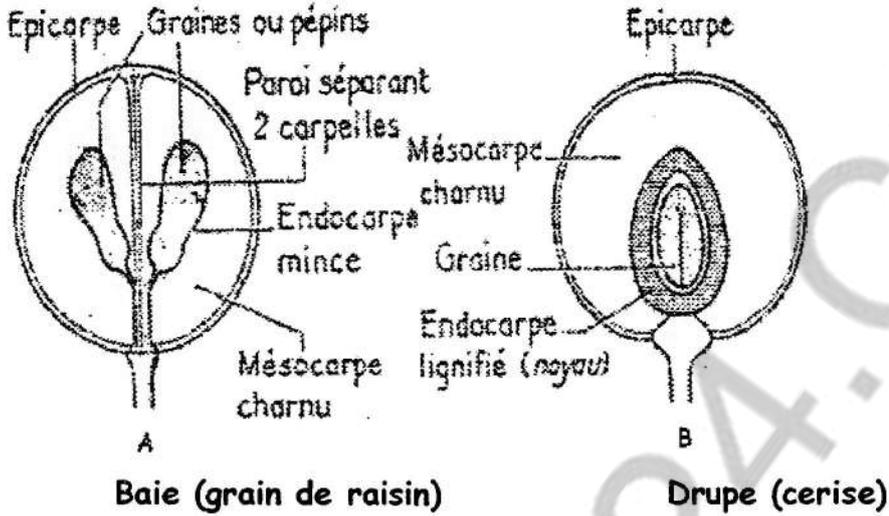


Fig.1: Fruits charnus

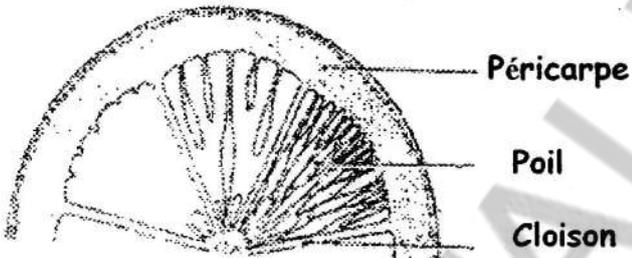


Fig.2: Poils géants remplissant les loges carpellaires d'une orange

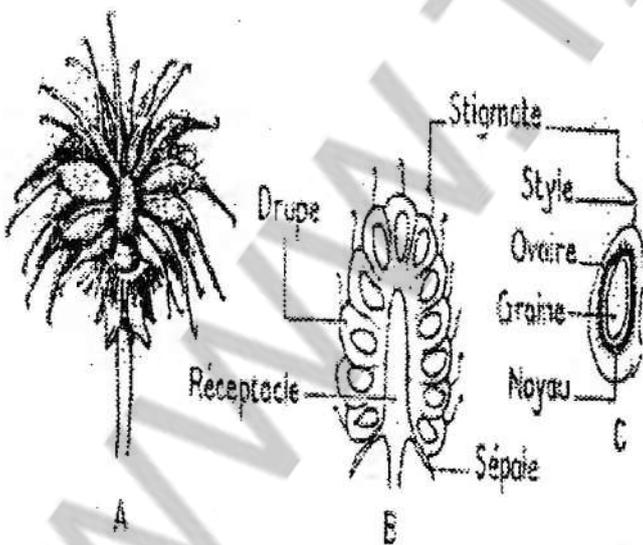


Fig.3: Fruits multiples

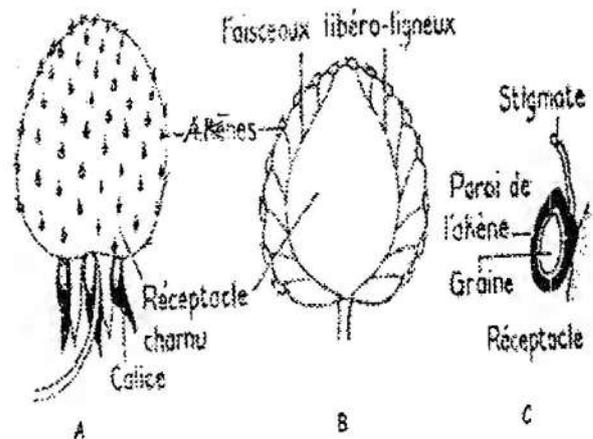


Fig.4: fruits complexes (la fraise)

