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DRAGICA TURNŠEK

ZGORNJEJURSKE KORALE IZ JUŽNE SLOVENIJE

UPPER JURASSIC CORALS OF SOUTHERN SLOVENIA



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ZGORNJEJURSKE KORALE
IZ JUŽNE SLOVENIJE

(Z 2 zemljevidoma in 2 tabelama v tekstu in 37 tablami v prilogi)

UPPER JURASSIC CORALS OF SOUTHERN SLOVENIA

(With 2 Maps and 2 Tables in Text and 37 Plates in Annex)

DRAGICA TURNŠEK

SPREJETO NA SEJI ODDELKA ZA PRIRODOSLOVNE VEDE
RAZREDA ZA PRIRODOSLOVNE IN MEDICINSKE VEDE
SLOVENSKE AKADEMIJE ZNANOSTI IN UMETNOSTI
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UREDIL AKADEMIK IVAN RAKOVEC

UVOD

V južni in jugozahodni Sloveniji se pojavljajo v skladih zgornjega oksfordija in spodnjega kimmeridgija številni hidrozoji in korale. Po končanih raziskavah hidrozojev sem se lotila še obdelave koral, da bi tako lahko spoznali skoraj vso fosilno združbo jurskih grebenov.

Fosilni material sem zbiral na terenu več let, sistematično pa v letih 1970 in 1971. V Trnovskem gozdu in na Banjški planoti sta mi pomagala kolega dr. Stanko BUSER in Jože CAJHEN. Pri prepariranju fosilov sem delala po metodi, ki jo uporablja večina koralnih raziskovalcev, namreč da sem za vsako vrsto naredila vsaj po en podolžen in po en prečno orientiran mikroskopski zbrusek, ki mi je omogočil opazovati mikrostrukturo. Iz zbranega gradiva sem mogla določiti 65 vrst koral, ki pripadajo 38 rodovom. S tem številom se slovenska nahajališča koral uvrščajo med najbogatejša na svetu.

Za obdelavo koralne favne sem dobila enoletno štipendijo Humboldtove ustanove iz Zahodne Nemčije. V času od 1. marca 1971 do 29. februarja 1972 sem se izpopolnjevala na stuttgartski univerzi pri profesorju dr. O. GEYERJU, svetovno znanem specialistu za jurske korale. Poleg popolne starejše in sodobne literature sem tam imela na razpolago komparativni koralni material iz Nemčije, Španije, deloma Portugalske in Amerike, ki ga je prof. GEYER sam obdeloval. Za vso njegovo gostoljubnost in pomoč sem mu dolžna prav posebno zahvalo. Enako se zahvaljujem vodstvu in uslužbencem Geološkega inštituta univerze v Stuttgartu, Prirodoslovnega muzeja v Ludwigsburgu in Geološkega inštituta univerze v Tübingenu, da so mi dali na voljo vso literaturo in svoje koralne zbirke.

Naša jurska koralna favna kaže izredno podobnost s koralami iz jurskih skladov Češke in Poljske, zato sem obiskala Državni prirodoslovni muzej na Dunaju, kjer mi je predstojnik prof. dr. F. BACHMAYER ljubeznivo dovolil ogled velike koralne zbirke iz Štramberka na Češkem, ki jo je prvič opisala OGILVIE (1896), nato pa revidiral GEYER (1955a). V Varšavi, ki sem jo tudi obiskala, mi je znana strokovnjakinja za fosilne korale dr. EWA RONEWICZ, paleontologinja pri paleontološkem oddelku Poljske akademije nauk, razkazala ves svoj bogati material in mi dala dragocene nasvete. Za vso pomoč se ji prav tako najtopleje zahvaljujem.

Zahvalo sem dolžna svojemu predstojniku akademiku prof. dr. Ivanu RAKOVCU, ki je spremljal moje delo in mi dajal dragocene strokovne in jezikoslovne nasvete.

Materialne stroške za raziskave je krila v glavnem Slovenska akademija znanosti in umetnosti, saj raziskave tečejo že več let. V zadnjih dveh letih je priskočil na pomoč tudi Sklad Borisa Kidriča oziroma Raziskovalna skupnost Slovenije. Ustanova Aleksandra von Humboldta pa mi je z enoletno štipendijo omogočila zares intenzivno in uspešno delo v Nemčiji. Vsem tem ustanovam se ob tej priložnosti najlepše zahvaljujem.

Vsi opisani primerki, ki so označeni s črko P, so shranjeni v Paleontološkem inštitutu pri Slovenski akademiji znanosti in umetnosti, drugi vzorci (s terenskimi številkami) pa so last Geološkega zavoda v Ljubljani.

KRATEK PREGLED RAZISKAV JURSKIH KORAL

Jurske korale so opisane v številnih delih iz raznih krajev sveta. Že v začetku prejšnjega stoletja se je začel z njimi ukvarjati v Nemčiji GOLDFUSS (1826—1828), nato QUENSTEDT (1852 do 1885), BÖLSCHKE (1867), BECKER in MILASCHEWITSCH (1876) ter SPEYER (1912, 1926). V novejšem času pa je GEYER (1954) revidiral in nanovo opisal bogato koralno favno iz Würtemberga. Speyerjevo zbirko je revidiral LAMBELET (1968).

Sredi prejšnjega stoletja sta jurske korale na Angleškem raziskovala MILNE-EDWARDS in HAIME (1851, 1857) in nekoliko pozneje DUNCAN (1872). Ti so obenem postavili osnovo sistemu, ki ga še danes v glavnem uporablja večina paleontologov. Jurske korale iz angleških nahajališč je obdeloval tudi TOMES (1883) in v zadnjem času RONIEWICZ (1970).

Približno v istem času kot EDWARDS in HAIME je d'ORBIGNY opisal celo vrsto novih rodov koral iz raznih krajev Francije (1849, 1850). Zgornjejurske korale iz Francije pa je sistematično obdeloval FROMENTEL (1862) in ÉTALLON (1859). Skoraj sto let pozneje jih je v Franciji nasledil ALLOITEAU (1948, 1952, 1957 in druga dela) in nato še BEAUVAIS (1964 in v drugih razpravah).

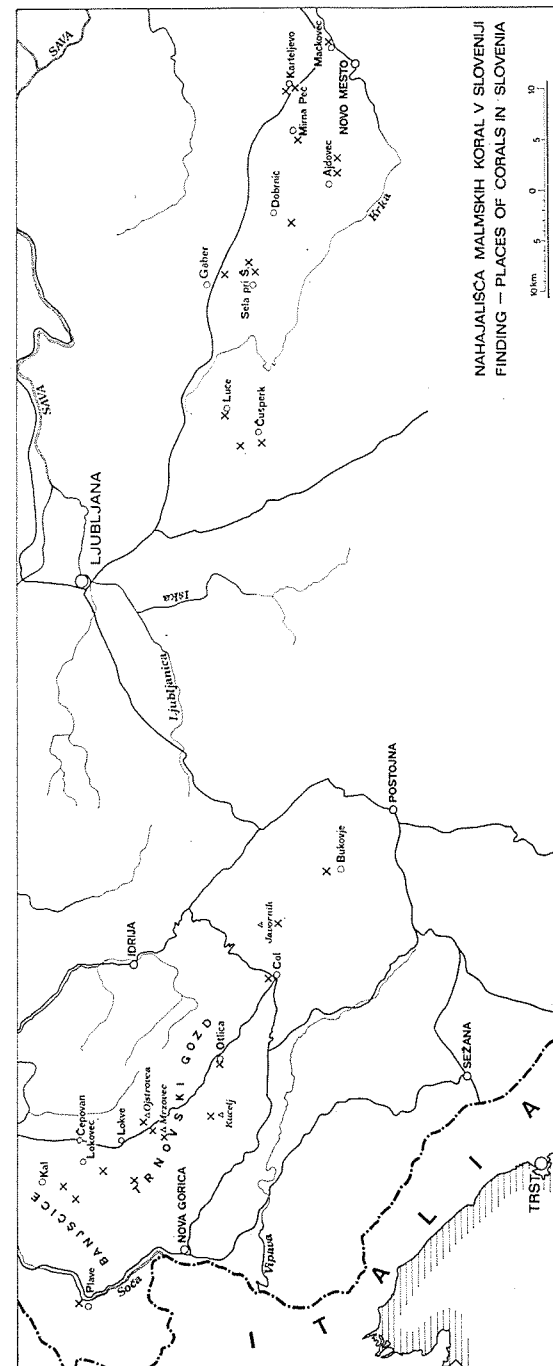
Jurske korale iz švicarskih nahajališč je proti koncu prejšnjega stoletja v obsežni monografiji obdelal Koby (1880—1889, 1895). Istočasno je jurske korale iz Štramberka in okolice na Češkem raziskovala OGILVIE (1897), ki je posvetila veliko pozornost tudi mikrostrukturi skeletnih elementov. Njeno zbirko je pozneje revidiral GEYER (1955a). Iz konca prejšnjega stoletja naj navedem še raziskave jurskih koral na Krimu (SOLOMKO, 1888), v severni Italiji (ACHIARDI, 1879) in v Indiji (GREGORY, 1900).

Iz prve polovice našega stoletja so poleg že omenjenih znane raziskave jurske koralne favne v Afriki (THOMAS, 1935, ZUFFARDI in COMMERCII, 1932, DIETRICH 1926), v Avstriji (KÜHN, 1939) in nekatere druge.

V zadnjih dvajsetih letih so se raziskave jurskih koral zopet zelo razmahnile. Poleg že omenjenih raziskav na Češkem in v Nemčiji je GEYER obdelal bogate zbirke v Španiji (1965) in na Portugalskem (1955b). BEAUVAIS je svoje raziskave razširila iz Francije še v Alžirijo (CERATINI in BEAUVAIS, 1969), Tunizijo (1966), Maroko (1970) in drugam. ALLOITEAU je raziskoval korale v Španiji (1960) in na Madagaskarju (1958). S Svetokriških gora na Poljskem je zgornjejurske korale obdelala RONEWICZ (1960, 1966), nekaj titonskih koral v Karpatih Poljske pa omenja MORYCOWA (1964). Bogata najdišča iz vseh skladov zgornje jure so na Krimu in Kavkazu obdelali KRASNOV (1964, 1970), BABAEV (1964, 1970), BENDUKIDZE (1948), STAROSTINA in KRASNOV (1970) in drugi. Jurske korale iz Irana opisuje E. FLÜGEL (1966), iz Madžarske pa KOLOSVARY (1954). GILL (1967, 1968) je posvetil pozornost penulam v skeletu koral, SORAUF (1972) pa mikrostrukturi. Jurske korale omenjajo še drugi raziskovalci.

V Jugoslaviji je zgornjejurske korale s planine Rumine v Črni gori opisala KRKOVIĆ (1965), iz vzhodne Srbije pa SUČIĆ (1959).

V Sloveniji ni doslej nihče raziskoval jurskih koral. V Trnovskem gozdu, v okolici Novega mesta in drugod so bili sicer omenjeni koralni apnenci, vendar ni bila nobena koralna vrsta posebej paleontološko opisana.



Map 2. All the Slovene coral localities occur in the strata of Upper Oxfordian and Lower Kimmeridgian age

OPIS KORALNIH NAHAJALIŠČ NA SLOVENSLEM

Zgornjejurske korale so bile odkrite v raznih krajih južne Slovenije. Pojavljajo se skupaj s hidrozoji, hetetidami, dicerasi, nerinejami in drugo grebensko favno. Ponekod so hidrozoji in korale najdeni na istem kraju v enakem številu, drugje je več hidrozojev ali več koral, ali pa prevladuje kaka druga skupina favne. Najpomembnejša nahajališča koral so v Trnovskem gozdu, kjer je teren razgaljen in je zato dostop do fosilov lažji. Na Dolenjskem je pokrajina močno porasla, zato so najdbe slučajne, odvisne od raznih gradbenih del, vsekov, cest in drugega.

Korale, ki so obdelane v tej razpravi, so bile odkrite na naslednjih mestih: Banjska planota in okolica, Ojstrovca, Mrzovec, Selovec, Otlica in Col v Trnovskem gozdu, Bukovje na Hrušici (vsa ta nahajališča je odkril S. BUSER) ter Predole, Luče, Frata, Gaber, Ivanja vas in Karteljevo na Dolenjskem (glej zemljevid 2).

Banjska planota in okolica: Nahajališča zgornjejurske grebenske favne so tu naj-severnejša v Sloveniji. Korale se pojavljajo podobno kot v Trnovskem gozdu in v nekaterih krajih na Dolenjskem skupaj z aktinostromaridnimi in sferaktinidnimi hidrozoji. Korale smo dobili v svetlo sivih apnencih v nahajališču južno od Kala nad Kanalom, v vasi Plave pri transformatorju tik ob Soči in v Čepovanskem dolu.

Ojstrovca in Mrzovec: Nova gozdna cesta na pobočjih hribov Ojstrovca in Mrzovec (južno od Lokev) je vsekana v neskladovite organogene apnenice, polne grebenske favne. Tu smo našli veliko aktinostromaridnih in sferaktinidnih hidrozojev, mestoma nerineje, dicerase in hetetide. Vidno mesto med vso favno zavzemajo korale, ki pripadajo različnim vrstam in rodovom.

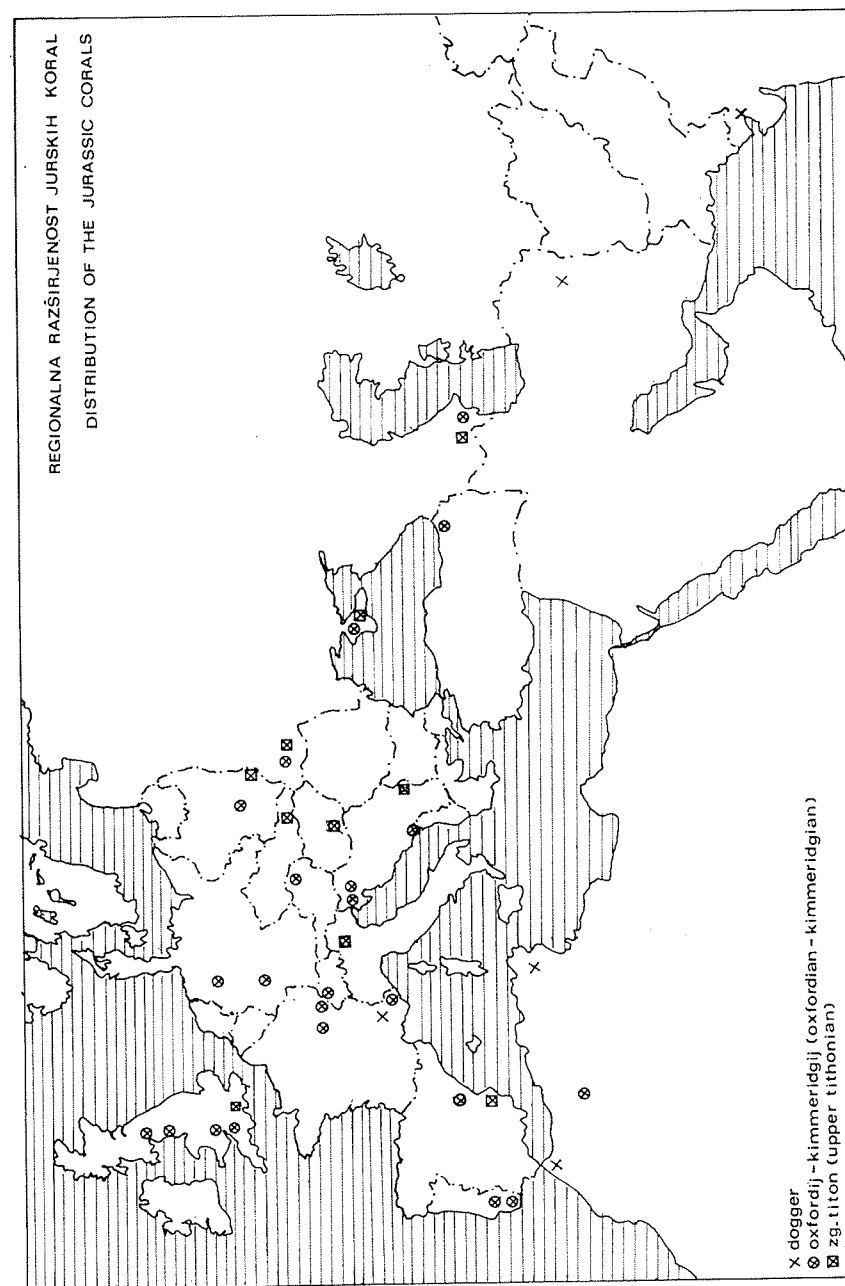
Otlica in Col: V teh nahajališčih so bili najdeni številni parastromatopordni hidrozoji in hetetide. Koral je po številu vrst manj kot na Mrzovcu, toda te vrste so zelo pogostne, tako da je koralna favna dominantna. Korale so bile najdene v vasi Otlica nekoliko severneje od cerkve in na hribočkah južno od vasi. Precej bogato najdišče koral je tudi nekaj 10 m severno od vasi Col. Eno vrsto smo našli tudi v Vodica, 5 km vzhodno od Cola. Grebenska favna se povsod pojavlja v psevdoolitnih neskladovitih svetlo sivih apnencih.

Selovec: Poleg nekaj redkih parastromatopordnih hidrozojev se v tem nahajališču pojavljajo korale z zelo velikimi cevastimi kolonijami, ki dosežejo višino tudi do 1 m.

Bukovje na Hrušici: V nahajališču severno od Bukovja so bile najdene korale v zgornjem delu skladov, ki vsebujejo hidrozoj *Cladocoropsis mirabilis*. Ti skladi so temno sivi skladoviti apnenici.

Karteljevo in Ivanja vas pri Mirni peči: Karteljevo in okolica je eno najbogatejših najdišč aktinostromaridnih hidrozojev na Dolenjskem. Koral je bilo tu najdenih le malo, in sicer v kamnolomu v vasi Karteljevo, ob avtocesti pri odcepu za Novo mesto in v opuščnem kamnolomu v Mačkovcu. Nasprotno pa je v Ivanji vasi pri Mirni peči najdenih več koral. Našli smo jih v kamnolomu ob potoku in nekaj metrov naprej ob cesti, ki pelje proti Vrbovcu. Apnenici so v vseh nahajališčih neskladoviti in sive barve.

Gaber in okolica: V okolici Gabra so bile korale odkrite na treh mestih: v gozdčku ob avtocesti 1 km vzhodno od vasi Bič, nadalje ob cesti, ki pelje od Gabra proti Žužemberku in se odcepi proti Selom in Šumberku ter južno od Babne gore pri Gabru. V vseh teh nahajališčih sem našla tudi veliko aktinostromaridnih in sferaktinidnih hidrozojev.



Zemljevid 1. Regionalna razširjenost jurskih koral je podana predvsem za tiste viste jurskih koral, ki se pojavljajo tudi pri nas. Pregled je izdelan na podlagi paleontološke literature
Map 1. Distribution of Jurassic Corals is given above all for the species which occur in our localities too. The view is given on the basis of the palaeontological literature

Apnenci so svetlo sivi in neskladoviti. Vse področje je precej poraslo, zato so fosili najdeni slučajno, na njivah in ob cestah.

Frata pri Ajdovcu: Lovski dom Frata je na Ajdovski planoti na Dolenjskem, severo-vzhodno od vasi Ajdovec. Tu so bili najdeni v psevdoolitnih apnencih parastromatopordni hidrozoji in hetetide, veliko številnejše pa so korale. Podobno kot na Selovcu zbujajo pozornost s svojimi velikimi cevastimi kolonijami, ki so tudi do en meter visoke. Korale sem našla pri domu samem, 1 km južno od stavbe na cesti, ki pelje proti Brezovi rebri, vzhodno od te vasi in vzhodno od Frate ob stari vojaški cesti, ki pelje po pobočju hriba proti Malemu vrhu. Grebensko favno je najti v psevdoolitnem, deloma skladovitem sivem apnencu.

Predole in Čušperk: V oolitnih in psevdoolitnih apnencih tega področja sem dobila razmeroma redke hidrozoje, hetetide in korale. To favno je najti ob gozdnih poteh zahodno od železniške proge in na pobočjih Zajčjega hriba in Starega gradu.

Luče: Ob začetku nove ceste, ki pelje proti Ilovi gori, je zahodno od vasi Luče na Dolenjskem vsek z bogato grebensko favno. Med parastromatopordnimi hidrozoji in hetetidami sem na istem mestu odkrila tudi nekaj koral. Favna nastopa v debeloskladovitem sivem psevdoolitnem apnencu.

Vsa omenjena slovenska nahajališča koral so iz istega stratigrafskega horizonta, ki ga je BUSER (1965) pripisal zgornjemu oksfordiju in spodnjemu kimmeridgiju. Vedno in povsod ležijo namreč korale pod horizontom apnenca z algo *Clypeina jurassica* FAVRE, ki je značilna za zgornji kimmeridgij in portlandij. Torej so grebenske tvorbe starejše. (Natančnejšo razlago glej: TURNŠEK, 1966, 1969.) O primerjavi naših koralnih najdb z drugimi nahajališči na svetu bom podrobneje govorila v poglavju o razširjenosti opisanih vrst, ki bo sledilo opisu favne.

PROBLEMI SISTEMATIKE

Osnovo za današnji sistem postpaleozojskih koral predstavljata dva sodobnejši deli. To sta sistema VAUGHANA in WELLSA (1943) ter ALLOITEAUJA (1952). Vaughanov in Wellsov sistem sloni na sistemu MILNE-EDWARDSA in HAIMEJA, ALLOITEAU pa ga dopolnjuje s številnimi novimi rodovi, družinami in podredovi.

Večina današnjih raziskovalcev uporablja Alloiteaujev sistem, zlasti njegovo delitev na podredove, tako BEAUVAIS (1964), RONIEWICZ (1966), BENDUKIDZE in ČUKOVANI (1962) in drugi. GEYER (1954, 1955b) priznava Alloiteaujeve nove podredove Stylinida in Amphistraeida, uporablja pa Vaughanova in Wellsova imena za Astrocoeniida in Faviida. GILL (1967, 1970) pripisuje penulam v skeletni zgradbi koral velik pomen. Predlaga združitev vseh koral s penulam v naddružino Pennulacae. KRASNOV (1965, 1970) upošteva v glavnem Alloiteaujevo delitev na podredove, ki jih pa združuje v tri nove redove, in sicer Fungiida, Montlivaltiida in Pinacophylliida. Deli jih po poroznosti skeletnih elementov in po nekaterih drugih lastnostih. Zanimivo je, da združuje Stylinida in Archaeocaeniida v isto skupino, podobno kakor VAUGHAN in WELLS, vendar v višjo sistematsko kategorijo.

Če primerjamo Vaughanovo in Wellsovo ter Alloiteaujevo delitev na podredove, opazimo naslednje razlike med obema sistemoma:

VAUGHAN in WELLS (1943)
Subclass: Hexacorallia
Ordo: Scleractinia
Subordo: Astrocoeniida nov.

ALLOITEAU (1952)

Ordo: Madreporaria
Subordo: Archaeocaeniida nov.

Familia: Stylinidae Orb.
Subordo: Fungiida Verril
Subordo: Faviida nov.
Familia: Amphistraeidae Og.
Familia: Meandrinidae
Subordo: Caryophylliida nov.
Subordo: Dendrophylliida nov.

Subordo: Stylinida nov.
Subordo: Fungiida Duncan
Subordo: Astraeoidea nov.
Subordo: Amphistraeida nov.
Subordo: Meandriida nov.
Subordo: Caryophylliida V. et W.
Subordo: Eupsammiida nov.
Genus: Dendrophyllia

Pri VAUGHANU in WELLSU sem omenila samo tiste družine, ki jih je ALLOITEAU povišal v samostojne redove, da tako lažje vidimo povezavo med obema sistemoma.

GEYER (1954, 1955b) ni sprejel Alloiteaujevega podreda Archaeocaeniida. Meni, da so razlike, ki jih navaja ALLOITEAU za ločitev rodu *Astrocoenia* od drugih astrocenid, premalo utemeljene. Rodova *Astrocoenia* in *Actinastraea* je ALLOITEAU najprej ločil predvsem po kolumeli, ki da je *Astrocoenia* nima. Toda leta 1957 (51—56) je ALLOITEAU natančno ponovno opisal tipični vrsti za oba rodova. Ugotavlja, da *Astrocoenia* ima kolumelo, le da je razlika med rodovima v mikrostrukturi. Skeletni elementi rodu *Actinastraea* imajo velike trabekule z redkimi centri kalcifikacije, medtem ko so za rod *Astrocoenia* značilni številni majhni centri kalcifikacije z divergentno linijo. Zaradi tega ALLOITEAU pripisuje rod *Astrocoenia* k družini Stylocoeniidae in jo karakterizira še po posebnem načinu razmnoževanja. Ne morem presoditi, ali je Alloiteaujeva uvrstitev pravilna, ker nimam na voljo predstavnikov tega rodu. Vsekakor pa rod *Astrocoenia* z mikrostrukturo, kakršno opisuje Alloiteau, ne spada v isto družino kot rod *Actinastraea*. Zato družina Astrocoeniidae in podred Astrocoeniida v smislu Vaughana in Wellsa v sistemu nimata prave osnove. Zaenkrat moram verjeti Alloiteauju in upoštevati njegov podred Archaeocaeniida.

Alloiteaujev nov podred Stylinida so sprejeli vsi poznejši raziskovalci, zato ga uporabljam tudi sama. Od podreda Archaeocaeniida se loči po tem, da ima kompaktno lamelarno mikrostrukturo sept in ne diskontinuirane. To razliko nazorno prikazuje MORYCOWA (1971, Textfig. 7a, b).

Tretji podred Faviida imenujem po Vaughanu in Wellsu, podobno kot GEYER in ne Astraeoidea po Alloiteauju. Dobro razlago za to je podal že GEYER (1955b, 329).

V samostojen podred Amphistraeida je ALLOITEAU povišal družino Amphistraeidae OGILVIE, ki sta jo VAUGHAN in WELLS pripisovala podredu Faviida. Podred Amphistraeida se loči od vseh drugih skleraktinij po posebnem načinu razmnoževanja in po bilateralnosti. Ta značilnost je pomembna in tudi sama menim, da je podred Amphistraeida lahko samostojen podred.

Podredova Fungiida in Caryophylliida enotno uporabljajo vsi današnji raziskovalci.

Predstavnikov podredov Meandriida, Dendrophylliida oziroma Eupsammiida med našim materialom nimam, zato o teh podredovih ne morem razpravljati.

Kriteriji za razločevanje omenjenih podredov so, žal, neenotni. Za enega velja mikrostruktura, za drugega način razmnoževanja, za tretjega zopet poroznost sept in drugo.

Pri razčlenjevanju družin in rodov so neenotnosti pri kriterijih še veliko večje. Enemu raziskovalcu se zdi važnejša struktura sept, drugemu zgradba in nastanek stene, spet drugi dajejo velik pomen okrasitvam sept. ALLOITEAU in BEAUVAIS zavzemata stališče, da je vsaka najmanjša razlika v strukturi skeleta zadosten kriterij za razločevanje rodov ali celo družin. VAUGHAN in WELLS, GEYER in nekateri drugi raziskovalci skušajo podobne lastnosti združevati. Prej so paleontologi upoštevali obliko in rast kolonij ter koralitov, danes je važna mikrostruktura skeletnih elementov itd.

Zanimiva je primerjava skoraj istočasnih revizij dveh zbirk. ALLOITEAU (1957) je reviziral nekaj vrst rodu *Montlivaltia* iz Fromentelove zbirke. Iz vsake vrste, to je skoraj iz vsakega primerka je postavil nov rod. Tako je nastalo deset novih rodov in en nov podrod. Nasprotno pa je LAMBELET (1968) pri reviziji Speyerjeve zbirke združil 18 vrst rodu *Montlivaltia* v eno samo vrsto, in sicer vrsto *M. obconica*. Vse prehodne oblike je namreč združil in priznava veliko variacijsko širino ene same vrste.

Nobena teh skrajnosti, po mojem mnenju, ni pravilna. Če združimo vse prehodne oblike v eno samo vrsto, se lahko zgodi, da bomo zanemarili pomembne evolucijske spremembe. Če pa vsako nadrobnost upoštevamo kot generično pomembnost, bomo zgubili pregled nad fosilno favno, ker primerjava več ne bo možna.

Zaradi velike neenotnosti v dosednji literaturi, ko večkrat ni možno ugotoviti, kdo ima prav, bi bil najboljši dogovor vseh paleontologov, ki se ukvarjajo s koralami, da bi določili prednostni red posameznih strukturnih elementov za sistematiko in za posamezne sistemske kategorije.

Sama zaenkrat ne morem k sistemu kaj bistveno novega dodajati ali ga spreminjati. Sistem skleraktinij obsega namreč vse korale iz mezozoika, kenozoika in recentne oblike. Zato mora raziskovalec, ki ustvarja celoten sistem, poznati vso to favno. Naše jurske korale pa so samo majhen del te velike skupine. Mnogi rodovi, ki so morda značilni za posamezne družine ali podredove, se v jurski dobi sploh ne pojavljajo, ampak so znani iz starejših ali mlajših skladov, ali pa so zastopani med recentnimi koralami. Tudi mikrostruktura naših jurskih koral je preslabo ohranjena, in nisem mogla na podlagi mikrostrukture priti do novih spoznanj. Zato vključujem jurske korale iz Slovenije za zdaj v sistem, kakršnega pretežno uporabljajo sodobni raziskovalci. Dodajam 1 nov rod in 5 novih vrst. Zakaj pa se pri posameznih družinah ali rodovih nagibam bolj k enem ali drugemu avtorju, bom posebej nadrobno razložila pri opisu favne. Morda bom lahko sistem bolje dopolnila, ko bom preučila vse naše mezozojske in kenozojske korale.

ZGRADBA SKELETA PRI HEKSAKORALAH

Struktura skeleta pri recentnih in fosilnih heksakoralah je bila že nešteto krat opisana. Vendar ugotavljamo, da nekatere izraze razni paleontologi različno tolmačijo, ali iste strukturne elemente imenujejo z različnimi imeni. Zaradi jasnosti bom poimenovala in razložila najvažnejše skeletne elemente skleraktinij ali heksakoral. To je še toliko važnejše, ker je ta razprava prvi natančen opis fosilnih koral v slovenščini, in je zato marsikateri izraz prvokrat uporabljen v našem jeziku.

Aksialna struktura (axial structure): zgradba osrednjega dela koralita, ki jo sestavljajo kolumela, pali in aksialni podaljški sept.

Čaša (calice, calix): ustna prečna površina koralita.

Disepiment (dissepiment): tanke horizontalne plošče v koralumu, ki so tabulatne, če so ravne in v koralitu, ter vezikularne, če so upognjene in v periteki. Uporablja se tudi izraz tabule, če so prečke majhne in pregrajujejo samo polip. WELLS (1956) ima disepimente za prečne tvorbe na perifernem delu koralita, medtem ko jim ALLOITEAU (1952) prišteva vse prečne elemente brez centrov kalcifikacije. V tem smislu jih uporabljam tudi jaz, ne glede na njihov položaj v koralu.

Divergentna linija (axis of divergence): linija ali os v septih, iz katere izhajajo trabekularna vlakna. To je smer rasti skeletnega elementa.

Endoteka (endotheca): skupno ime za vse horizontalne elemente znotraj koralita.

Eksoteka (exotheca): skupno ime za vse horizontalne elemente zunaj koralita, to je v periteki.

Greben (colline): hribček ali vzboklina med posameznimi koraliti ali serijami koralitov v kolonijski koralu.

Karina (carina): podolžni grebenček ali izboklina na lateralni strani septuma, ki poteka vzporedno ali pravokotno na distalni rob septuma. Nastane iz trabekularnih odebelitev ali iz spojitev raznih lateralnih okrasitev sept.

Kolonijska koral (colonial coralla): koralna družina, ki jo sestavlja več polipov ali koralitov. Glede na obliko in povezavo med koraliti ločimo: cerioidna kolonija (cerioid), to je masivna kolonijska koral s poligonalnimi koraliti, katerih stene se tesno dotikajo; dendroidna kolonija (dendroid) je sestavljena iz različno razvejanih paličastih koralitov; faceloidna kolonija (phaceloid), ki jo sestavljajo cevasti vzporedni koraliti, ki so lahko tesno skupaj, so pa prosti, brez periteke; masivna kolonija (massive), ki je sestavljena iz gostih, drug ob drugem postavljenih koralitov, ki so povezani s periteko; meandroidna kolonija (meandroid), če so koraliti v koloniji postavljeni v meandričnih vrstah, med katerimi so stene; plokoidna kolonija (plocoid), v kateri so koraliti vzporedni, povezani s kostami ali periteko; ramozna kolonija (ramose) ali vejnata kolonija, če je iz koralitov v obliki vejic; tamnasterioidna kolonija (thamnasterioid), sestavljena iz koralitov, med katerimi ni stene, pač pa konfluentna septa.

Kolumela (columella): del aksialne skeletne strukture koralita. Kolumela je stiliiformna (styliform), če je to okrogla paličica ali stebriček, ločen od sept, lamelarna (lamellar), če je v prečnem preseku podolgovata in je ponavadi povezana z glavnim septumom, trabekularna (trabecular), parietalna (parietal) ali spongiozna (spongy), če je sestavljena iz raznih podaljškov na notranjih robovih sept, ali pa je samostojna z gobasto strukturo in papilozna (fascicular), če je iz več vzporednih paličk, podobnih palusom.

Koralit (corallite): apnen skelet posameznega polipa.

Koralum, pl. koralu (corallum): apnen skelet celotne kolonijske ali solitarne korale.

Kosta, pl. koste (costa): podaljški sept na zunanji strani stene. Ponekod sept ni, ampak so ohranjeni samo kostatni deli.

Mikrostruktura (microstructure): mikrostruktura skeletnih elementov je razporeditev kalcitnih ali aragonitnih kristalov v skeletu, to se pravi rast in razporeditev trabekul, njihova gostota in divergentnost, obstoj in dolžina vlaken v posamezni trabekuli, kalcifikacijski centri ali centri trabekul, njihova razporeditev, oddaljenost, strnitev v temno linijo in podobno. ALLOITEAU ima mikrostrukturo za strukturo koralita ali kolonije, medtem ko imenuje mikrostrukturo v prej opisanem pomenu »structure histologique«.

Okrasitve sept (septal ornamentation or dentation): to so trnasti, zobčasti ali okrogli izrastki ter karine in lobusi na dorzalni, lateralni in aksialni strani sept.

Palus, pl. pali: vertikalni stebrički ali lamele, ki so postavljeni koncentrično okrog kolumele, predvsem v spodnjem delu koralita.

Periteka (peritheca): apnenčasto tkivo izven stene, to je med posameznimi koraliti v koloniji.

Razmnoževanje (reproduction): nastajanje novih solitarnih individuov ali novih članov kolonije na spolni ali nespolni način. Kolonije nastajajo nespolno. Ločimo ekstratentakularno razmnoževanje (extratentacular or fission budding), če nastajajo novi polipi zunaj tentakularnega obroča. Posebna oblika tega razmnoževanja je paricidalno razmnoževanje (parricidal budding) amfiastreid in nastajanje žepastih zajedkov (Taschenknospung) znotraj teke, toda ekstratentakularno. Nadalje poznamo intratentakularno razmnoževanje (intratentacular budding), pri katerem novi polipi nastajajo na oralnem delu koralita, znotraj tentakularnega roba. Pri tem razmnoževanju pride do mono-, di-, tri- in policentričnih koralitov. Brsti nastajajo lahko tudi circumoralno in circummuralno. Pogostno je še razmnoževanje z delitvijo (division), če se koralit razdeli vzdolž sept.

Sklerodermit (sclerodermite): center kalcifikacije in obdajajoča kalcitna ali aragonitna vlakna. Superponirani tvorijo trabekule.

Septalni cikel (septal cycle): septa iste stopnje v ontogeniji koralita.

Septum, pl. septa: radialno potekajoče podolžne plošče v koralitu, ki potekajo od stene proti notranjosti kot radiji.

Stena ali teka (wall or theca): skeletna tvorba, ki obkroža polip, povezujoč zunanje robove sept. Ločimo: paratekalno steno (paratheca), če jo tvorijo disepimenti, septotekalno steno (septotheca), če je iz odebelitev ali upognitev sept samih in sinaptikotekalno steno (synapticulotheca), če ima sinaptikule.

Sinaptikula (synapticula, pl. synapticulae): majhne prečke, ki vežejo lateralne strani sept. Imajo centre kalcifikacije.

Tabula: glej disepiment.

Trabekula (trabeculae): eden vrh drugega raščeni sklerodermiti tvorijo trabekulo, katere center je lahko temna linija ali divergentna os.

SISTEMATSKI OPIS KORAL

Korale, najdene v naših nahajališčih, uvrščam v naslednji sistem:

Classis: ANTHOZOA

Subclassis: HEXACORALLIA HAECKEL 1866

Superordo: Madreporaria MILNE-EDWARDS et HAIME 1857

Ordo: Scleractinia BOURNE 1900

Subordo: Archaeocaeniida ALLOITEAU 1952

Familia: Actinastraeidae ALLOITEAU 1952

Genus: **Actinastraea** D'ORBIGNY 1849
Actinastraea regularis n. sp.

Familia: Acroporidae VERRILL 1902

Genus: **Etallonia** RONIEWICZ 1966
Etallonia minima (ÉTALLON)

Subordo: Stylinida ALLOITEAU 1952

Familia: Cyathophoridae VAUGHAN et WELLS 1943, em. ALLOITEAU 1952

Genus: **Pseudocoenia** D'ORBIGNY 1850
Pseudocoenia hexaphyllia (D'ORBIGNY)
Pseudocoenia radisensis (D'ORBIGNY)
Pseudocoenia slovenica n. sp.
Pseudocoenia baltovensis RONIEWICZ
Pseudocoenia aff. *longiseptata* RONIEWICZ

Familia: Stylinidae D'ORBIGNY 1851

Genus: **Stylinia** LAMARCK 1816
Stylinia decipiens ÉTALLON

Genus: **Convexastraea** D'ORBIGNY 1849
Convexastraea intricata (FROMENTEL)

Genus: **Heliocoenia** ÉTALLON 1859
Heliocoenia (*Hexaheliocoenia*) *costulata* KOBY
Heliocoenia (*Decaheliocoenia*) *variabilis* ÉTALLON

Genus: **Stylosmilia** MILNE-EDWARDS et HAIME 1848
Stylosmilia corallina KOBY
Stylosmilia chaputi ALLOITEAU

Genus: **Goniocora** MILNE-EDWARDS et HAIME 1851
Goniocora pumila (QUENSTEDT)
Goniocora annulata RONIEWICZ

Genus: **Aplophyllia** D'ORBIGNY 1849
Aplophyllia sexradiata RONIEWICZ

Genus: **Myriophyllia** D'ORBIGNY 1849
Myriophyllia angustata (D'ORBIGNY)

Subordo: Faviida VAUGHAN et WELLS 1943

Familia: Montlivaltidae DIETRICH 1926

Genus: **Montlivaltia** LAMOUROUX 1821
Montlivaltia champlittensis FROMENTEL
Montlivaltia renevieri KOBY

Genus: **Thecosmilia** MILNE-EDWARDS et HAIME 1848
Thecosmilia minuta KOBY
Thecosmilia dichotoma KOBY
Thecosmilia trichotoma (GOLDFUSS)
Thecosmilia suevica (QUENSTEDT)

Genus: **Ceratothecia** n. gen.
Ceratothecia carniolica n. sp.

Genus: **Complexastraea** D'ORBIGNY 1849
Complexastraea lobata GEYER
Complexastraea seriata n. sp.

Genus: **Clausastraea** D'ORBIGNY 1849
Clausastraea confluens (QUENSTEDT)

Familia: Isastraeidae ALLOITEAU 1952

Genus: **Isastraea** MILNE-EDWARDS et HAIME 1851
Isastraea helianthoides (GOLDFUSS)

Familia: Placocaeniidae ALLOITEAU 1952

- Genus: **Calumnocoenia** ALLOITEAU 1952
Calumnocoenia jurassica n. sp.
- Familia: Placosmiliidae ALLOITEAU 1952
- Genus: **Placophyllia** D'ORBIGNY 1848
Placophyllia rugosa BECKER
- Familia: Axosmiliidae GEYER 1955
- Genus: **Axosmilia** MILNE-EDWARDS et HAIME 1848
Axosmilia marcou (ÉTALLON)
- Subordo: Amphiastraeida ALLOITEAU 1952
- Familia: Mitrodendronidae ALLOITEAU 1952
- Genus: **Mitrodendron** QUENSTEDT 1880
Mitrodendron ogilvie GEYER
- Genus: **Donacosmilia** FROMENTEL 1861
Donacosmilia corallina FROMENTEL
Donacosmilia etalloni (KOBY)
- Familia: Amphiastraeidae OGILVIE 1897
- Genus: **Amphiastraea** ÉTALLON 1859
Amphiastraea basaltiformis ÉTALLON
Amphiastraea piriformis GREGORY
- Genus: **Schizosmilia** KOBY 1888
Schizosmilia rollieri KOBY
- Subordo: Fungiida DUNCAN 1884
- Familia: Microsolenidae KOBY 1890
- Genus: **Microsolena** LAMOUROUX 1821
Microsolena agariciformis ÉTALLON
Microsolena thurmanni KOBY
Microsolena ornata KOBY
- Genus: **Comoseris** D'ORBIGNY 1849
Comoseris minima BEAUVAIS
Comoseris baltovensis RONIEWICZ
Comoseris jumarensis GREGORY
- Familia: Haplaraeidae VAUGHAN et WELLS 1943, em. ALLOITEAU 1952
- Genus: **Diplaraea** BECKER et MILASCHEWITSCH 1876
Diplaraea elegans (MILASCHEWITSCH)
- Genus: **Meandrophyllia** D'ORBIGNY 1849
Meandrophyllia edwardsi (MICHELIN)
Meandrophyllia amedei (ÉTALLON)
- Familia: Latomeandriidae ALLOITEAU 1952
- Genus: **Latomeandra** MILNE-EDWARDS et HAIME 1849
Latomeandra fromerteli (KOBY)
- Genus: **Microphyllia** D'ORBIGNY 1849
Microphyllia undans ÉTALLON
Microphyllia bachmayeri GEYER
- Genus: **Ovalastraea** D'ORBIGNY 1849
Ovalastraea lobata (KOBY)

- Familia: Dermosmiliidae KOBY 1889
- Genus: **Dermosmilia** KOBY 1889
Dermosmilia laxata (ÉTALLON)
Dermosmilia fiagdonensis STAROSTINA et KRASNOV
- Genus: **Epistreptophyllum** MILASCHEWITSCH 1876
Epistreptophyllum terue MILASCHEWITSCH
Epistreptophyllum bonjour (ÉTALLON)
- Genus: (?) **Calamophylliopsis** ALLOITEAU 1952
Calamophylliopsis flabellum (MICHELIN)
Calamophylliopsis cervina (ÉTALLON)
Calamophylliopsis stockesi MILNE-EDWARDS et HAIME
- Familia: Thamnasteriidae VAUGHAN et WELLS 1943, (REUSS?), em. ALLOITEAU
- Genus: **Thamnasteria** LESAUVAE 1823
Thamnasteria lobata (GOLDFUSS)
Thamnasteria moreana (D'ORBIGNY)
- Genus: **Fungiastraea** ALLOITEAU 1952
Fungiastraea arachnoides (PARKINSON)
- Familia: Synastraeidae ALLOITEAU 1952
- Genus: **Synastraea** MILNE-EDWARDS et HAIME 1848
Synastraea dubia FROMENTEL
Synastraea subagraricites (BECKER)
- Familia: Actinacididae VAUGHAN et WELLS 1943
- Genus: **Actinaraea** D'ORBIGNY 1849
Actinaraea granulata (MUNSTER)
- Subordo: Caryophylliida VAUGHAN et WELLS 1943
- Familia: Rhipidogyridae KOBY 1904
- Genus: **Acanthogyra** OGILVIE 1897
Acanthogyra columnaris OGILVIE
Acanthogyra multiformis OGILVIE

Razlaga kratic, ki jih uporabljamo pri paleontološkem opisu:

d = premer koralita

c—c = razdalja med centri sosednjih čaš ali koralitov

s = število sept

c = število kost

t = število tabul

dis = število dissepimentov

t/mm = gostota (število) tabul na razdaljo 1 ali več mm

s, c/mm = število sept ali kost na razdaljo določenega števila mm

Subordo: Archaeocaeniida ALLOITEAU 1952

Familia: Actinastraeidae ALLOITEAU 1952

Genus: **Actinastraea** D'ORBIGNY 1849

Za cerioidne kolonije z drobnimi koraliti sta MILNE-EDWARDS in HAIME leta 1848 postavila rod *Astrocoenia*, D'ORBIGNY pa leto dni pozneje na videz zelo podoben rod *Actina-*

straea. Številni poznejši avtorji so zaradi velike podobnosti rodova *Astrocoenia* in *Actinastraea* združevali. ALLOITEAU je ponovno preučil originalni material. Leta 1952 je oba rodova ločil, češ da *Astrocoenia* nima kolumelo. Na podlagi te ugotovitve je GEYER (1954) vse jurske vrste rodu *Astrocoenia* s kolumelo pripisal rodu *Actinastraea*. Leta 1954 je izšla tudi Alloiteaujeva razprava o rodu *Actinastraea*, kjer podaja sorodnosti tega rodu z drugimi rodovi. Čeprav pri rodu *Astrocoenia* omenja kolumelo, ga loči od rodu *Actinastraea* po drugih kriterijih, ki jih je ponovno še natančneje navedel leta 1957 (str. 52—56). Po njegovem mnenju se *Astrocoenia* loči od rodu *Actinastraea* po cerioidni koloniji (ne subcerioidna), konfluentnih kostoseptih (ne subkonfluentna septa), ožji steni, predvsem pa po mikrostrukturi. O mikrostrukturi, kakor tudi o uvrstitvi v sistem sem podrobneje govorila že v poglavju o problemih sistematike.

Po vseh značilnostih, ki jih navaja ALLOITEAU, spada naš material k rodu *Actinastraea*. Vrste rodu *Astrocoenia* so v glavnem terciarne starosti.

Actinastraea regularis n. sp.

Tab. 1, sl. 1—2; tab. 2, sl. 1—2

Derivatio nominis: imenovana po pravilnem septalnem aparatu

Holotypus: vzorec 3733/1A

Locus typicus: Plave

Stratum typicum: zgornji oxfordij — spodnji kimmeridgij

Material: šest prevlekastih kolonij s štirimi zbruski

Diagnoza: *Actinastraea* s 16 septi in premerom koralitov 1 mm.

Opis: Subcerioidna kolonija s poligonalnimi čašami, ki so zelo majhnih dimenzij. Razmnoževanje je interkalicinalno. Stena je septotekalna. Septa so dosledno v oktamernem sistemu. Prvih 8 sept pride skoraj do centra koralita, kjer se mestoma po eden ali dva spojata s kolumelo. Osem sept drugega cikla je več kot za polovico krajših. Razen teh 16 sept ni drugih sept ali kost. Koraliti se s steno dokaj tesno, vendar nepravilno stikajo. Septa so subkonfluentna. Mikrostruktura je slabo ohranjena, vendar mestoma le moremo videti temne lise, ki bi lahko predstavljale kalcifikacijske centre. Kolumela je stiliformna.

Dimenzije: d 1 mm
c—c 1—1,2 mm
s 16

Primerjava: Po oktamernem sistemu sept lahko našo vrsto primerjamo z vrstami *A. ramosa*, *A. sowerbyi*, *A. tuberculata* in *A. octolamelosa*. Vendar ima naša vrsta vidno manjše koralite od vseh. Vrsta *A. furcata* (ÉTALLON) ima premer koralitov 1 mm, toda heksamerni sistem sept. Po velikosti koralitov (1—2 mm) in deloma po številu sept (16—24) je naši vrsti podobna *Stephanocoenia trochiformis* Michelin (glej Koby, 1885, 301—302), ki jo je BEAUVAIS pripisala rodu *Allocoenia* (BEAUVAIS, 1964, 112). Vendar ima ta vrsta nestalno število sept in palov, česar naši primerki nimajo. Stalno število sept, majhen in stalen premer koralitov in odsotnost palov loči naše primerke od vseh podobnih znanih vrst, zato menim, da je postavitve nove vrste upravičena.

Razširjenost: Več prevlekastih kolonij sem našla na enem samem mestu pri transformatorju v vasi Plave tik ob Soči (št. 3733/1). Sklade s to vrsto uvršča BUSER v zgornji oksfordij in spodnji kimmeridgij.

Familia: Acroporidae VERRILL 1902

Genus: *Etallonia* RONIEWICZ 1966

Rod *Etallonia* je postavila RONIEWICZ leta 1966. Za tipično vrsto je določila vrsto *Cyathophora minima* ÉTALLON (1864), ki jo je Koby preimenoval v vrsto *Convexastraea minima*. BEAUVAIS (1964, 121, 124) je vrsto *Cyathophora minima* ÉTALLON pripisala rodu *Cryptocoenia*, ker ima tabule (planchers). Vrsto *Convexastraea minima* pa je uvrstila med vrste rodu *Adelocoenia* glede na to, da ima disepimente.

RONIEWICZ je ponovno preučila originalni material in ugotovila, da sta oba omenjena primerka sinonima. Oba imata poleg drugega tabularne transverzalne elemente in sinaptikularno steno, ki koralite direktno povezuje. Stena je nekoliko perforirana. Po tej lastnosti je RONIEWICZ postavila nov rod in ga ločila od družine Cyathophoridae, ki ima paratekalno kostano steno. Novi rod je priključila k podredu Fungida, k družini Poritidae. Od drugih rodov te družine je novi rod ločila po kompaktnih septih. Prav ta lastnost pa jo je pozneje navedla k temu (ustno sporočilo), da je rod *Etallonia* bližje družini Acroporidae. Svetovala mi je, da ga prištejem k tej družini, podrobnejšo razlago pa da bo podala sama.

Naš material se ujema z opisom in vsemi značilnostmi rodu *Etallonia*. Razlike v steni z rodovoma *Cyathophora* in *Convexastraea* so tako vidne in pomembne, da je obstoj rodu *Etallonia* upravičen. Pripomnim naj še, da ostajata rodova *Cyathophora* in *Convexastraea* v veljavi.

Etallonia minima (ÉTALLON)

Tab. 2, sl. 5—6

1864, *Cyathophora minima* ÉTALLON, THURMANN et ÉTALLON, 373, Pl. 52, fig. 9

1881, *Convexastrea minima* ÉTALLON, Koby, 107—108, Pl. 25, fig. 4, 5

1964, *Adelocoenia minima* (Koby), BEAUVAIS, 121, Pl. 4, fig. 2, Pl. 5, fig. 1

1964, *Cryptocoenia minima* (ÉTALLON), BEAUVAIS, 124

v 1966, *Etallonia minima* (ÉTALLON), RONIEWICZ, 247—249, Pl. 24, fig. 1, 2, Textfig. 19

Opis: Kolonija je masivna, cerioidna. Po nekaj koralitov je grupiranih v šope, ki so enako usmerjeni. Čaše so stisnjene, nepravilno okroglaste. Povezane so s sinaptikulotekalno precej debelo steno, v kateri so pore. Septa so kompaktna, radialno razvrščena v heksamernem sistemu. Deljena so v dva zelo neenakomerna cikla. Kost ni. Tudi najdaljša septa prvega cikla ne segajo do sredine koralita, medtem ko je drugi cikel sept več kot za polovico krajši. Endoteko sestavljajo majhni tabulatni disepimenti. Brstenje je ekstrakalikalno.

Dimenzije:	Slovenija	RONIEWICZ
d	1,5—2,0 mm	1,8—2,0 mm
c—c	1,5—2,5 mm	1,8—2,3 mm
s	12 (6 + 6)	12
t/mm	13—15/5 mm	14—15/5 mm

Mikrostruktura je slabo ohranjena, samo ponekod so vidni enovrstni sklerodermi. Centri kalcifikacije so neenakomerno oddaljeni.

Primerjava: RONIEWICZ z vprašajem prišteva k tej vrsti tudi primerke, ki sta jih opisala OGILVIE (1897) in GEYER (1955 a, b) iz jurskih skladov na Češkem in Portugalskem pod imenom *Convexastrea minima* (ÉTALLON). Pri pregledu tega materiala pa sem videla, da imajo primerki jasno paratekalno kostatno steno in zato ne spadajo k rodu *Etallonia*. MORYCOWA (1964) je iz skladov na Poljskem opisala vrsto *Cyathophora minima* in kot sinonimiko navedla vse primerke, ki jih RONIEWICZ daje v rod *Etallonia*. Primerki MORY-

COWE so res predstavniki rodu *Cyathophora*, medtem ko bo za vrsti *Convexastra minima* in *Cyathophora minima* potrebno določiti druge holotipe.

Razširjenost: Primerki opisane vrste so bili doslej najdeni v séquanijskih skladih Švice in Francije ter v zgornjem oksfordiju Poljske. Od našega materiala spada k tej vrsti primerki P-264 iz Otlice v Trnovskem gozdu. Starost našega nahajališča je zgornji oksfordij in spodnji kimmeridgij.

Subordo: Stylinida ALLOITEAU 1952

Familia: Cyathophoridae VAUGHAN et WELLS 1943, emend. ALLOITEAU

Poddružino Cyathophorinae sta v okviru družine Stylinidae postavila VAUGHAN in WELLS, ALLOITEAU pa jo je povzdignil v družino, ker se od družine Stylinidae loči po tabularni endoteki, medtem ko je pri stilinidah endoteka vezikularna. GEYER (1955 b) meni, da je delitev na družini Cyathophoridae in Stylinidae nepotrebna, ker se subtabulatna endoteka pojavlja tudi ponekod pri stilinidah, medtem ko so vezikularni disepimenti zastopani pri obeh družinah. Toda že OGILVIE je opozorila na izrazite tabule pri vrstah rodu *Cyathophora*. Tabule so tako močne, da se zdijo kot prečke pri tabulatnih koralah iz paleozoika. Prav po tem videzu lahko predstavnike družine Cyathophoridae ločimo od stilinid. Zato menim, da lahko uporabljamo družino Cyathophoridae kot samostojno družino, čeprav pri nekaterih vrstah opazimo prehodne znake.

Genus: *Pseudocoenia* D'ORBIGNY 1850

Rod *Pseudocoenia* je postavil D'ORBIGNY na podlagi tipične vrste *P. suboconis*. Originalna diagnoza je zelo nepopolna, zato številni poznejši avtorji rodu niso priznali (glej tudi WELLS, 1956, F 376) in so ga pripisovali rodu *Stylina*. ALLOITEAU (1948, 704—705) je podal ponovno definicijo na podlagi lektotipa iz d'Orbignyjeve zbirke. Rod *Pseudocoenia* je priznal in ga loči od rodu *Stylina* po nekonfluentnih septih in ker je brez kolumele. RONIEWICZ je opis rodu *Pseudocoenia* dopolnila na podlagi fosilnega materiala iz Poljske. Po strukturi endoteke in periteke ga je pripisala skupaj z rodом *Cyathophora* k družini Cyathophoridae. Od rodu *Cyathophora* ga loči po daljših septih in bogatejši periteki.

Slovenski fosilni material kaže, da so vrste rodu *Pseudocoenia* s heksamernim sistemom sept izredno blizu rodu *Cyathophora*, posebno še, ker septa ponekod niso dobro ohranjena. Vendar je to le navidezna podobnost. V vsakem primerku namreč lahko najdemo vsaj nekaj dolgih sept, kar dokazuje, da septa niso rudimentirana kot pri rodu *Cyathophora*, ampak so le prekrizalizirana.

Pseudocoenia hexaphyllia (D'ORBIGNY)

Tab. 3, sl. 1—3

1850, *Cryptocoenia hexaphyllia* D'ORB., D'ORBIGNY, 33

1931, *Cryptocoenia hexaphyllia* D'ORBIGNY, COTTREAU, 155, Pl. 61, fig. 2

1964, *Cryptocoenia hexaphyllia* D'ORB., BEAUVAIS, 126, Pl. 6, fig. 7

v 1966, *Pseudocoenia hexaphyllia* (D'ORB.), RONIEWICZ, 182—183, Pl. 2, fig. 1 a-b, 2

Opis: Plokoidna masivna kolonija ima okrogle ali subpoligonalne čaše. Septalni aparat je heksameren, v dveh popolnih in tretjem nepopolnem ciklu. Šest sept je dobro razvitih in segajo približno do polovice koralita, druga septa so krajša in neenakomerno razvita. Stena je septoparatekalna in kostatna. Koste so kratke, nekonfluentne. Endoteka je tabulatna, v periteki pa so veliki konkavni disepimenti. Kolumele ta vrsta nima.

Dimenzije:	Slovenija	RONIEWICZ	D'ORBIGNY
d	4—6 mm	3—3,5 mm	3—5,5 mm
c—c	5—7 mm	4—5 mm	—
s	12 + S3	12 + S3	—
t/mm	5—6/5 mm	—	—

Primerjava: Po endoteki in velikosti koralitov je tej vrsti zelo podobna tudi vrsta *Cyathophora bourgueti* (DEFRANCE), ki se loči po tem, da ima krajša rudimentirana septa, kar jo uvršča celo v drug rod. Morda bi k rodu *Pseudocoenia* lahko prišeli vrsto *Cyathophora jakovlevi* KRASNOV, pri kateri avtor omenja septa, ki segajo do 1/3 radija koralita. Za revizijo pa nimam na razpolago originalnega materiala. Pri vrsti *Pseudocoenia hexaphyllia* omenja RONIEWICZ sicer manjše koralite, kot jih imajo naši primerki, vendar obenem pravi, da so med originalnim d'Orbignyjevim materialom tudi kolonije s koraliti do 5,5 mm premera. Tako naši vzorci spadajo v variacijsko širino vrste.

Razširjenost: Vrsta *P. hexaphyllia* je bila doslej znana iz zgornjeoksfordskih skladov Poljske in argovija Francije. V Sloveniji sem to vrsto našla na Ojstrovci (vzorec P-443) in na Mrzovcu (P-458, P-462 in P-479), v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Pseudocoenia radisensis (D'ORBIGNY)

Tab. 3, sl. 3—4

1850, *Cryptocoenia radisensis* D'ORB., D'ORBIGNY, 33

1931, *Cryptocoenia radisensis* D'ORB., COUTREAU, 157, Pl. 61, fig. 5

? 1964, *Cryptocoenia nivernensis* nov. sp., BEAUVAIS, 125—126, Pl. 7, fig. 6

v 1966, *Pseudocoenia* cf. *radisensis* (D'ORBIGNY), RONIEWICZ, 182

Opis: Plokoidno kolonijo sestavljajo gosti koraliti. Septa heksamernega sistema nastopajo v dveh popolnih ciklih in v tretjem, ki je v obliki kost. Prvih šest sept sega do polovice čašnega polmera, medtem ko so naslednja septa krajša. Stena je septoparatekalna in kostatna. Endoteka je izrazito tabulatna, disepimenti v periteki pa so mestoma nekoliko upognjeni. Brstenje je ekstrakalikalno. Kolumele ni.

Dimenzije:	Slovenija	RONIEWICZ
d	2,5—3 mm	(2,3) 2,5 mm
c—c	2,8—4 mm	2,5—3,5 mm
s	12 + S3	12 (6 + 6)
t/mm	9—12/5 mm	12/5 mm

Primerjava: Po dimenzijah koralitov, močni tabulatni endoteki in heksamernem številu sept bi primerke opisane vrste lahko prišeli k vrsti *Cyathophora tithonica*. Toda naši vzorci imajo daljša septa, zato spadajo v rod *Pseudocoenia*. Na moč je vrsti *P. radisensis* podobna tudi vrsta *Cryptocoenia nivernensis* BEAUVAIS (1964, 125), ki jo avtorica primerja le z vrsto *C. hexaphyllia*, od katere ima manjše koralite, kar je značilno za našo vrsto. Originalnega materiala, ki ga ima BEAUVAIS, nisem videla, zato uvrščam njeno vrsto v sinonimiko vrste *P. radisensis* z vprašajem.

Razširjenost: Opisana vrsta je bila doslej znana iz séquanijske Francije in zgornjega oksfordija Poljske. Od najdb v slovenskih nahajališčih spadajo k tej vrsti vzorci P-405 z Malega vrha pri Frati, P-366 s Frate ter nekoliko bolj prekrizalizirani primerki P-393 iz Brezove rebri in P-371, P-372, P-383 iz Luč na Dolenjskem. Vsa nahajališča so spodnjemalmske starosti.

Pseudocoenia slovenica n. sp.

Tab. 4, 5

Derivatio nominis: najdena je bila na slovenskem ozemlju

Holotypus: vzorec P-304, tab. 4, sl. 1—2, tab. 5, sl. 1—4

Locus typicus: Col

Stratum typicum: zgornji oksfordij — spodnji kimmeridgij

Material: dve koloniji s petimi zbruski

Diagnoza: *Pseudocoenia* s heksamernim številom sept (12), premerom koralitov 0,8—1,3 mm ter razdaljo med centri čaš 1—1,5 mm. Endoteka je iz nepopolnih tabul.

Opis: Masivna plokoidna kolonija ima goste, enako okrogle čaše. Koraliti potekajo razmeroma vzporedno ali rahlo radialno. Septa so razvrščena v heksamernem sistemu. Šest sept je dobro razvitih in segajo do polovice ali celo do treh četrtin koralitnega polmera. Septa drugega cikla so kratka, navadno le kot kostatne odebelitve v steni. Ponekod se zaradi prekrstizacije niso ohranila. Septa se v periteki ne spajajo s sosednjimi koraliti. Stena je septotabulotekalna, kostatna. Endoteko sestavljajo nepopolne in popolne tabule, periteko pa nekoliko upognjeni disepimenti. Kolumele ni. Prav tako ni aksialnih podaljškov sept. Mikrostruktura je prekrstizirana.

Dimenzije:	d	0,8—1,3 mm
	c—c	1—1,5 mm
	s	12
	t/mm	9—11/5 mm
	širina periteke	0,25—0,60 mm

Primerjava: Naši primerki so po velikosti koralitov precej blizu vrsti *Cyathophora parva* BABAEV (1964, 32). Ločijo pa se od nje po daljših septih in nepopolnih tabulah, kar jih uvršča celo med pripadnike drugega rodu. Razen tega je razlika med vrstama v razdalji med čašami, ki je pri naši vrsti manjša. V naših primerkih je nekaj koralitov brez sept. Toda mestoma so ohranjena dolga septa, kar dokazuje, da septa niso rudimentirana, ampak le prekrstizirana. Zaradi tega naš primerek nedvomno sodi k rodu *Pseudocoenia* in ne *Cyathophora*. Po dimenzijah koralitov je naši vrsti podobnih še nekaj vrst rodu *Cyathophora*, tako *C. parvula* WELLS iz albija na Trinidadu, *C. pygmaea* WOLZ iz albija Bukovine, ki ima nekoliko večje koralite in poligonalno obliko, zato je bila pozneje uvrščena v rod *Orbignyoenia*, pa tudi vrsta, ki jo je MORYCOWA opisala iz titonijskih skladov Poljske pod imenom *C. minima*. Od vseh pa se naša vrsta loči po daljših septih.

Razširjenost: Naša primerka sta bila najdena nekaj 10 m severno od Cola (holotip, P-304) in v Vodicah južno od Javornika (P-286), v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Pseudocoenia baltoensis RONIEWICZ

Tab. 6, sl. 1—2

v 1966, *Pseudocoenia baltoensis* n. sp., RONIEWICZ, 186—187, Pl. 4, fig. 3

Opis: Kolonija je velika, masivna, z ravnimi dolgimi koraliti, ki so okrogli v preseku in daleč vsaksebi, ker je med njimi široka periteka. Septa so v oktomernem sistemu in radialno razvrščena. Prvi cikel sega daleč v sredo koralita, septa drugega cikla so mnogo krajša, včasih le kot majhne zagozdice kost. Navzven se septa nadaljujejo v medkoralitni prostor, so pa nekonfluentna. Stena je septoparatekalna, kostatna. Endoteko sestavljajo v glavnem popolne tabule, periteka pa je iz dolgih, ravnih in upognjenih disepimentov. Brstenje je ekstrantakularno. Mladi zarodek nastane tik ob teki in iz kost ustvari svoj septalni aparat. Kolumele ni, mikrostruktura pa ni ohranjena.

Dimenzije:	Slovenija	RONIEWICZ
d	3,5—4 mm	3—3,5 mm
c—c	6—7 mm	5—7 mm
s	16 (tudi 14)	16 (tudi 7 + 7)
t/mm	?	12—15/5 mm
dis/mm	6/5 mm	6—7/5 mm

Primerjava: Naš primerek se ujema z opisom in dimenzijami primerkov iz Poljske, le premer čaš je nekoliko večji. Ker obstoje vsi prehodi, mislim, da to razliko lahko upoštevamo kot variacijsko širino vrste. Z dolgimi peritekalnimi kostami se ta vrsta približuje rodu *Stylina*, a ker ima izrazite tabule, nekonfluentna septa in je brez kolumele, jo pripisujem rodu *Pseudocoenia*.

Razširjenost: Doslej je bila ta vrsta znana iz zgornjeoksfordskih skladov Poljske in rauracija Švice (ker je RONIEWICZ, 1966, sem uvrstila tudi vrsto *Cryptocoenia decipiens* ÉTALLON iz Kobyjeve zbirke). Naš edini primerek P-477 sem našla na Mrzovcu v Trnovskem gozdu v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Pseudocoenia aff. *longiseptata* RONIEWICZ

Tab. 6, sl. 3—4

v 1966, *Pseudocoenia longiseptata* n. sp., RONIEWICZ, 189—190, Pl. 6, fig. 1

Opis: Majhna masivna plokoidna kolonija ima različno velike koralite, katerih presek je okrogel, in veliko periteko. Septa so razvrščena v dekamernem sistemu, v dveh ciklih. V mlajših koralitih jih je tudi manj. Septa prvega cikla segajo včasih do srede koralita. Na njihovem notranjem robu opazimo mestoma aksialne razširitve. Endoteka sestoji iz popolnih in nepopolnih tabul, v periteki pa so veliki vodoravni ali rahlo vijugasti disepimenti. Stena je septoparatekalna, kostatna. Brstenje je ekstrakalikalno. Kolumele ni.

Dimenzije:	Slovenija	RONIEWICZ
d	2,5—5 mm	2,6—3 (3,5) mm
c—c	3,5—6 mm	3,5—5 mm
s	praviloma 20	20
t/mm	8—9/5 mm	10/5 mm
dis/mm	5—6/5 mm	—

Primerjava: Po velikosti koralitov je naš primerek bliže vrsti *P. maxima* RONIEWICZ (1966). Ima pa dekamerni septalni aparat, zaradi česar ga uvrščam z oznako aff. k vrsti *P. longiseptata*. Po nekakšnih podaljških ali aksialnih razširitvah spominja ta vrsta na rod *Columnocoenia*, vendar to ni spongiozna aksialna struktura, ampak le odebelitev sept zaradi prekrstizacije.

Razširjenost: Vrsta je bila doslej znana samo iz zgornjeoksfordskih skladov Poljske. Naš primerek izvira iz Cola v Trnovskem gozdu iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Familia: Stylinidae D'ORBIGNY 1851

V območju podreda Stylinida združuje družina Stylinidae vse rodove z vezikularno endoteko. Druge značilnosti so podobne kot pri družini Cyathophoridae. Velika večina rodov ima tudi kolumelo. Med slovenskim koralnim gradivom spadajo v to družino plokoidni rodovi *Stylina*, *Heliocoenia* in *Convexastraea*, faceloidni rodovi *Stylosmilia*, *Goniocora* in *Aplophyllia* ter meandroidna kolonija *Myriophyllia*.

Genus: *Stylina* LAMARCK 1816

Lamarckov rod *Stylina* je D'ORBIGNY (1849) razdelil glede na značaj stene, sept in kolumele na 11 novih rodov, med drugim *Cryptocoenia*, *Convexastraea*, *Pseudocoenia* in druge. M. EDWARDS in HAIME (1851, 77—78), kakor tudi OGILVIE (1897, 168) in KOPY (1881, 73) so večino d'Orbignyjevih novih rodov ponovno prišteli rodu *Stylina*, enako tudi GREGORY (1900, 50—52), VAUGHAN in WELLS (1943) in WELLS (1956). ALLOITEAU (1952, 607—608, 1948, 700) je večino d'Orbignyjevih rodov ponovno priznal. Edino rod *Cryptocoenia* uvršča k rodu *Cyathophora*, medtem ko ga ima GEYER (1954, 126, 135) za sinonim rodu *Stylina*, RONIEWICZ (1966) pa deloma za *Pseudocoenia*.

K rodu *Stylina* spadajo danes vrste, ki imajo kostatno paratekalno steno, toda konfluentna septa v periteki ter subtabulatno in predvsem vezikularno endoteko. Kolumela pa je stiliformna.

Stylina decipiens ÉTALLON

Tab. 7, sl. 1—3

- 1864, *Stylina decipiens* ÉT., THURMANN et ÉTALLON, 367, Pl. 51, fig. 9
 1864, *Stylina octosepta* ÉT., THURMANN et ÉTALLON, 369, Pl. 51, fig. 12
 1881, *Cryptocoenia decipiens* ÉT., KOPY, 90—91, Pl. 20, fig. 1—3
 1887, *Stylina octosepta* ÉT., SOLOMKO, 83
 v 1954, *Stylina decipiens* ÉT., GEYER, 133
 v 1955 a, *Stylina decipiens* ÉT., GEYER, 182
 v 1965, *Stylina decipiens* ÉT., GEYER, 231

Opis: Masivna plokoidna kolonija z vzporednimi koraliti. Septa so v oktamernem sistemu. Prvi cikel debelih sept sega skoraj do sredine koralita. Aksialni robovi so odebeljeni, vendar se kolumele ne dotikajo. Kolumela je velika, okrogla, a ni ohranjena v vseh koralitih. Septa drugega cikla so nekoliko krajša. Tretji cikel je razvit samo v obliki kost. Koste se v periteki spajajo s kostami sosednjih koralitov. Mestoma so subkonfluentne. Endoteka je iz vezikularnih in mestoma subtabulatnih disepimentov, eksoteka pa iz dolgih, ravnih ali upognjenih disepimentov.

Dimenzije:	Slovenija	KOPY	GEYER	SOLOMKO
d	2—3 mm	2,5—3 mm	2,5—3,5 mm	2,5 mm
c—c	4—6 mm	4—7 mm	4—7 mm	4—5 mm
s	16 + S3	32	16 + 32 kost	16

Primerjava: Že SOLOMKO (1887) je opozoril na veliko podobnost vrst *Stylina decipiens* in *S. octosepta*. GEYER (1954) je nato obe vrsti združil, ker meni, da so nekatere razlike v dimenzijah le variacijske širine iste vrste. Vrsta *S. decipiens* je po poteku sept podobna tudi vrsti *S. excelsa* ÉT., vendar ima zadnja manjše in bolj goste čaše. Prav tako je podobna primerkom, ki jih je opisal GEYER kot *Convexastraea minima* (1955 a, b), le da ima ta nekonfluentna septa.

Naši primerki se ujemajo z vsemi strukturnimi značilnostmi in ustrezajo dimenzijam vrste *S. decipiens*. Zanimiv je nestalen pojav kolumele pri tej vrsti. GEYER jo je opazil v češkem materialu, medtem ko je portugalski in nemški primerki nimajo. V naših vzorcih pa je ohranjena samo v nekaterih koralitih.

Razširjenost: Ta vrsta je bila doslej znana iz rauracija in séquanija Švice in Francije, kimmeridgija vzhodne Španije ter zgornjega oksfordija Krima, od koder jo BABAIEV (1970, 86) imenuje *Cryptocoenia octosepta* in *C. decipiens*.

V Sloveniji je bila ta vrsta najdena na Selovcu v Trnovskem gozdu (vzorec P-485) in južno od Frate (P-369) na Dolenjskem. Obe nahajališči sta spodnjemajmske starosti.

Genus: *Convexastraea* D'ORBIGNY 1849

D'Orbignyjev rod *Convexastraea* je med stilinidami danes priznan. Od rodu *Stylina* se loči, ker nima kolumele in ker so septa nekonfluentna ali subkonfluentna. Pripisanih mu je veliko vrst rodu *Cryptocoenia*.

Convexastraea intricata (FROMENTEL)

Tab. 7, sl. 4—5

- 1862, *Stylina intricata* FROMENTEL, 31—32, Pl. 3, fig. 5
 1964, *Cryptocoenia intricata* FROMENTEL, BEAUVAIS, 124

Opis: Plokoidna kolonija je dendroidne oblike. Koraliti so gosti, povezani v periteki s subkonfluentnimi kostoseptami. Septa so v heksamernem sistemu, šest jih sega do sredine koralita, septa drugega cikla so le koste v steni in se širijo v periteko. Stena je paratekalna in kostatna. Endoteka je subtabulatna in vezikularna. Kolumele ni. Mikrostruktura ni ohranjena.

Dimenzije:	Slovenija	FROMENTEL
d	1—1,5 mm	1—1,5 mm
c—c	2 (2,5) mm	—
s	12	12

Primerjava: FROMENTEL je vrsto *C. intricata* uvrstil v rod *Stylina* in ne *Cryptocoenia*, kot to omenja BEAUVAIS. FROMENTEL omenja zelo majhno neizrazito kolumelo. Toda BEAUVAIS je pri reviziji originalnega materiala ugotovila, da holotip nima kolumele, zato ga je prištela rodu *Cryptocoenia*. Stilinidni tip koral s subkonfluentnimi kostatnimi septami brez kolumele je danes prištet rodu *Convexastraea*, kateremu ustreza naša vrsta. Po dimenzijah se naši primerki lepo ujemajo s holotipom. Vrsta *Cryptocoenia granulosa*, ki ga je BEAUVAIS priključila tej vrsti, ima večje koralite.

Razširjenost: Vrsta je znana iz kimmeridgija Francije. Naši primerki P-337 iz Šumberskega pri Gabru ter P-249 in P-461 z Mrzovca v Trnovskem gozdu so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Genus: *Heliocoenia* ÉTALLON 1859

Rod *Heliocoenia* je zelo kritično in natančno obdelala RONIEWICZ (1966, 201—210). Po tipih simetrije je prevzela tri Kobyjeve skupine in jih razdelila na podrodove *H. Hexaheliocoenia*, *H. Decaheliocoenia* in *H. Octoheliocoenia*. Rodu *Heliocoenia* je ponovno priključila rod *Alloiteaucoenia*, ki ga je BEAUVAIS (1964, 144) osnovala na podlagi vrste *Heliocoenia tumularis*.

WELLS (1956, F376) meni, da je rod *Heliocoenia* le podrod rodu *Stylina*, enako LAMBELET (1968). ALLOITEAU (1952) ga upošteva kot samostojen rod, prav tako vsi sodobni raziskovalci. Njegova uvrstitev v družino Stylinidae pa je enotna pri vseh paleontologih.

Rod *Heliocoenia* se loči od *Stylina* po nekonfluentnih septih in po nekoliko drugačni aksialni strukturi koralitov. Podolgovata kolumela je večkrat povezana z enim od septov in to daje koralitom navidezno bilateralno simetrijo, čeprav je septalni aparat radialen. Po aksialni strukturi koralitov je rod *Heliocoenia* podoben rodu *Stylosmilia*, toda zadnji nima periteke. Vse te razlike so zadostne, da rod *Heliocoenia* lahko obvelja.

Heliocoenia (Hexaheliocoenia) costulata Koby

Tab. 8, sl. 1—2

1881, *Heliocoenia costulata* Koby, Koby, 64, Pl. 30, fig. 4

Opis: Kolonija je masivna, plokoidna. Koraliti se navzgor pahljačasto razraščajo. Čaše so okrogle do rahlo ovalne, s heksamernim septalnim aparatom. Po šest sept prvega in drugega cikla se po dolžini bistveno ne loči. Ostala septa so krajša in neenotno razvita. V aksialnem delu je nekoliko podolgovata kolumela, ki je v mnogih koralitih prekrstalizirana. Stena, ki je prav tako le mestoma ohranjena, je septoparatekalna, kostatna. Endoteka je subtabularna, eksoteka pa je iz vezikularnih disepimentov.

Dimenzije:	Slovenija	Koby
d(lumen)	1,4—1,8 mm	1,5—2 mm
c—c	(2,5) 3—4 mm	3—4 mm
s	6 + 6 + S3	12

Primerjava: Naš primerek se s Kobyjevim dobro ujema, le drugi cikel sept je skoraj tako dolg kot prvi. Koby pa pravi, da so septa drugega cikla krajša. Sicer gre v obeh primerih za heksamerni septalni aparat.

Razširjenost: Ta vrsta je bila doslej znana iz batonija Švice. Naš edini primerek je vzorec P-296 iz Bukovja na Hrušici iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Heliocoenia (Decaheliocoenia) variabilis Étallon

Tab. 8, sl. 3; tab. 9, sl. 1—6

1859, *Heliocoenia variabilis* Ét., Étallon, 4751881, *Heliocoenia variabilis* Ét., Koby, 66—67, Pl. 28, fig. 1—2, Pl. 30, fig. 51948, *Heliocoenia tumularis* D'ORB., Alloiteau, 703v 1955 b, *Heliocoenia variabilis* Ét., Geyer, 3411964, *Alloiteaucoenia tumularis* (Alloiteau), Beauvais, 144—145, Textfig. 30 A1964, *Alloiteaucoenia ternodorensis* n. sp., Beauvais, 145, Pl. 14, fig. 21965, *Heliocoenia* cf. *variabilis* Ét., Krković, 168v 1966, *H. (Decaheliocoenia) variabilis* Ét., Roniewicz, 207—208, Pl. 10, fig. 1, Textfig. 9 D—Ev 1968, *H. (Decaheliocoenia) regularis* n. sp., Turnšek, 9—10, 20—21, Pl. 8, fig. 1—3? 1968, *Stylina (Heliocoenia) variabilis* Ét., Lambellet, 159—162, Abb. 80—81

Opis: Kolonija je masivna, plokoidna, različnih oblik. Koraliti so vzporedni, čaše okrogle do ovalne, različno goste in različnih velikosti. Septalni aparat je iz kostosept, ki gredo bolj ali manj čez steno. Stena je septoparatekalna. V sredini je podolgovata kolumela, ki se navadno spaja z dvema nasprotnima septoma, kar daje koralitom bočno simetrijo. Septalni aparat razlaga Roniewicz kot dekamerni, ki je nastal iz heksamernega. Šest sept prvega cikla je najdaljših, od šestih sept drugega cikla pa so 4 daljša, dve bočni, pravokotni na daljšo os koralita, pa krajši. Od tretjega cikla sta po dve septi na vsaki strani, skupaj so torej štiri septa reducirana. Tako dobimo v perifernem delu koralita dokončno 20 namesto 24 sept. V nekaterih koralitih ali kolonijah je to število 20 stalno, drugje se menjava, kar je odvisno od odraslosti koralita. Naštejemo lahko 20, 19, 18 ali 17 sept. Endoteka je iz majhnih subtabulatnih disepimentov, eksoteka iz vezikularnih prečk. Lateralna stran sept nosi trnaste okraske. Razmnoževanje je ekstrakalikalno, v nekaterih kolonijah zelo bujno.

Dimenzije:	Slovenija	Roniewicz
d (do stene)	1,5—2,3 mm	
d (lumen)	1,4—1,8 mm	(1) 1,4—1,7 (2) mm
c—c	1,5—2,5 mm	1,5—2,5(3) mm
t/mm	ca. 9/3 mm	10—11/3 mm
s	20 (17—19)	20 (24)

Primerjava: Leta 1968 sem imenovala novo vrsto *H. (D.) regularis*, ki sem jo ločila od *H. variabilis* po večji gostoti koralitov. Med materialom iz slovenskih nahajališč pa sem dobila vse prehodne kolonije od takih z redkimi čašami do takih z zelo gostimi. V koloniji P-384 pa so koraliti celo v istem primerku mestoma zelo natrpani, drugje so redkejši, z vmesno periteko. Tako svojo novo vrsto *H. regularis* revidiram in jo priključujem vrsti *H. (D.) variabilis*. Različna gostota koralitov nastane lahko zaradi močnejšega brstenja na nekaterih delih kolonije. Precej različen videz nastane zaradi različne ohranjenosti kolonij. Dobro ohranjena stena koralite navidez približa. Na nekaterih koralitih pa stene sploh ne opazujemo, ampak le lumen čašic, kar koralite navidez med seboj močno oddalji.

Razširjenost: Doslej znana iz zgornjega oksfordija in spodnjega kimmeridgija Poljske, argovija, séquania in kimmeridgija Francije, kimmeridgija Švice, lusitanija Portugalske, zgornjega oksfordija Hercegovine ter oksfordija in kimmeridgija Črne gore. Od primerkov iz slovenskih nahajališč spadajo k tej vrsti P-384 iz Dobrniča, P-423, P-427, P-433, P-436 iz Otlice ter nekoliko slabše ohranjena primerka P-380 in P-381 iz Predol. Vsa nahajališča so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Genus: *Stylosmilia* Milne-Edwards et Haime 1848

Tipična vrsta rodu *Stylosmilia* je *S. michelini*, katere holotip je izgubljen. Opis rodu je dopolnil Alloiteau (1957, 360) na podlagi neotipa. Ves koralitni aparat močno spominja na rod *Heliocoenia*, le da je *Stylosmilia* faceloidno-dendroidna in ne plokoidna kolonija.

Rod *Stylosmilia* je Ogilvie (1897) uvrstila v družino Amphistraeidae. Vaughan in Wells (1943), Alloiteau (1952, 607), Geyer (1954, 138), Beauvais (1964, 116), Roniewicz (1966, 191) in drugi pa ga pripisujejo družini Stylinidae. Ta sistem sprejemam tudi sama, ker kaže *Stylosmilia* vse značilnosti stilinid. Septalni aparat je radialen, razmnoževanje je ekstrakalikalno-obrobno in ne žepasto kot pri amfiastreidah. Edino s svojo podaljšano kolumelo kaže ta rod in prej opisani rod *Heliocoenia* na sorodnost s skupino Amphistraeida.

Stylosmilia corallina Koby

Tab. 10, sl. 1—2

1881, *Stylosmilia corallina* Koby, Koby, 62—63, Pl. 14, fig. 3—7v 1954, *Stylosmilia corallina* Koby, Geyer, 1381964, *Stylosmilia corallina* Koby, Beauvais, 116v 1966, *Stylosmilia corallina* Koby, Roniewicz, 191—192, Pl. 7, fig. 1

Opis: Kolonija je faceloidno-dendroidna, z nepravilno razvejanimi koraliti, ki brstijo obrobno pod ostrim kotom. Kostosepta so razvita v treh cikli. Prvih šest pride do kolumele in se je večinoma dčtikajo. Drugih 6 je nekoliko krajših, naslednji cikli so za polovico krajši ali celo rudimentirani. Septa so v glavnem v pravilnem heksamernem sistemu, radialno razvrščena. Stena je septoparatekalna, debela. Kolumela je nekoliko podaljšana, podobno kot pri rodu *Heliocoenia*. Endoteka je iz majhnih subtabulatnih disepimentov.

Dimenzije:	Slovenija	Roniewicz	Beauvais
d (lumen)	1,5—2,5 mm	1,5—1,8 mm	—
d (do stene)	2—3 mm	2—2,5(3) mm	2—3 mm
s	24 + S4	24 (48)	24 (48)

Primerjava: Od tipične vrste *S. michelini* Koby se vrsta *S. corallina* loči po rasti koralitov in po večjem številu kost. Naši primerki pa se z vrsto *S. corallina* v celoti ujemajo.

Razširjenost: Ta vrsta je bila doslej znana iz argovija in séquanija Švice, argovija Francije ter zgornjega oksfordija Poljske. Naši primerki te vrste so bili najdeni v Ivanji vasi (P-318), v Babni gori pri Gabru (P-344, P-346) ter na Malem vrhu pri Frati (P-412). Tej vrsti pripisujem tudi primerek P-397 iz Gričev pri Predolah, ki je slabše ohranjen. Vsa nahajališča so zgornjeoksfordske in spodnekimmeridgijske starosti.

Stylosmilia chaputi ALLOITEAU

Tab. 10, sl. 3

1939, *Stylosmilia chaputi* ALL., ALLOITEAU, 6—8, Pl. 1, fig. 1—3

1964, *Stylosmilia chaputi* ALL., MORYCOWA, 494—495, Pl. 21, fig. 2

Opis: Kolonija je faceloidna, koraliti so v glavnem vzporedni, vejajo se pod ostrim kotom. Brstenje je intrakalikalno, lateralno. Čaše so okrogle, ovalne ali celo poligonalne. Septa so razvita v heksamernem sistemu, v treh ciklih. Prvi in drugi cikel sept je dobro razvit, septa tretjega cikla pa so zelo kratka in nepopolna. Kolumela je nekoliko sploščena, podolgovata. Stena je septotekalna, tanka, endoteka pa sestoji iz redkih tabulatnih disepimentov.

Dimenzije:	Slovenija	MORYCOWA
d	0,8—1,7 mm	0,9—1,5 mm
c—c	1,5—4 mm	ca. 3 mm
s	12 + S3	24

Primerjava: Naši primerki ustrezajo opisu in dimenzijam vrste *S. chaputi*. Od *S. corallina* se ta vrsta loči po manjših koralitih in tanjši steni. Na zunaj je tej vrsti zelo podobna tudi *Cladophyllia babeana*, ki je pa brez kolumele in ima debelejšo steno (cf. BEAUVAIS, 1964, 117). Naš primerek 1974/5 je po intenzivnem obrobem brstenju zelo podoben rodu *Halysitastrea* GEYER. Toda Geyerjev rod ima močan glavni septum, po čemer ga avtor vključuje v družino Amphistraeidae.

Razširjenost: Doslej je bila ta vrsta znana iz kimmeridgija in portlandija Turčije ter titonija Poljske. Od naših primerkov spadajo k tej vrsti P-454 1778/3, 1780/1 z Mrzovca, P-456 iz Korena pri Mrzovcu, 1902/3, 14 in 1974/5 iz nahajališča južno od Kala nad Kanalom na Banjški planoti. Vsa nahajališča so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Genus: *Goniocora* MILNE-EDWARDS et HAIME 1851

Rod *Goniocora* sta ustanovila MILNE-EDWARDS in HAIME na podlagi vrste *Lithodendron sociale* ROEMER. Uvrščata ga med dendroidne astreine in ga primerjata z rodovi *Calamophyllia*, *Rhabdophyllia* in *Cladophyllia*, od katerih ga ločita po načinu razmnoževanja, ki je lateralno (brstenje) in ne fizeparno (delitev), pa tudi po tem, da rod *Goniocora* nima kolumele in ne palov (1851, 93). Zanimivo je, da so poznejši avtorji dobili pri rodu *Goniocora* tudi kolumelo in omenjajo pri posameznih vrstah vse oblike od stiliformne, podolgovate, parietalne in seveda tudi rudimentirano.

KOBY (1886) je rod *Goniocora* primerjal s stilinidami, pa tudi GREGORY (1900, 41—42) ga uvršča v družino Stylinidae. OGILVIE (1897, 144) ga daje v družino Oculinidae, VAUGHAN in WELLS (1943) v družino Faviidae, prav tako GEYER (1954). ALLOITEAU (1952, 621) ga uvršča v družino Heliastreaeidae. Vse tri zadnje družine pa danes spadajo v podred Faviida. RONIEWICZ pripisuje rod *Goniocora* ponovno k stilinidam, kar je prevzel tudi LAMBELET (1968, 151). Temu sistemu se pridružujem tudi sama, ker ima rod *Goniocora* stilinidno endoteko, steno in septalni aparat.

Goniocora pumila (QUENSTEDT)

Tab. 11, sl. 1—2

1852, *Caryophyllia pumila*, QUENSTEDT, 652, Pl. 58, fig. 16

v 1876, *Goniocora pumila* QUENSTEDT sp., BECKER et MILASCHWITSCH, 165

1886, *Goniocora gracilis* KOBY, KOBY, 311—312, Pl. 90, fig. 20—21

1926, *Goniocora gracilis* KOBY, SPEYER, 274

v 1954, *Goniocora pumila* (QUENSTEDT), GEYER, 187, Taf. 15, fig. 7

v 1966, *Goniocora pumila* (QUENSTEDT), RONIEWICZ, 193—194, Pl. 7, fig. 3

1968, *Goniocora pumila* (QUENSTEDT), LAMBELET, 154—155, Abb. 79 a—c

Opis: Dendroidno faceloidna kolonija ima v preseku okrogle koralite. Stranske veje se cepijo od osrednjega stebra pod kotom kakih 50°. Septa so ravna, drobna, v dveh ciklih, razvita v dekamernem sistemu. Septa prvega cikla redko pridejo do sredine in nosijo zelo nazobčane podaljške. Taka nazobčana aksialna struktura je lepo vidna v podolžnem prerezu koralitov. Kolumela je stiliformna, nekoliko sploščena, vendar ni tako lepo razvita kakor pri rodu *Stylosmilia*. Septa drugega cikla so za polovico ali več krajša od prvih. Vendar je septalna slika v isti koloniji v različnih koralitih drugačna, pač glede na ohranjenost fosila. Stena je septotekalna, kostatna, endoteka je iz redkih subtabulatnih disepimentov.

Dimenzije:	Slovenija	RONIEWICZ	<i>G. gracilis</i>	GEYER
d	2,5—3 mm	2,5—3 mm	2—3 mm	1,5—3 mm
s	20	20	20—30	10 + 10

Primerjava: Naši primerki ustrezajo vsem značilnostim te vrste. K tej vrsti je GEYER upravičeno prištel vrsto *G. gracilis*, ker morejo biti nekateri nekoliko manjši koraliti vključeni v variacijsko širino iste vrste.

Razširjenost: Doslej je bila vrsta *G. pumila* znana iz kimmeridgija Nemčije, rauracija in séquanija Švice, zgornjega lusitanija Portugalske, zgornjega oksfordija Poljske in titonija Češke. Naši primerki, ki spadajo v to vrsto, so: P-434, P-437 iz Otlice in P-406 iz Malega vrha pri Frati. Obe nahajališči sta spodnjemalske starosti.

Goniocora annulata RONIEWICZ

Tab. 11, sl. 3

v 1966, *Goniocora annulata* n. sp., RONIEWICZ, 194, Pl. 8, fig. 7

Opis: Faceloidna kolonija ima v preseku okrogle precej pogostne koralite, ki brstijo pod precej velikim kotom. Septa so ravna, v dveh ciklih, v dekamernem sistemu. Prvi cikel sega do sredine koralita, medtem ko doseže drugi cikel le 1/3 njegove dolžine. Aksialni robovi sept nosijo zobčke, ki se vežejo v čvrsto stilinidno strukturo. Kolumela je stiliformna in je v naših primerkih le redko ohranjena. Stena je septotekalna, kostatna in tanka. Endoteka je iz redkih horizontalnih subtabulatnih disepimentov.

Dimenzije:	Slovenija	RONIEWICZ
d	3—4 mm	3—3,8 mm
s	20	20
c/mm	4/1 mm	4—5/1 mm

Primerjava: Naš primerek ustreza originalom Roniewiczzeve po septalnem aparatu, steni in dimenzijah, le kolumela ni tako dobro ohranjena, ker je mestoma prekrizalizirana. Vrsta *G. annulata* se loči od *G. pumila* po večjih koralitih. Čeprav je ta razlika majhna, priznavam obe vrsti, ker nisem dobila vmesnih velikosti. Poleg tega ima *G. annulata* nekoliko gostejše koralite in se že v kamnu loči od vrste *G. pumila*, ki je bolj drobna in bolj dendroidna.

Razširjenost: *G. annulata* je bila doslej najdena v zgornjem oksfordiju Poljske. Naš primerek P-376 izhaja iz Luč na Dolenjskem iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Genus: *Aplophyllia* D'ORBIGNY 1849

Rod *Aplophyllia* je postavljen na podlagi vrste *Lithodendron dichotomum* MICHELIN. Ta dendroidno-faceloidna kolonija se loči od rodov *Stylosmilia* in *Goniocora* po tem, da nima kolumele. Vsi paleontologi uvrščajo ta rod v družino Stylinidae.

Aplophyllia sexradiata RONIEWICZ

Tab. 11, sl. 4

v 1966, *Aplophyllia sexradiata*, n. sp., RONIEWICZ, 190—191, Pl. 7, fig. 4, Textfig. 8

Opis: Kolonija je dendroidno-faceloidna in dosega dolžino do nekaj centimetrov. Koraliti so bolj ali manj vzporedni in drobni. Septalni aparat je heksameren, razvit v treh cikliih. Na aksialnem robu nosijo septa podaljške. Kolumele ni. Stena je septotekalna, kostatna. Razmnoževanje imenuje RONIEWICZ ekstrakalikalno, ker se struktura matičnega koralita pri brstenju ne spremeni, le stena se podaljša.

Dimenzije:	Slovenija	RONIEWICZ
d	2,5—3 mm	2,5—3 (3,5) mm
s	12 + S3	24
t/mm	4/5 mm	4—5/5 mm

Primerjava: RONIEWICZ primerja svojo novo vrsto samo z vrsto *A. guettardi*. Omeniti moram še veliko podobnost v strukturi in dimenzijah z vrsto *Goniocora aggregata*, ki pa ima kolumelo.

Razširjenost: Doslej je bila ta vrsta znana le iz zgornjega oksfordija na Poljskem. Na Slovenskem so bili primerki vrste *A. sexradiata* najdeni pri Frati na Dolenjskem (P-361, P-362) in v Selovcu v Trnovskem gozdu (P-486). Obe nahajališči sta spodnjema lmske starosti.

Genus: *Myriophyllia* D'ORBIGNY 1849

D'ORBIGNY je postavil rod na osnovi vrste *Meandrina rastellina* MICHELIN. BEAUVAIS je tipično vrsto ponovno preučila na topotipu, ker je holotip izgubljen in podala sodoben opis rodu (1964, 150—151).

Rod *Myriophyllia* je zelo podoben rodu *Felixigya*, ki pa nima kolumele in je hidnoforoidna kolonija. Nekateri meandroidne jurske korale, ki jih je Koby prištel k rodu *Dendrogyra*, so bile pozneje uvrščene v rod *Myriophyllia*. Rod *Dendrogyra* je danes znan iz terciarja in se loči od *Myriophyllia* po razmnoževanju. Nazorno primerjavo podobnih meandroidnih rodov podajata ALLOITEAU (1957, 172) in MORYCOWA (1971, 54, tabela 6).

Myriophyllia angustata (D'ORBIGNY)

Tab. 11, sl. 5

1850, *Meandrina angustata*, D'ORBIGNY, 39

1880, *Dendrogyra angustata* D'ORB., Koby, 58—59, Pl. 9, fig. 2, Pl. 10, fig. 1

v 1955 b, *Myriophyllia angustata* (D'ORB.), GEYER, 342

1964, *Myriophyllia angustata* (D'ORB.), BEAUVAIS, 152—153, Pl. 14, fig. 4

v 1965, *Myriophyllia angustata* (D'ORB.), GEYER, 232

Opis: Meandroidna masivna kolonija ima okroglaste oblike. Koraliti so razvrščeni v dolgi, le malo vijugastih serijah. Med serijami so grebeni, v katerih je septotekalna.

stena. Doline serij so ozke in ravne. Kolumela je stiliformna in se mestoma veže s septi dolin. Septa so kompaktna, zelo debela, v dolinah se prosto končujejo, na lateralni strani imajo drobna zrnca, na distalnem robu pa zobce. Endoteka je iz številnih majhnih disepimentov.

Dimenzije:	Slovenija	BEAUVAIS
širina dolin	2,5—3,5 mm	3—4,5 mm
c—c	2—3 mm	2—4 mm
s/mm ob greb.	17—18/10 mm	16—18/10 mm

Primerjava: Naši primerki se ujemajo z opisi in dimenzijami vrste *M. angustata*. Od drugih vrst tega rodu se ta vrsta loči po ožjih dolinah.

Razširjenost: Doslej je bila znana iz argovija in kimmeridgija Francije in Švice, lusitanija Portugalske, in kimmeridgija Španije. Naš primerek P-260 sem našla na Mrzovcu v Trnovskem gozdu, P-280, P-281 in P-282 pa pri Karteljevem, v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Subordo: Faviida VAUGHAN et WELLS 1943

Familia: Montlivaltidae DIETRICH 1926

Genus: *Montlivaltia* LAMOUROUX 1821

Rod *Montlivaltia*, s tipično vrsto *M. caryophyllata*, je eden najbolj razširjenih koralnih rodov v mezozoiku. Opisanih je okrog 400 vrst iz skladov od triade do krede. Prvemu opisu rodu so sledili številni novi opisi, ga dopolnjevali in primerjali z drugimi rodovi. Med raziskovalci so MILNE-EDWARDS in HAIME (1851), Koby (1883), OGILVIE (1897), GREGORY (1900), iz zadnjega časa pa so ALLOITEAU (1958), GEYER (1954), LAMBELET (1968) in drugi. Nekateri raziskovalci so posvetili posebne razprave samo temu rodu in njegovemu razmerju do rodu *Thecosmilia*, tako LEYENNE (1935) in CUIF (1965).

GEYER (1954, 123) je cenil dejansko število vrst rodu *Montlivaltia* na približno 100 od prejšnjih 400. Glede posameznih vrst pa so različni avtorji zelo različnih mnenj.

Po prvih opisih je rod *Montlivaltia* po septalni in tekalni strukturi enak rodu *Thecosmilia* in se loči le po tem, da je solitarna korala. Vendar se po teh značilnostih danes oba rodova včasih težko ločita, ker imamo tudi enojne primerke rodu *Thecosmilia* in vrste rodu *Montlivaltia* z več koraliti. CUIF (1965, 530) navaja tudi druge razlike med obema rodovima, kakor ornamentacijo distalnih in lateralnih robov sept, obliko oziroma zgradbo stene in drugo. LAMBELET (1968, 121—137) meni, da omenjene razlike ne morejo biti odločilne pri karakteristiki rodov, ker se s prekrizalizacijo lahko močno spremenijo. Razliko med obema rodovima vidi v zgradbi aksialnega dela koralita. Rod *Thecosmilia* ima v aksialnem delu vedno okroglasto foseto, *Montlivaltia* pa podolgovato. Ta razlika se jasno opazi tudi pri naših koralah, zato se pridružujem Lambeletovemu mnenju. Seveda velja *Thecosmilia* še vedno v glavnem za kolonijsko koralo, *Montlivaltia* pa za solitarno.

Montlivaltia champlittensis FROMENTEL

Tab. 12, sl. 1

1861, *Montlivaltia champlittensis* FROMENTEL, FROMENTEL, 111

v 1876, *Montlivaltia champlittensis* FROMENTEL, BECKER et MILASCHWITSCH, 201—202, Tab. 48, fig. 1

v 1954, *Montlivaltia champlittensis* FROMENTEL, GEYER, 178—179

Opis: Turbinatni koralit je v sredini nekoliko odebeljen. Septa so ravna ali rahlo upognjena, številna, kompaktna in lateralno močno nazobčana. Ločimo pet ciklov, ki so vedno krajši in vedno tanjši. V aksialnem delu se septa prvih dveh ciklov prosto končajo ali kolenčasto upognejo. Tvorijo podolgovato foseto brez kolumele. Endoteka je iz številnih dolgih disepimentov, ki so v aksialnem delu pretežno ravni, v perifernem pa upognjeni. Stena ni v naših primerkih nikjer ohranjena, sicer je septoparatekalna. Mikrostruktura je prav tako slabo ohranjena, vendar mestoma vidimo kalcifikacijske centre in trabekularne odebelitve.

Dimenzije:	Slovenija	GEYER	BECKER
d	ca. 25—50 mm	—	30, 32 mm
s	ca. 100	90—120	122
t	12—13/10 mm	12/10 mm	12/10 mm

Primerjava: Naši primerki se v vseh značilnostih in dimenzijah ujemajo z dosedanjimi opisi in dimenzijami vrste *M. champlittensis*, le stena in mikrostruktura je slabo ohranjena. Tej vrsti je zelo podobna vrsta *M. ellipsocentra*, ki se loči po močnejše nazobčanih septalnih robovih. Po Lambeletovi reviziji (1968, 9—120) bi vse navedene dimenzije naših primerkov ustrezale vrsti *M. obconica*. V vrsto *M. obconica* vključuje omenjeni avtor namreč vse montlivaltije z različnimi oblikami koralitov, z velikostjo čaše od 10 do 65 mm in s številom sept od 50 do 265. Taka velika variacijska širina vrste se mi zdi preobsežna. Prvi opisi vrste *M. obconica* navajajo število sept 200 do 280. Vsi naši primerki imajo le okrog 100 sept in jih uvrščam v samostojno vrsto *M. champlittensis*.

Razširjenost: Opisana vrsta je bila doslej najdena v rauracijskih in séquanijskih skladih Francije in kimmeridgijskih skladih Nemčije. V Sloveniji je bila ta vrsta najdena na raznih mestih. Primerki P-370, P-401, P-407 so iz Frate, P-377 iz Luč, P-388 iz Brezove rebri pri Frati. Vsa ta nahajališča so v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Montlivaltia renevieri Koby

Tab. 12, sl. 2

- 1883, *Montlivaltia renevieri* Koby, Koby, 144—145, Pl. 32, fig. 6
 v 1897, *Montlivaltia renevieri* Koby, OGILVIE, 197—198, Taf. 13, fig. 2
 v 1954, *Montlivaltia renevieri* Koby, GEYER, 180, Taf. 14, fig. 12
 v 1955 a, *Montlivaltia renevieri* Koby, GEYER, 198
 v 1955 b, *Montlivaltia renevieri* Koby, GEYER, 344
 v 1965, *Montlivaltia renevieri* Koby, GEYER, 236

Opis: Koralum je longikoniformen in upognjen. Čaša je rahlo ovalna. Septa so ravna, nazobčana, proti sredini se zožijo. So v 4 ciklih, najdaljša se v aksialnem delu kolenčasto upognejo. Endoteka je favidna iz ravnih in upognjenih disepimentov.

Dimenzije:	Slovenija	Koby	GEYER	OGILVIE
d	15—25 mm	20—35 mm	—	ca. 20—35 mm
s	ca. 100	—	100—120	100—120
dis/mm	16—18/10 mm	14/10 mm	16—18/10 mm	18/10 mm

Primerjava: Tudi ta vrsta bi lahko po Lambeletovi reviziji pripadala vrsti *M. obconica*. Glede na manjše število sept pa tudi to vrsto priznavam kot samostojno. Od *M. champlittensis* se loči po manjšem koralitu in po gostejših disepimentih.

Razširjenost: Ta vrsta je bila doslej najdena v corallieniu Švice, titoniju Štramberka, kimmeridgiju Nemčije, zgornjem lusitaniju Portugalske, kimmeridgiju Španije. Naša primerka sta P-396 iz Brezove rebri pri Frati in P-440 iz Ojstrovce v Trnovskem gozdu. Obe nahajališči sta v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Genus: *Thecosmilia* MILNE-EDWARDS et HAIME 1848

Rod *Thecosmilia* sta postavila MILNE-EDWARDS in HAIME na podlagi vrste *Lithodendron trichotomum* GOLDFUSS. Prva diagnoza označuje le morfološke značilnosti kolonije. Sledili so številni opisi drugih vrst tega rodu, saj skoraj ni nahajališča na svetu, kjer bi ne bil najden tudi rod *Thecosmilia*. Posamezne vrste so bile tu in tam prištete drugim rodovom ali pa vrste drugih rodov preimenovane v *Thecosmilia*. Tako OGILVIE (1897, 200) priključuje rodu *Thecosmilia* rodova *Lasmomilia* in *Amblophyllia* D'ORBIGNY, GREGORY (1900, 117) pa prišteva rod *Thecosmilia* deloma rodu *Complexastraea*. WELLS (1956, F 398) mu priključuje že povsem pozabljen rod *Hymenophyllia* M. EDW. et H. ter *Bavarosmilia* KUHN. GEYER (1954, 182) prišteva k rodu *Thecosmilia* vrste, ki jih je Koby (1886, 345) imel za rod *Dermoseris* in tako naprej.

O veliki podobnosti rodu *Thecosmilia* z rodом *Montlivaltia* sem govorila že pri prejšnjem rodu.

Thecosmilia minuta Koby

Tab. 13, sl. 1—2

1884, *Thecosmilia minuta* Koby, Koby, 173, Pl. 59, fig. 8—10

Opis: Majhna paličasta faceloidna kolonija z okroglimi enojnimi in dvojnimi koraliti. Septa so v treh do štirih ciklih; na periferiji so zelo debela, medtem ko se proti aksialnemu delu zožijo. Prvi cikel pride v notranjost koralita, kjer se septa neenakomerno končajo daleč vsakebi v prazni aksialni votlini. Tu tvorijo okroglo foseto brez kolumele. Drugi cikli sept so krajši in tanjši. Stena je septotekalna in paratekalna. Endoteka je iz konveksnih in konkavnih disepimentov. Mikrostruktura pri naših primerkih ni ohranjena. Septa nosijo na distalnem robu zrnca, na lateralni strani pa trnaste izrastke.

Dimenzije:	Slovenija	Koby
d	9—12 mm	10—12 mm
s	ca. 30—40	32—40

Primerjava: Po tipični septalni zgradbi, endoteki in aksialni votlini spadajo naši primerki nedvomno v rod *Thecosmilia*. Po majhnih dimenzijah koralitov in majhnem številu sept pa ustrezajo vrsti *T. minuta*. Podobni so vrsti *Th. dichotoma*, toda so nekoliko manjši. Spominjajo na rod *Ceratocoenia*, ki pa ima še manjše koralite in krajša septa. Majhne primerke, kakršni so naši, ima LAMBELET (1968, 136, Abb. 62) za mlade koralite vrste *T. dichotoma*. Ker sem v enem nahajališču dobila številne primerke, vse iste velikosti in nobenih večjih ali prehodnih oblik, menim, da ne gre le za mlade primerke, ampak za drugo vrsto. Zlasti pa je število sept vrste *T. minuta* manjše kakor pri vrsti *T. dichotoma*.

Razširjenost: Ta vrsta je bila doslej znana le iz skladov zgornjega oksfordija v kraju Weissenstein v Švici. Naši primerki P-410, P-411 ter P-404 pa so vsi iz Malega vrha pri Frati. Starost skladov je zgornji oksfordij — spodnji kimmeridgij.

Thecosmilia dichotoma Koby

Tab. 13, sl. 3—4

- 1884, *Thecosmilia* ? *dichotoma* Koby, Koby, 175, Pl. 46, fig. 4—8
 1886, *Dermoseris dichotoma* Koby (*Thecosmilia*?), Koby, 345
 v 1897, *Thecosmilia koniakensis* OGILVIE, OGILVIE, 201—203, T. 14, fig. 1
 v 1954, *Thecosmilia dichotoma* Koby, GEYER, 182, Taf. 14, fig. 15
 v 1955 a, *Thecosmilia dichotoma* Koby, GEYER, 200
 v 1966, *Thecosmilia dichotoma* Koby, RONIEWICZ, 212, Pl. 12, fig. 3

Opis: Faceloidna kolonija z enojnimi ali dvojnimi koraliti ima septa v treh jasnih in enem nepopolnem ciklu. So kostatna, na periferni strani debelejša, na aksialni strani

se prosto končujejo in tvorijo okroglo foseto. Lateralna stran nosi zobce. Endoteka je iz pogostnih dolgih konveksnih in konkavnih disepimentov. Stena je septoparatekalna, kostatna. Kolumele ni.

Dimenzije:	Slovenija	RONIEWICZ	GEYER
d	12—15 mm	6—13 mm	8—15 mm
s	ca. 45—60	50—60	45—65
t/mm	3—4/5 mm	—	—

Primerjava: Koby je to vrsto najprej z vprašajem prištel rodu *Thecosmilia*, pozneje pa rodu *Dermoseris*. GEYER je vrsto upravičeno ponovno pripisal rodu *Thecosmilia*, ker ima kompaktna in neperforirana septa. Dvojni koraliti, po katerih je vrsta dobila ime, so le ena od njenih značilnosti, ki pa ni bistvena. Od drugih vrst se loči predvsem po določenem številu sept. GEYER jo loči od drugih vrst še po močni epiteki.

Naši primerki imajo le večje koralite. Po velikosti koralitov, kakršne omenjata RONIEWICZ in GEYER, bi k tej vrsti mogli prištet tudi primerke, ki sem jih določila kot *T. minuta*. Toda število sept se pri vseh primerkih vrste *T. dichotoma* ujema, pri *T. minuta* pa je manjše.

Razširjenost: Doslej je bila ta vrsta znana iz zgornjega rauracija Švice, kimmeridgija Nemčije, zgornjega oksfordija Poljske in titonija Štramberka. Naši primerki te vrste pa so bili najdeni v nahajališču južno od Frate (P-358, P-359 in P-363) in so spodnjemajmske starosti.

Thecosmilia trichotoma (GOLDFUSS)

Tab. 14, sl. 1—2; tab. 15, sl. 3

1826, *Lithodendron trichotomum*, GOLDFUSS, n. v.

v 1954, *Thecosmilia trichotoma* (GOLDFUSS), GEYER, 180—181, s sinonimiko

v 1960, *Thecosmilia trichotoma* (GOLDFUSS), RONIEWICZ, 454—456, Pl. 1, Pl. 2, Pl. 3, fig. 1—2 s sinonimiko

1968, *Thecosmilia trichotoma* (GOLDFUSS), LAMBELET, 125—137, Abb. 60—66, s sinonimiko

Opis: Bolj ali manj popolne opise vrste *Th. trichotoma* najdemo poleg že omenjenih del še v delih, ki so jih objavili MILNE-EDWARDS in HAIME (1849), Koby (1884), SOLOMKO (1887), SPEYER (1926) in drugi. LAMBELET (1968) je izdelal najnovejšo primerjalno študijo in revizijo vrste.

Podobno kot vse vrste rodu *Thecosmilia* je tudi *Th. trichotoma* faceloidna koral, vendar so koraliti prosti, le posamezni so na videz samostojni ali solitarni. Septa so številna, z najmanj petimi cikli. Lateralni robovi so močno nazobčani. Stena je paratekalna in kostatna. Endoteko sestavljajo veliki konkavni in konveksni disepimenti. Aksialni prostor je okrogel, brez kolumele. V večcentričnih koralitih so centri povezani s konfluentnimi septi. Brstenje je intrakalikalno.

Dimenzije:	Slovenija	KOBY	RONIEWICZ	LAMBELET
d	ca. 20 mm	15—18 mm	18—22 mm	12—30 mm
s	ca. 70—100	80—90	70—127	35—95

Primerjava: GEYER omenja 5 variacij te vrste glede na obliko in rast koralitov. LAMBELET jim dodaja še dve in tej vrsti priključuje še *T. irregularis* ÉTALLON in *T. costata* FROMENTEL, kateri je že GEYER omenil kot zelo podobni. Originalnega materiala nisem videla, zato ne morem presojati revizije. Po veliki variacijski širini dimenzij, ki jih navaja LAMBELET, bi k tej vrsti lahko prištel tudi primerke *T. dichotoma*. Toda pri vseh drugih primerkih vrste *T. trichotoma* je število sept večje od 70. Naši primerki imajo tudi gostejše disepimente kot *T. dichotoma*, zato ti dve vrsti lahko ločimo kot samostojni.

Razširjenost: Doslej je bila najdena v kimmeridgiju Nemčije in Španije ter zgornjem oksfordiju Poljske, Švice in Krma. Naš primerek P-463 je z Mrzovca. Iz tega nahajališča je še več kolonij te vrste, za katere nisem delala zbruskov. Starost skladov je zgornji oksfordij in spodnji kimmeridgij.

Thecosmilia suevica (QUENSTEDT)

Tab. 15, sl. 1—2

1858, *Lobophyllia suevica*, QUENSTEDT, 708, Abb. 688

v 1876, *Thecosmilia suevica* QUENSTEDT, BECKER et MILASCHWITSCH, 153—154, Taf. 3, fig. 6—8

v 1897, *Thecosmilia suevica* QUENSTEDT, OGILVIE, 212—213, Taf. 14, fig. 9, ?10, 11

v 1954, *Latiphyllia suevica* (QUENSTEDT), GEYER, 183, Taf. 15, fig. 1

1955 b, *Latiphyllia suevica* (QUENSTEDT), GEYER, 345,

v 1955 a, *Latiphyllia suevica* (QUENSTEDT), GEYER, 200

? 1969, *Latiphyllia* cf. *suevica* (QUENSTEDT), DUSA, 115, Pl. 12, fig. 5

Opis: Koralit se razrašča v dva ali tri nove osebkke, ki ostanejo skupaj in so nepravilnih oblik. Septalna in aksialna zgradba je enaka oni pri drugih vrstah rodu *Thecosmilia*. Septa so v treh do štirih ciklih. Lateralna stran je nazobčana. Stena je septoparatekalna. Endoteka je iz pogostnih disepimentov, ki so tabulatni, dolgi in upognjeni. V večcentričnem koralitu so povezani s konfluentnimi septi.

Dimenzije:	Slovenija	BECKER
d	ca. 12—15 mm	14—32 mm
s	ca. 70	90—120 (našela sem jih 50—70)

Primerjava: VAUGHAN in WELLS (1943) ter GEYER (1954) in DUSA (1969) so primerke s strukturo rodu *Thecosmilia* in nepravilnim razraščanjem koralitov uvrstili v rod *Latiphyllia*. LAMBELET (1968) jih je pripisal rodu *Montlivaltia*. KRASNOV omenja *Thecosmilia suevica* (1964, 87). Tudi na vseh naših številnih koralitih sem mogla opazovati lepo okroglo foseto, zato vrsto ponovno uvrščam v rod *Thecosmilia*. Menim, da zaradi razraščanja koralitov ni nobenega razloga, da bi primerke pripisovali rodu *Latiphyllia*, ki je po vsej verjetnosti le sinonim rodu *Thecosmilia*. Taka razraščanja opaža tudi BEAUVAIS (1959) pri vrsti *T. langi* Koby. BECKER pri tej vrsti omenja veliko število sept, toda njegov material kaže pri enojnih koralitih prav tako le do 70 sept, več jih je seveda v večcentričnih koralitih. K tej vrsti je GEYER upravičeno priključil vrsto *Thecosmilia moraviensis* OGILVIE, ker se loči od *T. suevica* le po nekoliko drugačni obliki koralitov.

Razširjenost: Vrsta *T. suevica* je bila doslej znana iz kimmeridgija Nemčije, titonija Štramberka, kimmeridgija Portugalske ter séquanija Švice in Francije. Naši primerki P-450 (Ojstrovca), 7514/2 in 28 (Mrzovec) so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Genus: *Ceratothecia* nov. gen.

Derivatio nominis: ime je sestavljeno iz imena rodu *Cerato* (*coenia*) in besede (endo) theca. Tipična vrsta: *Ceratothecia carniolica* n. sp.

Diagnoza: Solitarna, rogata koralica z okroglim presekom. Septalni aparat je iz kompaktnih redkih kratkih sept, ki so redko nazobčani. Kolumele ni. Endoteka je favidna in sestoji iz redkih tabulatnih ravnih disepimentov, ki so omejeni predvsem na spodnji del koralita. Stena je septoparatekalna. Mikrostrukturo sestavljajo enostavne trabekule s temno linijo v sredi. Mestoma so vidne trabekularne odebelitve.

Primerjava: Novi rod je na zunaj izredno podoben primerkom rodu *Ceratocoenia*, ki ga je postavil TOMES (1884, 703) z vrsto *C. elongata* iz skladov Great Oolite v kraju Boulonnais. Še eno vrsto tega rodu, *C. tenuis*, je opisal Koby (1905, 849) iz batonija Švice. Naši primerki so dobro ohranjeni. Rodu *Ceratocoenia* so podobni po obliki koralitov, po redkih in kratkih septih in ker so brez kolumele. Imajo pa favidno endoteko, ki je *Ceratocoenia* sploh nima. Septa pri novem rodu nosijo tudi redke zobce, medtem ko so pri *Ceratocoenia* gladka. Navzočnost endoteke je že zadosten razlog za postavitev novega rodu. Favidno endoteko imajo tudi predstavniki rodu *Thecosmilia*, toda endoteka novega rodu je redka, tabulatna, brez dolgih upognjenih disepimentov, septa so kratka in nosijo le redke zobčaste okrasitve na lateralni strani.

Sistematska uvrstitev: Rod *Ceratocoenia* je TOMES uvrstil v družino Eusmiliinae. VAUGHAN in WELLS ga uvrščata v Amphistraeidae. ALLOITEAU (1957, 363) domneva, da ga je treba uvrstiti zaradi gladkih sept blizu družini Parasmiliidae, podred Caryophylliidae.

Naši primerki novega rodu kažejo več lastnosti družine Montlivaltiidae. Imajo favidno endoteko, septoparatekalno steno in redke okrasitve sept. Zato novi rod uvrščamo v družino Montlivaltiidae.

Ceratothecia carniolica n. sp.

Tab. 16, 17

Derivatio nominis: ime dajem po Dolenjski (Carniola), kjer je bila vrsta najdena

Holotypus: vzorec P-352

Locus typicus: 1 km južno od lovskega doma Frata na Dolenjskem

Stratum typicum: zgornji oksfordij in spodnji kimmeridgij

Material: 15 koralitov s šestimi zbruski (P-352, P-357)

Diagnoza: *Ceratothecia* s heksamernim številom kratkih sept, premerom koralita 7—10 mm in redkimi lateralnimi zobci na septih.

Opis: Solitarna koralita s podolgovatimi rogati koraliti, ki se na spodnjem koncu nekoliko zožijo. Na zunanji strani epiteke so podolgovata rebra. Septalni aparat je heksameren. Septa so maloštevilna, kratka, večinoma gladka in ravna ali rahlo upognjena. Mestoma vidimo na lateralni strani redke zobce. Šest sept prvega cikla je najdaljših in pridejo do 2/3 koralitnega polmera. Septa drugega cikla so za polovico krajša, nadaljnja so zelo kratka in neenakomerno razvita. V aksialnem delu ni opaziti nobene strukture. Foseta je okrogla, ni pa ne kolumele in ne palusov. Aksialni prostor je na zgornjem robu koralita večji kot proti dnu koralita. Stena je ponekod debela, septotekalna, drugje tanjša, paratekalna. Endoteka je omejena predvsem na spodnježi periferni del koralita. Disepimenti so redki, tabulatni. Zaradi tega jih v prečnih presekih zgornjih delov koralita ne vidimo. Mikrostrukturo sem opisala pri opisu rodu.

Dimenzije:	d	7—10 mm
	s	6 + 6 + S 3
	t/mm	4—5/10 mm

Primerjava: Naši številni primerki so podobni vrsti *Ceratocoenia tenuis* Koby v septalnem aparatu in po dimenzijah. Vendar Kobyjeva vrsta nima endoteke, kar jo postavlja celo v drugi rod. Po dimenzijah in prisotnosti endoteke in steni je naša nova vrsta podobna tudi vrsti *Thecosmilia minuta*. Od te se pa loči po krajših septih, redkejših in samo tabulatnih disepimentih ter redkih lateralnih zobcih.

Razširjenost: Naši vzorci (P-352 in P-357) vsebujejo okrog 15 koralumov vrste *C. carniolica*. Vsi so bili najdeni južno od Frate v skladih spodnjega malma.

Genus: *Complexastraea* D'ORBIGNY 1849

Rod *Complexastraea* je postavil D'ORBIGNY na podlagi vrste *Astrea rustica* DEFRANCE (= *Astrea burgundiae* LEYMERIE). Zaradi nepopolnega prvega opisa brez potrebnih fotografij je prišlo v poznejši literaturi do precejšnje zmešnjave glede tipične vrste, kakor tudi glede sorodstva rodu *Complexastraea* z drugimi podobnimi rodovi. Koby (1885) je veliko vrst rodu *Complexastraea* uvrstil v rod *Confusastraea*. Nasprotno sta VAUGHAN in WELLS (1943) in WELLS (1956) rod *Confusastraea* prišela k rodu *Complexastraea*. GREGORY (1900) podaja primerjavo rodu *Complexastraea* s celo vrsto rodov, tako z *Montlivaltia*, *Thecosmilia*, *Isastraea*. Rod *Confusastraea* pa prištevajo k rodu *Isastraea*, enako GEYER (1954) in RONIEWICZ (1966). Zelo podoben rodu *Complexastraea* je tudi rod *Clausastraea*, ki se pa loči po konfluentnih skoraj tamnasterioidnih septih. Za dokončno revizijo vseh vrst, ki so bile pripisane temu ali onemu rodu, bi bilo potrebno pregledati ves originalni material.

WELLS prištevajo rod *Complexastraea* (1956, F 399) k družini Montlivaltiidae, prav tako GEYER (1954). ALLOITEAU (1952, 614) ga uvršča v novo družino Isastraeidae; RONIEWICZ to družino sicer priznava, toda rod *Complexastraea* uvršča v družino Montlivaltiidae. To uvrstitev sprejemam tudi sama, ker imajo primerki rodu *Complexastraea* velike tabulatne in upognjene disepimente in so tudi sicer s svojo septalno in tekalno zgradbo blizu rodovoma *Montlivaltia* in *Thecosmilia*, le da so cerioidne ali plokoidne kolonije.

Complexastraea lobata GEYER

Tab. 18, sl. 1—2

v 1965, *Complexastraea lobata* n. sp., GEYER, 237, Taf. 21, fig. 1—2

Opis: Okrogla masivna kolonija ima plokoidno meandrične koralite, ki so večcentrični in postavljeni v nizih ter povezani z enim ali dvema septoma dolin. Septa so zelo debela, subkonfluentna, mestoma konfluentna. Razvita so v treh ciklih in lateralno so nazobčana. Stene med koraliti ni, le septa so mestoma prekinjena ali upognjena. Centri koralitov so izraziti, ker je v aksialnem delu manj sept in manj tabul. Kolumele ni. Mikrostrukturo sestavljajo enostavni in sestavljeni trabekuli, ki so le ponekod ohranjeni.

Dimenzije:	Slovenija	GEYER
d	7—12 mm	10—20 mm
c—c	7—10 mm	—
s	ca 30—40	30—60 (20—40)
t	14—21/10 mm	—
s/mm	13—15/10 mm	13—15/10 mm

Primerjava: Naši primerki se ujemajo z Geyerjevimi po strukturi, le nekateri koraliti so nekoliko manjši. Vendar je tudi v španskem materialu velik razpon med posameznimi koraliti, tako da lahko še 3 mm manjše čaše vključimo v variacijsko širino iste vrste. Po deloma konfluentnih septih in nizih je ta vrsta prehodna oblika med rodovoma *Complexastraea* in *Clausastraea*.

Razširjenost: Ta vrsta je bila doslej znana samo iz kimmeridgija vzhodne Španije. Naša primerka, ki ju uvrščam v opisano vrsto, smo našli na Mrzovcu (1780/1) in južno od Kala nad Kanalom (1902/7, 8). Nahajališči sta iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Complexastraea seriata n. sp.

Tab. 19, 20

Derivatio nominis: čaše so v nizih ali serijah

Holotypus: vzorec P-245

Locus typicus: Mrzovec v Trnovskem gozdu

Stratum typicum: zgornji oksfordij in spodnji kimmeridgij

Material: tri dobro ohranjene kolonije s štirimi zbruski

Diagnoza: *Complexastraea* z enocentričnimi in večcentričnimi koraliti, ki so postavljeni v nizih. Septa so nekonfluentna in tanka. Premer koralita je 8–20 mm, s 40 do 55 septi.

Opis: Masivna subcerioidna kolonija ima tesne koralite. Presek enocentričnih koralitov je okrogel do ovalen. Nekateri koraliti po razmnoževanju ostanejo v istem nizu in so povezani s septi dolin. Septa so zelo tanka, v 4 ciklih, ravna in nosijo zobčaste okraske na lateralnih straneh. V aksialnem delu je okrogla foseta, brez kolumele, podobno kot pri rodu *Thecosmilia*. Septa med posameznimi koraliti ali serijami so nekonfluentna, stene med njimi ne opazimo, ker je verjetno prekristalizirana. V področju stene se septa ali upognejo ali pa enostavno prekinejo. Endoteka je iz številnih tabulatnih in daljših upognjenih disepimentov. Mikrostrukturo sestavljajo divergentne trabekule z lateralnimi odebelitvami, ki so pa le ponekod ohranjene (glej tab. 20, sl. 3–4).

Dimenzije: d 8–20 mm
c–c 12–16 (v istem nizu 8) mm
s ca. 40–55 (v odraslih koralitih)
s/mm 11/10 mm
t/mm 10/5 mm

Primerjava: Naša nova vrsta ustreza vsem značilnostim rodu *Complexastraea*. Septalni aparat je podobno zgrajen kakor pri rodu *Thecosmilia*, le kolonija je subcerioidna. Po dimenzijah je naša vrsta podobna vrsti *C. carinata* RONIEWICZ, toda od te se loči po serijah koralitov, ki po delitvi ostanejo skupaj v nizu. Po serijah je nova vrsta podobna vrsti *C. lobata* Geyer, ki pa ima konfluentna in subkonfluentna septa in mnogo debelejša septa.

Razširjenost: Primerki nove vrste so bili najdeni na Mrzovcu (P-245, P-257) in južno od Kala nad Kanalom (1974/10).

Genus: *Clausastraea* D'ORBIGNY 1850

Prvotni nepopolni d'Orbignyjev opis rodu (tipična vrsta je *C. tessellata*) je bil pozneje nekajkrat dopolnjen. Vso zgodovino, problematiko, opis in primerjavo je ponovno podal ALLOITEAU (1960, 3–8).

ALLOITEAU uvršča rod *Clausastraea* v novo družino Clausastraeidae, ki so jo sprejeli tudi ZLATARSKI (1967), MORYCOWA (1964), KRASNOV (1970), medtem ko RONIEWICZ (1966, 213) uvršča rod *Clausastraea* v družino Montlivaltiidae glede na podobno endoteko, kakršno imata rodova *Thecosmilia* in *Complexastraea*. Nasprotno pa VAUGHAN in WELLS rodu *Clausastraea* ne priznavata in ga uvrščata deloma v rod *Elysastraea*, deloma v rod *Favites*.

Rod *Elysastraea* LAUBE je iz triadnih skladov, *Favites* LINK pa iz terciarja in ju ne poznam. Pridružujem se mnenju sodobnih raziskovalcev jurskih koral, ki priznavajo rod *Clausastraea*. Po zgledu RONIEWICZ ga prištevam k družini Montlivaltiidae, ker kaže vse njene značilnosti, tako septalni aparat, mikrostrukturo, endoteko. Od drugih rodov te družine se loči po subtamnasterioidnih septih in zelo nepopolni steni.

Clausastraea confluens (QUENSTEDT)1852, *Astraea confluens*, QUENSTEDT, 649, Taf. 58, fig. 1v 1897, *Thamnastraea confluens* (QUENSTEDT), OGILVIE, 220–222, Pl. 9, fig. 1v 1955 a, *Systraea confluens* (QUENSTEDT), GEYER, 207, Taf. 24, fig. 21964, *Clausastraea confluens* (QUENSTEDT), MORYCOWA, 498–499, Pl. 23, fig. 1–2

Opis: Kolonija je masivna, subtamnasterioidna. Čaše so okroglaste in ponekod v vrstah ali nizih. Septa so kompaktna, ravna in konfluentna. Razporejena so v več ciklov, ki se od koralita do koralita spreminjajo. Endoteka je iz številnih tabulatnih in dolgih upognjenih disepimentov. Kolumele in stene ni. Razmnoževanje je ekstrakalikalno.

Dimenzije:	Slovenija	MORYCOWA
c–c	6–15 mm	6,5–16 mm
s	15–28	17–22 (26)
s/mm	6/5 mm	—
dis/mm	8–12/5 mm	7–10/5 mm

Primerjava: Struktura naših primerkov povsem ustreza opisom MORYCOWE, le v naših koralitih je praviloma nekoliko več sept. Toda OGILVIE pri tej vrsti navaja kar 32 do 40 sept. Potemtakem je število sept različno. GEYER je vrsto prištel k rodu *Systraea*, ker pa naši primerki nimajo sinaptikulov in nobene aksialne strukture, jih uvrščam, podobno kot MORYCOWA, v rod *Clausastraea*. Tudi v rod *Thamnasteria* ta vrsta ne sodi, ker nima kolumele, pač pa ima bogato faviidno endoteko.

Razširjenost: Doslej je bila opisana vrsta znana iz titona Češke in Poljske ter kimmeridgija Nemčije. Naša primerka (7826/1 C in 7826/2 B) sta bila najdena južno od Kala nad Kanalom na Banjski planoti v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Familia: Isastraeidae ALLOITEAU 1952

Genus: *Isastraea* MILNE-EDWARDS et HAIME 1851

Rod *Isastraea* sta postavila MILNE-EDWARDS in HAIME na podlagi vrste *Astraea helianthoides* GOLDFUSS. Sledili so številni opisi tega rodu. Najpopolnejši je PELETIERJEV (1950, 1951), ki je ponovno preučil originalni material iz Goldfussove zbirke.

Glede sistematske uvrstitve rodu *Isastraea* vlada med strokovnjaki precej deljena mnenje. Omenila bom le novejša sisteme. VAUGHAN in WELLS (1943) in WELLS (1956) ga pripisujeta družini Calamophyllidae podreda Fungiida. Zaradi kompaktnih sept ga je ALLOITEAU (1952) uvrstil v podred Faviida, kjer je postavil novo družino Isastraeidae. Ta sistem sta sprejeli tudi BEAUVAIS (1964) in RONIEWICZ (1966). GEYER (1954) in BENDUKIDZE (1962) pa ne priznavata družine Isastraeidae in rod *Isastraea* uvrščata v družino Montlivaltiidae.

Podobno kot Cyathophoridae in Stylinidae se tudi družini Montlivaltiidae in Isastraeidae ločita po drugačnem tipu endoteke. Isastraeidae ima vezikularno endoteko, poleg tega pri njej mestoma nastopajo sinaptikuli. Ima pa tudi aksialno strukturo, ki je pri predstavnikih družine Montlivaltiidae ne opazimo. Zaradi tega se mi zdi povsem utemeljen obstoj družine Isastraeidae, ki ji prištevam rod *Isastraea*.

Isastraea helianthoides (GOLDFUSS)

Tab. 21, sl. 1–2

1826, *Astraea helianthoides* GOLDFUSS, GOLDFUSS, 65, Taf. 22, fig. 4 a1950, *Isastraea helianthoides* (GOLDFUSS), PELLETIER, 160–162, Textfig. 1v 1954, *Isastraea helianthoides* (GOLDFUSS), GEYER, 184–185, Taf. 15, fig. 4v 1966, *Isastraea helianthoides* (GOLDFUSS), RONIEWICZ, 216–217, Pl. 13, fig. 1, Pl. 15, fig. 3, 4, Textfig. 111970, *Isastraea helianthoides* (GOLDFUSS), BABAEV, 87, Tabela 2

Opis: Vrsto *Isastraea helianthoides* omenjajo, razen v sinonimiki navedenih avtorjev, še številni drugi raziskovalci, tako BECKER in MILASCHEWITSCH (1867, 164), KOPY (1885, 282), SOLOMKO (1888, 168), BEAUVAIS (1964, 164) in drugi. Vsa sinonimika je navedena pri RONEWICZEVI.

Za vrsto je značilna masivna cerioidna kolonija, ki ima zelo neenakomerne koralite tako po dimenzijah kakor tudi po obliki. Ti so okrogli, ovalni, poligonalni ali podolgovati. Septa so ravna, v neenakomernih ciklih. So kompaktna z enostavnimi in sestavljenimi trabekulami, ki so redko ohranjene. Prvi cikel sept gre skoraj do sredine koralita, kjer se s podaljški ali aksialnimi okraski spojijo v parietalno kolumelo. Včasih sta samo po dva nasprotna septa spojena in potem nastane nekaka lamelarna kolumela. Naslednji cikli sept so krajši, na distalnem robu večinoma bifurkirajo. Razmnoževanje je intrakalikalno. Novi koraliti nastajajo v podolgovati smeri ali pa na treh straneh matičnega koralita. Stena je paratekalna in septotekalna, nastala iz disepimentov ali mestoma zaradi združitve sept ob bifurkacijah. Tekalni pas je pri našem materialu mestoma zelo prekristaliziran in se zaradi tega med koraliti kažejo praznine. Endoteka sestoji iz številnih vezikularnih ter dolgih tankih disepimentov.

Dimenzije:	Slovenija	RONEWICZ	GEYER
d	5—10 mm	5—9 mm	5—8 mm
c—c	6—9 mm	7—9 mm	—
s	30—35	30—54	40—50
dis/mm	14/5 mm	11—13/5 mm	14—15/5 mm

Primerjava: Naši primerki ustrezajo po svojih značilnostih vsem opisom in dimenzijam imenovane vrste. Omeniti moram še podobnost s primerki vrste *Isastraea oblonga*, ki jih je RONEWICZ na podlagi stene uvrstila v rod *Pseudodiplocoenia* (RONEWICZ, 1970, 527—530). Tudi v naših primerkih je med koraliti mestoma praznina, ki je videti kot brazda, vendar je večinoma ohranjena septoparatekalna stena, kar dokazuje, da so praznine nastale zaradi prekristalizacije. Zato sem naše primerke uvrstila v rod *Isastraea*.

Razširjenost: Ta vrsta je bila doslej znana iz zgornjega oksfordija Poljske, kimmeridgija Nemčije, rauracija in séquanija Švice, zgornjega oksfordija in kimmeridgija Kavkaza, Gruzije in Krima. Naš primerek (P-292) je našel BUSER na Colu v Trnovskem gozdu v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Familia: Placocaeniidae ALLOITEAU 1952

Genus: *Columnocoenia* ALLOITEAU 1952

Rod je postavil ALLOITEAU na podlagi tipične vrste *C. lamberti* iz zgornjega santonija Francije. Leta 1957 (134—135) je objavil točno diagnozo in opis rodu ter ga uvrstil v družino Placocaeniidae. Pozneje je BEAUVAIS (1964, 172—176) opisala več vrst tega rodu iz jurskih skladov Francije. Na podlagi sinaptikul in palilobnih podaljškov je v ta rod uvrstila nekatere primerke, ki jih je FROMENTEL štel k rodu *Stylina*, tako vrste *C. grandiflora*, *C. alveolata*, *C. sulcata* in druge, pa tudi *Heliastrea lifolensis* KOPY (1885, 174). MORYCOWA (1971, 95—98) je opisala vrsto rodu *Columnocoenia* iz albijskih skladov Poljske. Tako poznamo danes vrste tega rodu od zgornje jure do zgornje krede.

Po kostatni steni ta rod močno spominja na nekatere vrste rodu *Pseudocoenia*, od katerega se loči po aksialni lobiformni strukturi in spongiozni kolumeli. Veliki koraliti z močno razvito endoteko in sinaptikuli ga ločijo celo od podreda Stylinida in ga vključujejo v podred Faviida, družino Placocaeniidae.

Columnocoenia jurassica n. sp.

Tab. 22, 23

Derivatio nominis: ime dajem po jurskih skladih, v katerih je najdena

Holotypus: vzorec P-484

Locus typicus: Selovec v Trnovskem gozdu

Stratum typicum: zgornji oksfordij in spodnji kimmeridgij

Material: zelo dobro ohranjena kolonija z dvema zbruskoma

Diagnoza: *Columnocoenia* z dekamernim sistemom sept (20), s premerom koralita 4 mm in razdaljo med čašami 5—6 mm.

Opis: Plokoidna masivna kolonija ima dolge vzporedne koralite. Brstenje je ekstratentakularno in peritekalno. Čaše so okrogle. Septa so v dekamernem sistemu, v dveh ciklih. Septa prvega cikla gredo daleč v sredino koralita, septa drugega cikla pa so več kot za polovico krajša. Notranji rob dolgih sept je močno nazobčan. Trabekularni podaljški sept tvorijo parietalno kolumelo. Lateralni rob sept nosi zrna. Septa so kostatna, kompaktna, le v aksialnem delu imajo mestoma velike pore. Stena je septoparatekalna z redkimi sinaptikuli. Endoteka je tabulovezikularna, eksoteka pa iz velikih upognjenih disepimentov. Koste niso konfluentne. Mikrostruktura je slabo ohranjena, le mestoma vidimo divergentne trabekule.

Dimenzije:	d	4 mm
	c—c	5—6 mm
	s	20 (10 + 10)
	dis/mm	6—8/5 mm
	t/mm	7—9/5 mm

Primerjava: Edina doslej znana vrsta rodu *Columnocoenia* z dekamernim sistemom sept *C. lamberti* iz santonija Francije ima premer čaš 6—8,5 mm. Po dimenzijah se naša nova vrsta zelo ujema z vrsto *Pseudocoenia maxima* RONEWICZ, od katere pa se loči po že prej omenjenih aksialnih trabekulah in sinaptikulah.

Razširjenost: Naš primerek P-484 je bil najden na Selovcu v Trnovskem gozdu v skladih spodnjega malma.

Familia: (?) Placosmiliidae ALLOITEAU 1952

Genus: *Placophyllia* D'ORBIGNY 1848

Rod je postavil D'ORBIGNY na podlagi vrste *Lithodendron dianthus* GOLDFUSS. Pozneje so opis dopolnjevali razni avtorji.

OGILVIE (1897) je rod *Placophyllia* prištel k rodu *Stylosmilia*, nekateri poznejši raziskovalci pa so ga zopet priznali. ALLOITEAU (1957, 361) pravi, da se *Placophyllia* loči od *Stylosmilia* po cirkumkalikalnem parietalnem razmnoževanju (*Stylosmilia* se razmnožuje lateralno), stena pa je brez kost. Bolj kot na *Stylosmilia* spominja ta rod na *Donacosmilia*. Vendar se *Donacosmilia* loči, ker ima pravi podaljšani glavni septum in obrobne žepaste zarodke, kar ga uvršča v družino Amphistraeidae.

Rod *Placophyllia* je bil uvrščen že v najrazličnejše družine prav zaradi podobnosti z omenjenimi rodovi. MILNE-EDWARDS in HAIME ga dajeta v družino Stylinidae, VAUGHAN in WELLS (1943) ga pripisujeta družini Amphistraeidae, prav tako GEYER (1954, 1955 a, b). RONEWICZ pa ga uvršča v družino Placosmiliidae, podred Faviida. Uvrstitvi k podredu Faviida se tudi sama pridružujem, ker ta rod nima glavnega podaljšanega septuma in

značilnega žepastega brstenja amfiastreid niti stilinidne mikrostrukture in endoteke, pač pa je endoteka favidna. Uvrstitev k družini Placosmilidae za zdaj povzemam po ALLOITEAUJU in RONIEWICZEVI. O upravičeni pripadnosti k tej družini ne morem za zdaj soditi, ker imam na voljo samo eno vrsto.

Placophyllia rugosa BECKER

Tab. 24, sl. 1—2

- v 1876, *Placophyllia rugosa* BECKER, BECKER et MILASCHEWITSCH, 140—141, Taf. 3, fig. 9
v 1897, *Stylosmilia rugosa* BECKER, OGILVIE, 117—118, Pl. 15, fig. 4—5
1912, *Placophyllia rugosa* BECKER, SPEYER, 203—204, Pl. 21, fig. 2
v 1954, *Placophyllia rugosa* BECKER, GEYER, 193—194, Taf. 16, fig. 3
v 1955 a, *Pleurophyllia rugosa* (BECKER), GEYER, 193
v 1966, *Placophyllia rugosa* BECKER, RONIEWICZ, 220—221, Pl. 12, fig. 1, Textfig. 12

Opis: Faceloidno dendroidna kolonija ima okrogle, dolge vzporedne koralite. Septa so kompaktna, razvita v najmanj treh ciklih. Dvanajst sept pride do sredine koralita, kjer se nekatera spojijo s parietalno kolumelo in tvorijo močno aksialno strukturo. Septa naslednjih ciklov so krajša, njih dolžina ni stalna. Endoteka je močno razvita iz velikih tabulatih in upognjenih disepimentov. Stena je paratekalna, mestoma tudi septotekalna. Mikrostruktura skeletnih elementov kaže enostavne trabekule z odebelitvami ali redkimi sklerodermi, vendar je slabo ohranjena.

Dimenzije:	Slovenija	RONIEWICZ	BECKER
d	4—8 mm	5—6,5 mm	7—8 mm
s	12 + 12 + S	24—28	24—29

Primerjava: Naši primerki imajo zelo različne premere koralitov, po primerjalni tabeli dimenzij pa vidimo, da ne presegajo velikosti, ki jih ugotavljata BECKER in RONIEWICZ. Po poteku sept ta vrsta spominja na vrsto *Donacosmilia etalloni*, toda zadnja ima obrobne žepaste zajedke in bilateralno simetrijo.

Razširjenost: Primerki te vrste so bili doslej znani iz skladov zgornjega oksfordija Poljske, kimmeridgija Nemčije in titonija Češke. Naši vzorci, ki pripadajo tej vrsti, so bili najdeni blizu vasi Sela pri Gabru (P-338), v Biču pri Gabru (P-323, P-332), na Ojstrovci (P-438) in na Mrzovcu (P-472, P-476, P-478). Vsa nahajališča so v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Familia: Axosmiliidae GEYER 1955 a

Družino Axosmiliidae je postavil GEYER (1955) in ji prištel rod *Axosmilia*, ki je spadal prej k družini Amphistraeidae. Svojo novo družino loči od ostalih amfiastreid po paratekalni steni in načinu razmnoževanja. *Axosmilia* nima žepastih zajedkov, ampak segajo septa do stene. Po teh razlikah je GEYER upravičeno postavil novo družino. Še več, menim, da spada družina Axosmiliidae celo v drug podred, v podred Faviida. Način razmnoževanja, stena in endoteka so namreč tipično favidni. Lamelarna kolumela, ki daje koralitu bilateralni videz, pa kaže le na sorodnost s skupino amfiastreid.

Genus: *Axosmilia* MILNE-EDWARDS et HAIME 1848

Rod *Axosmilia* sta postavila MILNE-EDWARDS in HAIME na podlagi vrste *Caryophyllia excinctorum* MICHELIN. Z nekaterimi podobnimi rodovi kot so *Placosmilia* MILNE-EDWARDS in HAIME (1848), *Pleurosmilia* FROMENTEL (1856), *Plesiosmilia* BECKER et MILASCHEWITSCH

(1876) je rod *Axosmilia* doživljal razne revizije (glej OGILVIE, 1897, 137, GREGORY, 1900, 74). VAUGHAN in WELLS sta rodu *Axosmilia* priključila rodova *Pleurosmilia*, *Blastosmilia* in druge (1943, 232), GEYER (1955 a, 191) pa mu pripisuje še rod *Plesiosmilia*, ker meni, da so značilnosti, kot so dolžina kolumele in okrasitve sept, nezadostni kriteriji za ločitev rodov.

Vseh revizij ne morem presoati, ker nimam na voljo originalnega materiala. Menim pa, da je GEYER upravičeno združil omenjene rodove. Ugotovil je namreč, da se dolžina kolumele, po kateri naj bi se ločil rod *Plesiosmilia* od rodu *Axosmilia*, spreminja že pri istem koralumu, zato rod *Plesiosmilia* ne more veljati za samostojnega. Prav tako je ornamentacija sept, po kateri naj bi se rod *Pleurosmilia* ločil od *Axosmilia*, odvisna od ohranjenosti fosila. Tudi na našem primerku rodu *Axosmilia* opazimo zobčke le na nekaterih septih. Zato okrasitve ne morejo biti zanesljiv kriterij za ločevanje rodov, in je bolje, da postane rod *Pleurosmilia* sinonim rodu *Axosmilia*.

O uvrstitvi rodu *Axosmilia* v sistem sem pisala že pri družini Axosmiliidae.

Axosmilia marcou (ÉTALLON)

Tab. 21, sl. 3

- 1859, *Pleurosmilia marcou*, ÉTALLON, 52
v 1897, *Pleurosmilia marcou* ÉTALLON, OGILVIE, 139, Taf. 13, fig. 12
1880, *Pleurosmilia marcou* ÉTALLON, Koby, 38—39, Pl. 14, fig. 5
v 1876, *Pleurosmilia valida*, BECKER et MILASCHEWITSCH, 137
v 1954, *Axosmilia marcou* (ÉTALLON), GEYER, 195, Taf. 16, fig. 5
v 1955 a, *Axosmilia marcou* (ÉTALLON), GEYER 191

Opis: Solitarna turbinatna korala ima elipsasto čašo. Septa so ravna, kompaktna, z redko ohranjenimi zobčki na lateralnih robovih. Septa so razvita v 4 do 5 ciklih. Lamelarna kolumela se spaja z nekaterimi aksialnimi robovi najdaljših sept, nekatera septa pa se ob njej upognejo. Septa naslednjih ciklov so vedno krajša in tanjša. Endoteka je iz tankih tabulatih in dolgih disepimentov. Stena je paratekalna. Mikrostruktura v našem primerku ni ohranjena.

Dimenzije:	Slovenija	GEYER	KOBY	OGILVIE
d	ca. 30 mm	—	28—32 mm	27—30 mm
s	50—60	50—80	—	—
dis/mm	4—5/5 mm	—	—	—

Primerjava: Po dimenzijah koralitov in številu sept naš primerek ustreza vrsti *A. marcou*. Vsem tem lastnostim ustreza tudi vrsta *Pleurosmilia valida* BECKER, ki jo je GEYER po preučitvi originalnega materiala upravičeno prištel opisani vrsti.

Razširjenost: Ta vrsta je bila doslej znana iz oksfordija in kimmeridgija Francije in Švice, kimmeridgija Nemčije, titonija Češke. Naš primerek P-460 sem našla na Mrzovcu v Trnovskem gozdu v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Subordo: Amphistraeida ALLOITEAU 1952

Familia: Amphistraeidae OGILVIE 1897

Genus: *Amphistraea* ÉTALLON 1859

Rod *Amphistraea* je postavil ÉTALLON, vendar brez zadostnega opisa. Popolnejši opis je podal Koby (1888, 432), nato OGILVIE (1897, 104—105) in ALLOITEAU (1957, 353—357), posamezne vrste pa so dobro opisali še nekateri drugi raziskovalci.

Rodu *Amphistraea* je WELLS (1956, F 397), med drugim, priključil tudi rod *Connectastra*, ki ga ALLOITEAU (1957) in BEAUVAIS (1964) ponovno uvajata. Sama sem mnenja, podobno kot WELLS, da je sinonim rodu *Amphistraea*, vsaj kar zadeva vrsto *A. piriformis*, kar bom natančneje razložila pri opisu vrste.

Amphistraea basaltiformis ÉTALLON

Tab. 24, sl. 3—4

1859, *Amphistraea basaltiformis*, ÉTALLON, n. v.
1888, *Amphistraea basaltiformis* ÉTALLON, Koby, 433—434, Pl. 115, fig. 1—2
1888, *Amphistraea gracilis* Koby, Koby, 434, Pl. 115, fig. 3
v 1897, *Amphistraea gracilis* Koby, OGILVIE, 105—106, Taf. 12, fig. 17—18
v 1955 a, *Amphistraea basaltiformis* ÉTALLON, GEYER, 187—188, Taf. 24, fig. 6—7
1964, *Amphistraea basaltiformis* Koby (non ÉTALLON), BEAUVAIS, 200—201, Pl. 22, fig. 1
1964, *Amphistraea basaltiformis* Koby, non ÉTALLON, MORYCOWA, 500—502, Pl. 22, fig. 1 a—c.

Opis: Kolonija je masivna, cerioidna. Koraliti so v preseku prizmatični, na večje razdalje vzporedni, vmes pa se koničasto vrivajo mlajši koraliti. Septalni aparat je bilateralen in nepravilen. Glavni septum je nekoliko večji od drugih. Septa so v dveh ciklih, od katerih je prvi dolg, drugi pa je razvit slabše in neenakomerno. Poleg prave kostatne stene imajo koraliti tudi notranjo steno ali disepimentalni obroč. Ponekod segajo septa do stene, druge se ob robovih tvorijo žepasti mešički z novimi zarodki, ki se kmalu odcepijo v samostojne osebkke. V isti koloniji opazimo tudi delitev vzdolž sept na dva ali več osebkov. Endoteka je iz številnih tabulatnih in vezikularnih disepimentov.

Dimenzije:	Slovenija	Koby <i>A. basalt.</i>	Koby <i>A. grac.</i>	BEAUVAIS	MORYCOWA
d	4—7 mm	5—10 mm	3—6 mm	7—11 mm	5,5—8,5 mm
c—c	4—5 mm	—	—	—	—
s	16—20	12—32	—	30—40	12—24 (32)
c/mm	16—17/5 mm	14/5 mm	12—14/3 mm	14—15/5 mm	14—16/5 mm

Primerjava: Vrsto *A. basaltiformis* je imenoval ÉTALLON brez fotografije in natančnega opisa. Dobro jo je opisal Koby (1888, 433). Poleg te je postavil še vrsto *A. gracilis*, za katero sam pravi, da je podobna vrsti *A. basaltiformis*, le da ima finejše koste. OGILVIE je na podlagi dobro ohranjenega materiala iz Češke opisala vrsto *A. gracilis*, vendar meni, da je vrsta *A. gracilis* tako blizu vrsti *A. basaltiformis*, da bi bila lahko njen sinonim. Njeno domnevo so potrdili nekateri poznejši raziskovalci, in vrsti združili (VAUGHAN in WELLS, 1943, GEYER, 1955 a). Nasprotno pa je BEAUVAIS (1964) vrsti zopet ločila, toda tako da je originalni Étallonov holotip *A. basaltiformis* priključila k vrsti *A. gracilis* Koby, kot samostojno pa je imenovala vrsto *A. basaltiformis* Koby (non ÉTALLON). Tako imenovanje ni v skladu z nomenklaturnimi pravili. Toda, ne glede na pravila, menim, da sta obe vrsti sinonima. Tudi naši primerki namreč jasno kažejo, da lahko različne debeline kost najdemo na enem primerku. Gostota kost in velikost koralitov pa je nadalje pri naših primerkih taka, da kaže prav prehod med obema imenovanima vrstama.

Razširjenost: Doslej je bila znana iz zgornjega oksfordija in spodnjega kimmeridgija Francije in Švice, titonija Štramberka in Karpatov na Poljskem ter iz zgornje jure Italije. Naša primerka sta P-277 iz vseka pri odcepu od avtoceste proti Novemu mestu in P-259 z Mrzovca. Obe nahajališči sta iz spodnjega malma.

Amphistraea piriformis GREGORY

Tab. 25, sl. 1—2

1900, *Amphistraea piriformis* nov., GREGORY, 71—72, Pl. 14, fig. 14, Pl. 15, fig. 1—2
1904, *Connectastrea piriformis* (GREGORY), Koby, 68, Pl. 29, fig. 5
1955 b, *Amphistraea piriformis* GREGORY, GEYER, 326 (s sinonimiko)
1966, *Connectastrea piriformis* (GREGORY), BEAUVAIS, 20—21, Pl. 2, fig. 2

Opis: Masivna cerioidna kolonija sestoji iz močno stisnjenih vzporednih poligonalnih koralitov. V prečnem preseku so različnih nepravilnih oblik, pri razmnoževanju pa se še bolj nepravilno dele. Septalni aparat je bilateralen. Septa ločimo v tri cikle. Glavni septum je nekoliko močnejši od drugih sept. Septa zadnjega cikla pa so koste v steni. Endoteka je iz disepimentov, ki mestoma tvorijo notranjo steno ali »disepimentalni obroč«. Prava stena je debela, nastala iz dvojnih disepimentalnih obročev ali pa iz odebelitve in spojitve kost.

Dimenzije:	Slovenija	GREGORY	BEAUVAIS
d	2—6 mm	3—5 mm	2—2,5 mm
c—c	2—4 mm	—	2—4 mm
s	ca. 24	—	24—28

Primerjava: Koby je leta 1904 postavil nov rod *Connectastra*, h kateremu je priključil tudi Gregoryjevo vrsto *Amphistraea piriformis*. Rod *Connectastra* loči od rodu *Amphistraea* po naslednjem: 1. nima kolumelarnih sept, 2. koraliti so povezani direktno s skupno steno, 3. ima parietalno kolumelo in 4. septa so na distalnem robu nazobčana. VAUGHAN in WELLS (1943) rodu *Connectastra* nista priznala, ampak sta ga priključila k rodu *Amphistraea*, prav tako GEYER (1955 b, 326), ki je ponovno preučil portugalski Kobyjev material in med *Connectastra* in *Amphistraea* ni našel nobene bistvene razlike. K vrsti *A. piriformis* je priključil tudi Kobyjevi vrsti *Connectastra gregoryi* in *C. ogilviae*. Nasprotno pa je ALLOITEAU (1957, 366—367) ponovno priznal rod *Connectastra*, prav tako BEAUVAIS (1966, 20—21). Od vseh omenjenih razlik se ALLOITEAUJU zdi najpomembnejša ornamentacija sept. Toda če pogledamo opis rodu *Amphistraea* pri OGILVIE (1897, 104), vidimo, da je že ona ugotovila »Am Kelchrand sind ausserdem eine grosse Anzahl ganz kurzer und gleichmässig starker, feiner Septaldornen vorhanden«. In na strani 105 nadalje pravi: »Diese Septaldornen, die dann scheinbar unter der sogenannten Epithek liegen, nennen ÉTALLON und Koby Costen«. Torej vidimo, da gre za iste strukturne elemente, ki so različno poimenovani. Koste so vidne pri obeh rodovih. Tudi dvojna stena je mestoma ohranjena pri primerkih obeh rodov. Aksialna struktura, ki daje ponekod videz parietalne kolumele, pa je le posledica prekrizalizacije disepimentov, ki potekajo čez aksialni del. Zato se strinjam z GEYERJEM, da je treba vrsto *Connectastra piriformis* priključiti rodu *Amphistraea*. Na naših primerkih se zdi stena mestoma dvojna, drugje na istem koralitu enojna, kolumele ni, distalni rob sept pa je nazobčan ali kostaten. Torej vidimo značilnosti obeh rodov na isti koloniji.

Razširjenost: Doslej je bila ta vrsta znana iz kallovija in spodnjega oksfordija Indije, séquanija in kimmeridgija Portugalske. Naša primerka P-309 in P-317 sta iz Ivanje vasi pri Mirni peči. Skladi s koralnimi najdbami so spodnjemalmske starosti.

Genus: *Schizosmilia* Koby 1888

V rod *Schizosmilia* (tipična vrsta *S. excelsa*) je uvrstil Koby dendroidne-faceloidne kolonije, ki se razmnožujejo z delitvijo (fissiparité) vzdolž glavnega podaljšanega septuma. Nekateri raziskovalci (ALLOITEAU 1952, 643) ta rod uvrščajo v družino Mitrodendronidae,

MORYCOWA pa ga uvršča v družino Amphistraeidae (MORYCOWA, 1971, 100). Po načinu razmnoževanja je ta rod res bliže rodu *Amphistraea*, kjer tudi opazimo delitev koralitov, zato rod *Schizosmilia* tudi sama uvrščam v družino Amphistraeidae. Po načinu razmnoževanja se ta rod loči od rodov *Donacosmilia*, *Placophyllia*, *Pleurophyllia* in *Stylosmilia*, katerim je podoben po septalni strukturi.

Schizosmilia rollieri Koby

Tab. 25, sl. 3—4

1888, *Schizosmilia rollieri* Koby, Koby, 436—437, Pl. 114, fig. 4

Opis: Faceloidno-dendroidna kolonija ima goste vzporedne koralite, ki so v preseku večinoma ovalni, včasih okrogli. Septa so gosta, številna, včasih malo ukrivljena. Glavni septum je nekoliko močnejši. Vzporeden je s krajšo osjo čaše in le malenkost debelejši od drugih sept. Septalni aparat je v dveh do treh ciklih. Stena je septotekalna, mestoma paratekalna. Endoteka je disepimentalna, dobro razvita. Kost ni videti. V aksialnem delu koralita je ponekod črvasta struktura, ki jo sestavljajo podaljški sept, v nekaterih koralitih pa je aksialni prostor prazen. Mikrostruktura ni ohranjena.

Dimenzije:	Slovenija	Koby
d	2—3 mm	2,5—3 mm
s	24 + S 3	24

Primerjava: Naši primerki ustrezajo po strukturi in dimenzijah Kobyjevi vrsti. