

The Higher Fungi of Kwangneung Forest Institute (I)

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ABSTRACT

Twenty-six species of the higher fungi were collected and identified from Mt. Sori in Kwangneung, Kyeonggi-do, Korea, during the period of three months, beginning July 1, 1972.

Among them the following were recognized newly to occur in Korea: *Camarophyllus virgineus* (Fr.) Karst., *Rhodophyllus crassipes* (Imaz. et Toki) Imaz. et Hongo and *Agrocybe pediades* (Fr.) Fayod.

The Central Regional Branch Station, Forest Institute, is located on N. Lat. 37°45' and E. Long. 127°10', 26km north of Seoul. Its area was 2,333ha. The branch station, since its foundation in 1929, not only has cultivated broad-leaved wood, coniferous wood, and mixed wood in the area comprising five myeons, Soheul-myeon, and Naechon-myeon in Pochun-kun, and Jinjuk-myeon, Byollae-myeon and Sidoon-myeon in Yangjoo-kun, Kyeonggi-do, but also has conducted series of experiments on them.

Clitocybe maxima (Fr.) Kummer 흰깔애기버섯

Quélet, Champ. Jura Vosg. 1 : 88. 1872.

Agaricus maximus Gärther, Meyer et Scherbius, Fl. Wett. 3(2) : 329. 1802—Fries, Epicr. Myc. 67. 1938.

Lee et al., Coloured Illustrations of Fungi of Korea, 12. 1959.

Pileus 10—20cm broad, firm, plane, always dry, with a thin interwoven, silky-tomentosity on sur-

face, rusty alutaceous, margin spreading. Flesh thick and compact on disk. Lamellae decurrent to long decurrent, whitish at first, soon dingy yellowish, pale tan in age. Stipe 6—10cm long, inflated-bulbous, 2cm thick above, 4cm at bulb, covered by white to mentum. Spores elliptic-oval, 7×5μ, obscurely echinulate, white. Cystidia none. Odor strong, oily-farinaceous. Edible.

Hab. On ground

Laccaria amethystina (Hooker) Murr. (Plate II. A) 활각버섯

Murrill, N. Am. Fl. 10 : 1. 1914.

Lee et al., Coloured Illustrations of Fungi of Korea, 9. 1959.

Pileus 1.5—3cm broad, convex but depressed at center, hygrophanous, scurfyscaly, pale red to flesh-red when moist, pale ochraceous whitish when dry. Flesh thin. Lamellae distant or decurrent, tinged flesh color. Stipe 3—7×0.2—0.5cm, equal, fibrous, pale flesh-red. Spores globose, 8—10μ,

echinulate, spines 1mm long, white. Edible.

Hab. Scattered in woods.

Lampteromyces japonicus (Kawam.) Sing. (Plate I. A) 화경버섯

Pleurotus japonicus Kaw. Jour. Coll. Sci. Imp. Univ. Tokyo 35(3) : 2. 1915.

Armillaria japonica Imai, Jour. Facul. Agr. Hokkaido Imp. Univ. 43 : 52. 1938.

Singer, Mycol. 39 : 80. 1947.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 10. 1959.

Pileus 6—23cm broad, at first spherical, at length semilunate or reniform, convex then plane or depressed, with dark brownish or dark purplish scales on surface, luminous. Flesh at first yellowish, then white, fragile, fibrous. Lamellae decurrent or adnate, broad, yellowish when young, then whitish.

Stipe 2.5×3cm, lateral, solid, fibrous. Flesh of stipe dark purplish or blackish. Ring narrow, thick, membranous, at length raising a ring. Spores globose, 13—17 μ , smooth, white in print. Odor marked, poisonous.

Hab. On decaying oak and maple woods.

Lentinus edodes (Berk.) Sing. (Plate III. E) 표고버섯

Singer, Agaricales, 279. 1949.

Agaricus edodes Berk. Jour. Linn. Soc. Bot. 16 : 50. 1878.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 27. 1959.

Pileus 4—10cm broad; convex then expressed, whitish brown or blackish brown scales on the surface floccose when young. Flesh thick, compact; fleshy, whitish. Lamellae sinuate, white, margin smooth or wavy. Stipe 3—10×0.8—2cm, solid, equal or tapering toward down, the upper portion from the ring white, the under portion of it brownish, fibrous, left a bit of veil. Ring floccose evanescent. Spores elliptical, acute, 6—7×3.5—4 μ , white

in print. Cystidia broad-clavate. Edible.

Hab. Caespitose, on the stump of broad-leaved woods.

Mycena haematopus (Pers. ex Fr.) Quél. 적갈색에 주름버섯

Quélet, Champ. Jura Vosg. 1:244. 1872.

Agaricus haematopus Pers. Obs. Myc. 2 : 56. 1799.

Pileus 1—3cm broad, at first elliptical then campanulate, at first purplish then paler; the sterile margin extends beyond the lamellae. Flesh thin bleeding when cut. Lamellae adnate, ascending, whitish soon reddish-stained. Stipe 4—9cm long, 2—3mm thick, rigid, fragile, hollow, exuding reddish juice when broken. Spores elliptical 8.5—9.5×5—6 μ , smooth, white. Cystidia none.

Hab. Caespitose, on decaying woods.

Pleurotus ostreatus (Jacq. ex Fr.) Quél. (Plate I. D) 느타리버섯

Quélet, Champ. Jura Vosg. 1 : 112. 1872.

Agaricus ostreatus Jacq. Fl. Austr. 3 : pl. 288. 1775; Fries, Syst. Myc. 1 : 182. 1821.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 26. 1959.

Pileus 5—18cm broad, firm, shelving, convex or depressed, whitish becoming brownish-ashy, margin thin. Flesh thick, somewhat soft. Lamellae decurrent and running down the stipe, whitish. Stipe lateral, short or lacking, stout, solid, whitish. Spores oblong, 10—12×4—5 μ , smooth, white in mass. Edible.

Hab. On standing dead trunks of poplar, maple, elm, birch, and willow, etc.

Tricholoma matsutake (S. Ito et Imai) Sing. (Plate I. E) 송이버섯

Singer, Agaricales, 227. 1949.

Armillaria matsutake S. Ito et Imai, Bot. Mag. Tokyo. 39 : 327. 1925.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 18. 1959.

Pileus 8–20cm, broad, convex then plane, with dry, dark chestnut, fibrous scales on surface, margin incurved, left brown, wooly margin veil when young. Flesh white, compact, thick. Lamellae sinuate, white or yellowish, broad. Stipe 10–20×2–3cm, almost equal, the upper portion from ring white, powdery, the under portion of it covered by dark chestnut, fibrous scales, compact.

Ring narrow, membranous, white. Spores elliptical, smooth, 6–7×5–6.5 μ , white in print. Odor marked. Taste mild, edible.

Hab. On ground in pine woods.

Lactarius piperatus (Fr.) S. F. Gray 풀털이

S.F.Gray, Nat. Arr. Brit. Pl. 1 : 623. 1821—Fries, Epicr. Myc. 340. 1838.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 81. 1959.

Pileus 8–20cm broad, firm, expanded-depressed, at length infundibuliform, dry, white, margin spreading or elevated. Flesh white, thick. Lamellae attenuate-subdecurrent, dichotomously forked, white then cream-yellow. Stipe 4–9×1–5cm, solid, white. Spores subglobose, 6–9×5–7 μ , nearly smooth, white. Cystidia 60–70×9–10 μ . Milk white, acid. Edible.

Hab. On ground in broad leaved woods

L. volemus Fr. (Plate III. B) 꽃버섯

Fries, Epicr. Myc. 344. 1838.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 80. 1959.

Pileus 5–13cm broad, firm, convex then expanded-depressed, dry, brownish orange to tan-brown, margin at first involute then spreading. Flesh rigid, whitish. Lamellae adnate-decurrent, white or yellowish. Stipe 5–10cm long, 1–2cm thick, solid, paler. Spores globose, 7–10 μ , echinulate, white. Milk white abundant. Edible.

Hab. On ground.

Russula fragilis (Fr.) Fr. (Plate II. E) 애기부당버섯

Fries, Epicr. Myc. 359. 1838.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 76. 1959.

Pileus 2–6cm broad, thin and fragile, plano-depressed with a thin viscid pellicle, pale red. Flesh white, thin. Lamellae white, thin, close, adnexed. Stipe 2–5×1.5cm, white spongy then hollow, equal, fragile. Spores white, subglobose, 7–8 μ . Taste very acid.

Hab. On ground in woods.

Agaricus campestris Fr. 들버섯

Linne, Sp. Plant. 2 : 1173. 1753.

Fries, Syst. Myc. 1 : 281. 1821.

Psalliota campestris QuéL. Champ. Jura Vosg. i : 140. 1872.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 42. 1959.

Pileus 5–10cm broad, at first flattened hemispherical then convex-expanded, firm, delicately fibrillose-scaly, dry, white, margin extending beyond lamellae. Lamellae free, at first pink, then deep flesh color, finally purplish brown to blackish. Stipe 5–10cm×5–20mm, firm, whitish. Ring often evanescent in age, derived from the thin, white, partial veil. Spores elliptical, 6–9.5×5–7 μ , purple-brown, blackish-brown in mass, smooth. Edible.

Hab. On ground in roadside and cultivated fields.

Lepiota acutesquamosa (Weinm.) Gill. 가시머섯

Gillet, Champ. Fr. 60, c. ic. 1874.

Agaricus acutesquamosus Weinm. Syll. Pl. Nov. 1 : 70. 1824—Fries, Epicr. Myc. 14. 1838.

Pileus 5–11cm broad, soft, convex-expanded, at first covered by pale tomentum which breaks up into brown, pointed, erect scales. Flesh white, moderately thick. Lamellae free, narrow, thin. Stipe 6–10cm long, 6–12mm thick above, tapering upward from a bulbous base. Spores elongated oblong, smooth, white. 7–9×3 μ , Edible.

Hab. On ground in forest.

Lepiota procera (Fr.) Quél. (Plate II. C) 갓버섯

Agaricus procerus Scop. Fl. Carn. ed. 2. 2 : 418. 1772; Fries, Syst. Myc. 1 : 20. 1821.

Lepiota procera S. F. Gray, Nat. Arr. Brit. pl. 1 : 601. 1821—Quélet, Champ. Jura Vosg. 1 : 70. 1872.

Macrolepiota procera (Scop. ex Fr.) Sing., Singer, Agaricales, 417. 1949.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 40. 1959.

Pileus 8—14cm broad, campanulate-convex to subexpanded, covered with brown scales or patches, exposing the white flesh beneath. Flesh thick, white. Lamellae free, remote from stipe, thin, close, white or brownish in age. Stipe 15—27cm long, cylindrical or tapering upward from a bulb, 6—12 mm thick above, stuffed with delicate long fibriles, surface covered with small brown scales white beneath and within. Ring movable, thick, formed of the firm, membranous veil. Spores $16 \times 12 \mu$, elliptical to oval, smooth, white. Edible.

Hab. On sandy ground in pine woods.

Naematoloma fasciculare (Fr.) Karst. (Plate II. D) 노랑다발

Karsten, Hattsv. 1 : 496. 1879.

Agaricus fasciculare Huds. Fl. Angl. 2 : 615. 1778, Fries, Syst. Myc. 1 : 288. 1821.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 48. 1959.

Pileus 2—5cm broad, convex then expanded, yellowish-green, yellowish-brown or red brown at center, dry, glabrous, margin incurved. Flesh yellow, thin. Lamellae sinuate, olive dark brown, compact. Stipe 5—12 \times 0.3—0.7cm, equal, yellowish fibrous, hollow. Ring yellowish-white, floccose, evanescent. Spores purplish brown, elliptical or ovate, $6-7 \times 3.5-4.5 \mu$, smooth. Cystidia clavate, $30-40 \times 7-10 \mu$. Taste bitterish. Poisonous.

Hab. Caespitose, on stump of decay woods.

Suillus bovinus (Fr.) Kuntze 그늘버섯

Kuntze, Rev. Gen. Pl. 3(2) 2535. 1893.

Boletus bovinus L. Sp. Plant. 2 : 1177. 1753—Fries,

Obs. Myc. 1 : 112. 1815.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 62. 1959.

Pileus 5—12cm broad, convex then expanded, firm, hard when young, soft in age, hygroscopic, yellowish brown or fleshy color, margin incurved or wavy. Tubes yellowish olive, mouths angular, radiated in arrangement. Stipe 5—10 \times 1cm, equal, solid, light color than the pileus. Spores oblong to fusiform, $8-10 \times 3-4.5 \mu$, light yellow, but olive yellowish brown in print. Edible.

Hab. On ground in coniferous woods.

Hygrophorus russula (Fr.) Quél. 빛꽃버섯

Quélet, Enchir. Fung. 49. 1886.

Agaricus russula Schaeff., Fung. Bavar. 4 : Ind. 25. pl. 58. 1774. Fries, Hymen, Eur. 52. 1874.

Tricholoma russula Gill. Champ. Fr. 91. c. ic. 1874.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 5. 1959.

Pileus 5—12cm broad, firm, plane or depressed with margin elevated-wavy, pale pink to rosy-red. Flesh thick, white or reddish-tinged. Lamellae spuriously decurrent, thickish, reddish-spotted. Stipe 7—10 \times 1—3cm, solid, dry, white, becoming reddish in age. Spores elliptical apiculate, $7-8 \times 4-5 \mu$, smooth, white. Basidia $45 \times 5-6 \mu$. Edible.

Hab. On ground in broad leaved woods.

Camarophyllus virgineus (Fr.) Karst. (Plate III. A) 처녀버섯 (新稱)

Karsten, Hattsv. 1 : 225. 1879.

Agaricus virgineus Wulf. in Jacq. Misc. Austr. 2 : 104. pl. 15, f. 1. 1781.

Hygrophorus virgineus Fr., Epicr. Mycol. 327. 1838.

Pileus 3—6cm broad, plane to depressed, dry, white, margin thin. Flesh thick, white. Lamellae decurrent, thickish, white or cream-flesh color. Stipe 3—6 \times 0.5—1.2cm, tapering either way, solid, white. Spores elliptic-ovate, $9-10 \times 5-7 \mu$, smooth, white. Edible.

Hab. On sandy ground in woods.

Cortinarius purpurascens (Fr.) Fr. (Plate I. C)
풍선버섯

Fries, Epicr. Myc. 265. 1838.

Agaricus purpurascens Fr. Obs. Myc. 2: 70. 1818.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 54. 1959.

Pileus 5—10cm broad, broadly convex, violet-purple when young, soon discolored and variegated with brown, a viscid pellicle. Flesh thick, purplish. Lamellae adnexed, at first darker, changing to deep purple when bruised. Stipe 4—9×1—2cm, solid, subequal, bulb not large, purplish. Spores elliptic-ovate, 10—12×6—7 μ , yellowish brown, dark in print, rough echinulate. Basidia 40—45×9 μ . Edible.

Hab. Subcaespitose, on ground in coniferous woods.

Rhodophyllus crassipes (Imaz. et Toki) Imaz. et Hongo (Plate I. B) 뱀버섯 (新稱)

Hongo, Jour. Jap. Bot. 32: 146. 1957.

Entoloma crassipes Imaz. et Toki, Bull. Gov. For. Exp. St. 67: 39, f. 6. pl. 1. 1954.

Pileus 6—12cm broad, conical then convex or depressed, margin incurved, dry, smooth, covered white, silky fibers. Flesh white, thin. Lamellae white when young, at length fleshy color, sinuate. Stipe 10—18×1.5—2cm, almost equal, white, solid. Spores subglobose, angular, 10—12×8—10 μ , pinkish brown in print. Cystidia none. Odor none. Edible.

Hab. On ground in broad leaved woods.

Strobilomyces floccopus (Fr.) Karst. (Plate II. B)
귀신그물버섯

Karsten, Hattsv. 2: 16. 1882.

Boletus floccopus Vahl. Fl. Dan. Pl. 1252. 1799—
Fries, Syst. Mycol. 1: 393. 1821.

Strobilomyces strobilaceus Berk. Quatl. Brit. Fung. 236. 1860.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 72. 1959.

Pileus 5—10cm broad, hemispherical to convex,

shaggy from blackish, coarse, hairy scales, margin fringed with fragments of the veil. Flesh whitish but changed to black where cut. Tubes adnate, whitish, becoming brown and black in age, mouths large, angular, changed color where bruised. Stipe 7—15×1—2cm, tapering upward, scaly, the same color as the cap. Spores nearly globose 8—11 μ , dark brownish purple, but black in print. Edible.

Hab. On ground in forests.

Coprinus atramentarius (Fr.) Fr. (Plate III. D)
먹갈버섯

Fries, Epicr. Myc. 243. 1838.

Agaricus atramentarius Bull. Herb. Fr. pl. 164. 1791—Fries, Syst. Myc. 1: 308. 1821.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 45. 1959.

Pileus 5—8cm broad, expanded, firm, grayish, silky fibrous, apex brownish. Flesh thin. Lamellae free, white then black. Stipe 8—18×0.8—1.5cm, white, silky shining, hollow, ring basal, very evanescent. Spores 9—11×5—6 μ , elliptical, bluish brown, smooth. Cystidia subcylindrical, 170×20—30 μ . Edible.

Hab. Caespitose, on ground.

Agrocybe pediades (Fr.) Fayod (Plate III. C) 황토버섯 (新稱)

Agaricus pediades Fr., Syst. Myc. 1: 290. 1821.

Nucoria pediades Quél. Champ. Jura Vosg. 1: 132. 1872.

Agrocybe arvalis sensu Hongo, Jour. Jap. Bot. 28: 73. f. 3(2—3). 1953.

Pileus 6—18mm broad, hemispherical, at length plane, dry, ochraceous then isabelline-yellow. Flesh pallid. Stipe 3—4×0.2—0.3cm, unequal, yellowish. Spores oval, 11—14×7.5—8.5 μ , brown in mass, germ-tube present. Cystidia (on edge) 25—38×6—8.5 μ .

Hab. On roadsides.

Cantherellus floccosus Schw. 나팔버섯

Trans. Amer. Phil. Soc. II, 4. 1832.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 89. 1959.

Pileus 5—9cm broad, vase-shaped or trumpet-shaped, firm, superficially floccose, yellow at first, at length rufescent to orange. Flesh rather thick, confluent with the stipe, white. Lamellae deeply decurrent, dichotomously forked, ochraceous. Stipe short, whole body 8—15cm high, 2cm thick, solid, pallid-ochraceous. Spores elliptical 12—15×7 μ , smooth, whitish. Edible.

Hab. On ground in mixed forest.

C. cibarius Fr. 피코리버섯

Syst. Myc. 1821.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 89. 1959.

Pileus 3—8cm broad, firm, convex then expanded, soon depressed in center, pale egg yellow, glabrous. Flesh compact, thick, white or yellowish. Lamellae long, decurrent, thick, dichotomously forked, yellowish. Stipe 3—8cm long, 6—10mm thick, solid, fleshy, pale yellow. Spores elliptical, 7—9×5 μ , pyriform, smooth, white. Basidia 50—70×8 μ . Edible.

Hab. On ground in coniferous forests.

Dentinum repandum (Fr.) S. F. Gray var. *album* (Quél.) K. A. Harrison 흰 수일버섯

Stip. Hyd. Nova Scotia., 19. 1961.

Hydnum repandum var. *album* (Quél.) Rea, Brit. Basid., 630. 1922; Hall & Stuntz, Pileate Hydnaceae, Mycol. 63, 1099—1128. 1971.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 91. 1959.

Pileus 3.5—6cm broad, convex to depressed, white to cream color, surface smooth, margin irregular, context up to 2cm thick, homogeneous, fleshy-fibrous, pallid, becoming orange when cut. Spines up to 0.5cm long, 3—4 per mm², fleshy, terete, white to yellowish. Stipe eccentric, crooked, 4.5×1cm, yellowish white, slightly tapered. Spores 6.5—7.2×4.7—6.7 μ , smooth, apiculate, elliptical, white in print, inamyloid, acyanophilous. Cystidia absent.

Basidia 4.5—5.0×5—6 μ , clavate, 4-spored. Hyphae 3.8 μ , with abundant clamps, reinflating well in 3% KOH. Edible.

Hab. On ground in forests.

Hericium erinaceus (Bull. ex Fr.) Pers. 노루궁뎅이

Mycol. Eur. 2: 153. 1825.

Hall & Stuntz, Pileate Hydnaceae, Mycol. 63, 1099—1128. 1971.

Lee *et al.*, Coloured Illustrations of Fungi of Korea, 92. 1959.

Basidiocarp a solid knot of tissue, not branched. Spines borne on the periphery of the carpophore, long (to 4cm). Spores 5.3—6.6×4.6—5.3 μ , smooth or punctate-roughened, apiculate, elliptical, white in print, amyloid, cyanophilous. Basidia 40—50×5.5 μ , 4-spored. Cystidia 45—52×6 μ , cylindrical, thick-walled, not turning purplish in sulfobenzaldehy. Hyphae 14 μ in dia., moderately branched, clamp-connections present. Edible.

Hab. On hardwood.

摘 要

1972年 7月 1일부터 3個月間, 京畿道光陵의 소리산에서 26種의 高等菌類를 採集同定하였다.

그중에서 *Camarophyllus virgineus* (Fr.) Karst., *Rhodophyllus crassipes* (Imaz. et Toki) Imaz. et Hongo 그리고 *Agrocybe pediades* (Fr.) Fayod는 韓國産未記錄種이다.

Explanation of Plates

Plate I(×1/3)

- A. *Lampteromyces japonicus* (Kawam.) Sing.
- B. *Rhodophyllus crassipes* (Imaz. et Toki) Imaz. et Hongo
- C. *Cortinarius purpurascens* (Fr.) Fr.
- D. *Pleurotus ostreatus* (Jacq. ex Fr.) Quél.
- E. *Tricholoma matsutake* (S. Ito et Imai) Sing.

Plate II

- A. *Laccaria amethystina* (Hooker) Murr.
- B. *Strobilomyces floccopus* (Fr.) Karst.

- C. *Lepiota procera* (Fr.) Quél.
 - D. *Naematoloma fasciculare* (Fr.) Karst.
 - E. *Russula fragilis* (Fr.) Fr.
- (A,C,E × 1/2, B × 1/4, D × 1/3)

Plate III

- A. *Camarophyllus virgineus* (Fr.) Karst.
 - B. *Lactarius volemus* Fr.
 - C. *Agrocybe pediades* (Fr.) Fayod.
 - D. *Coprinus atramentarius* (Fr.) Fr.
 - E. *Lentinus edodes* (Berk.) Sing.
- (A,B,D × 1/3, C,E × 1/2)

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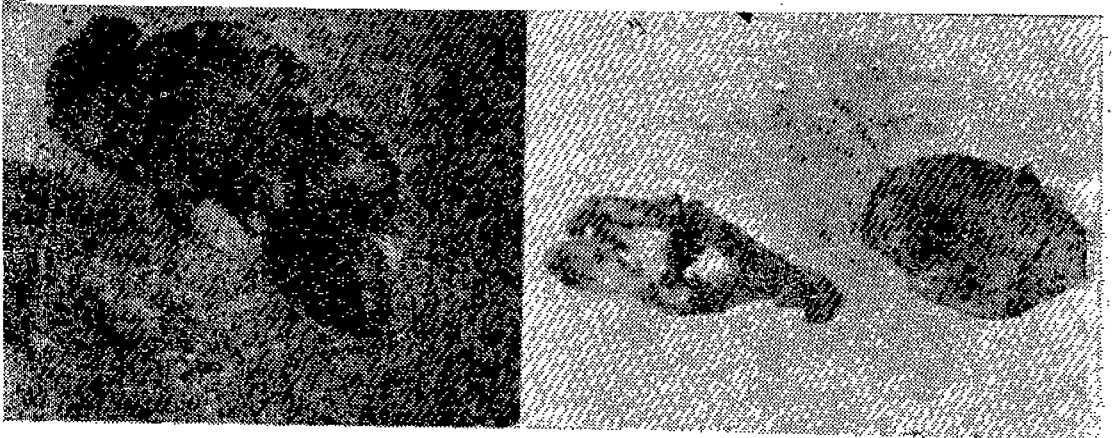
(Received June 10, 1973)

Plate I



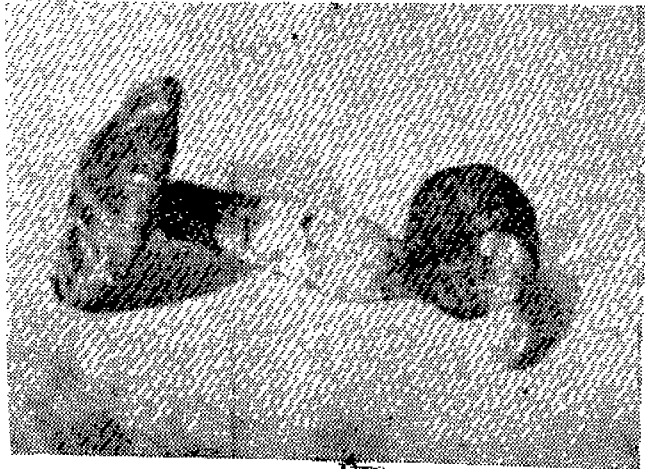
A

B



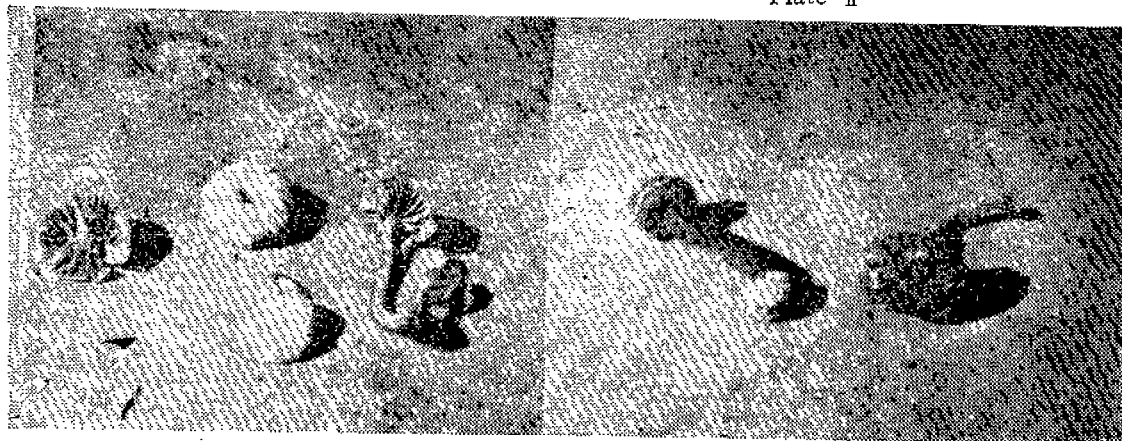
C

D



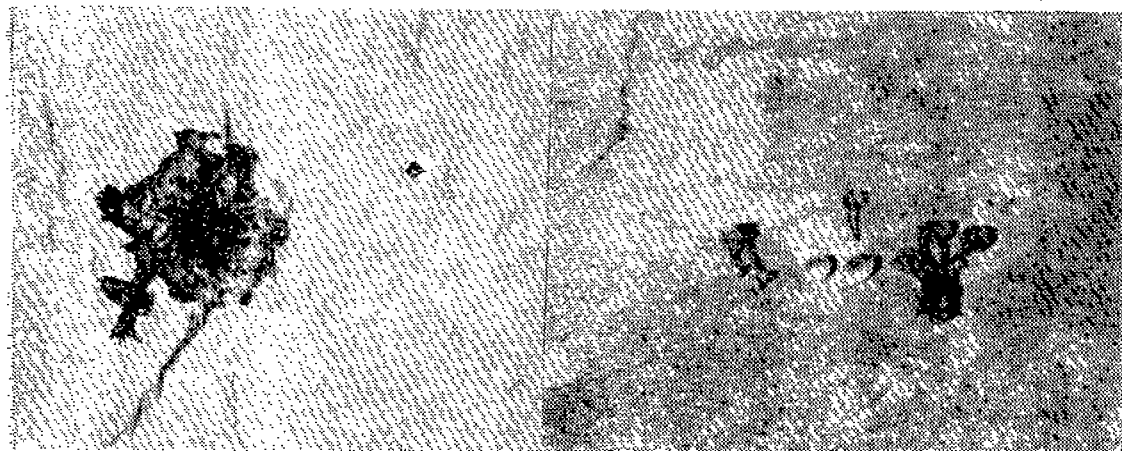
E

Plate II



A

B



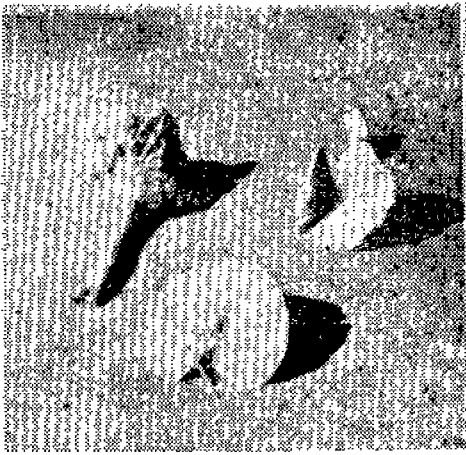
C

D

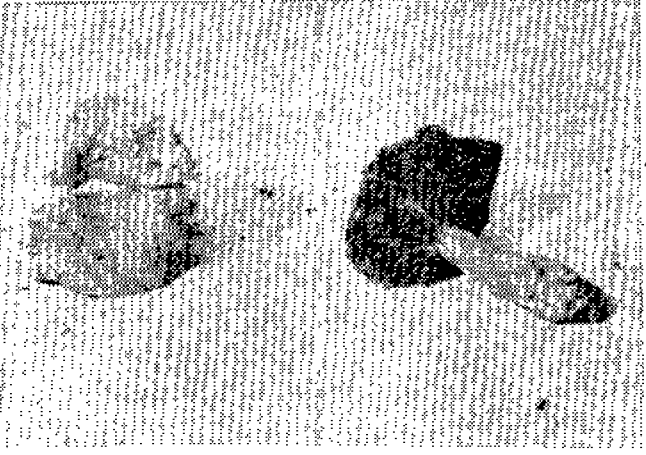


E

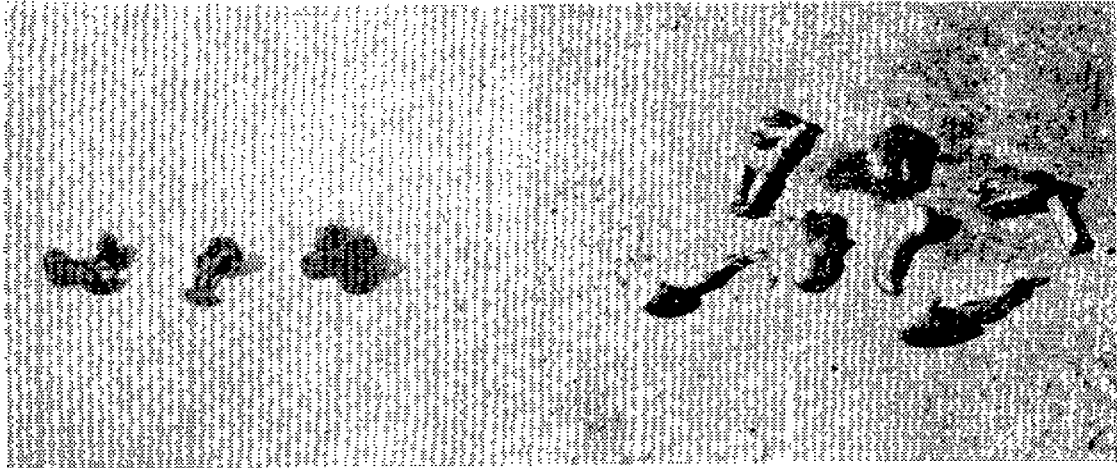
Plate III



A

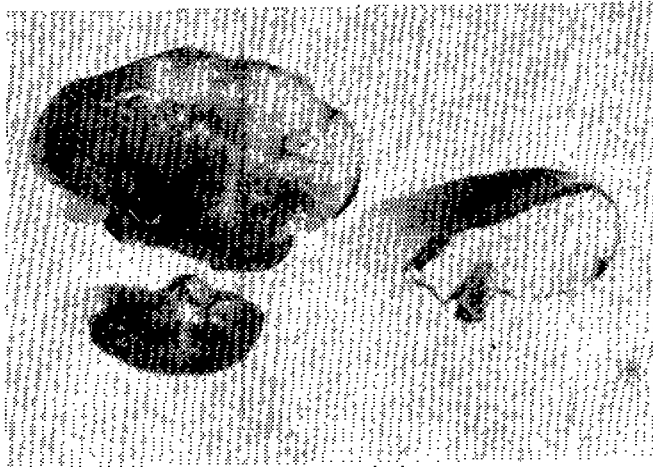


B



C

D



E