Planche 48

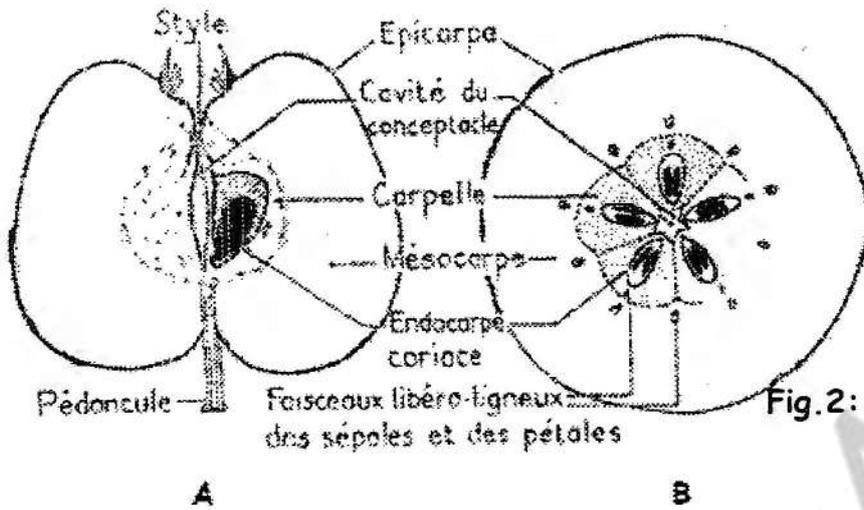


Fig.1: Les infrustescences

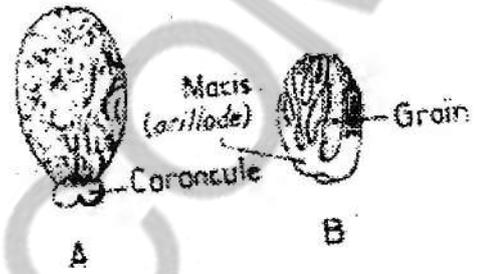


Fig.2: Annexes des téguments des graines

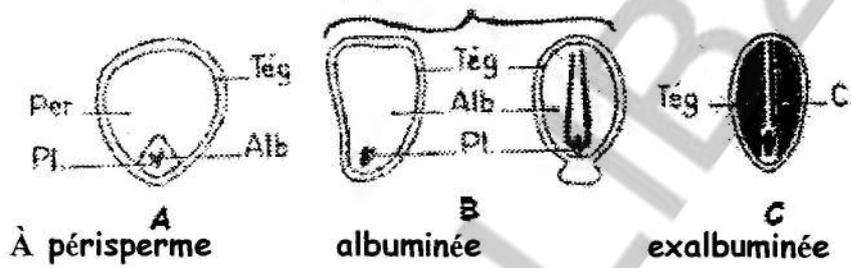


Fig.3: Les différentes sortes de graines chez les Angiospermes

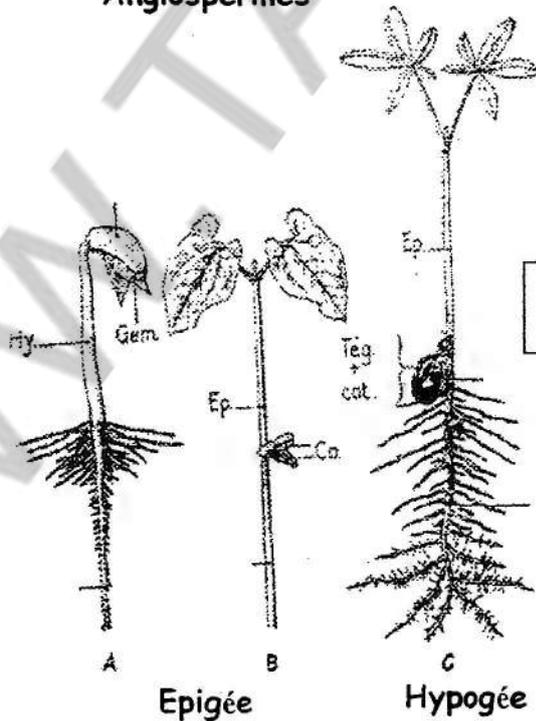


Fig.4 : Germinations des graines

Planche 49

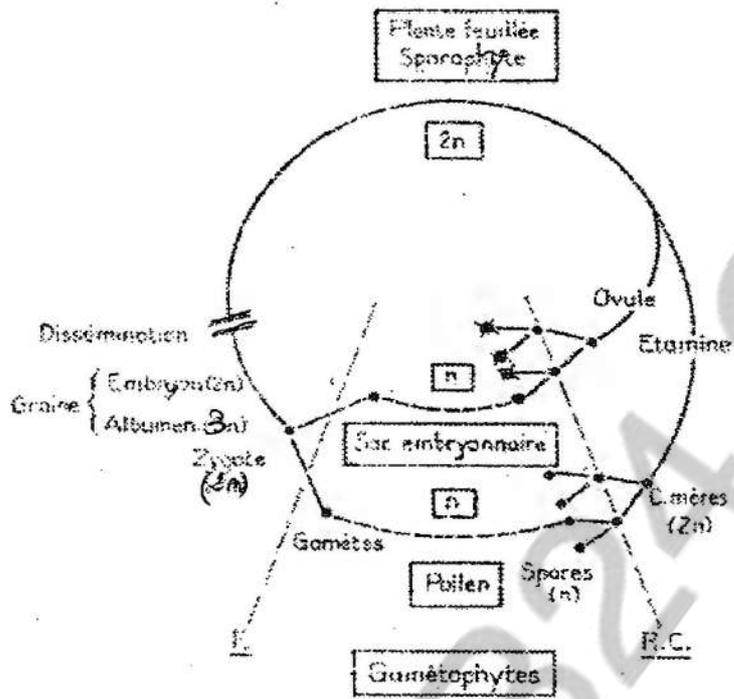
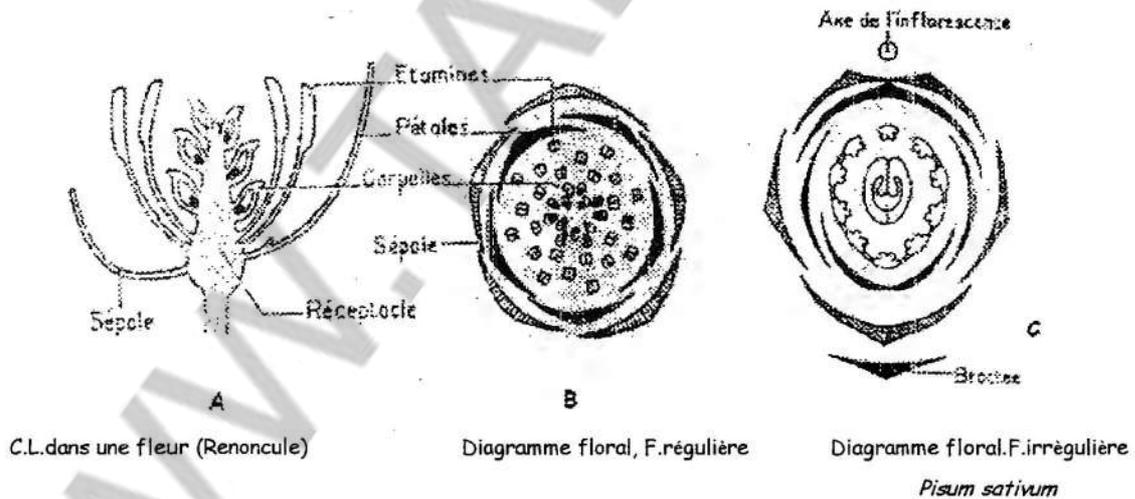


Fig.1: Cycle de développement d'une Angiosperme Hermaphrodite



Formule florale: $\text{♂} \text{♀} \text{⊕}; 5S+ 5P +n E+ n C$

Fig.2: Représentation schématique de l'organisation florale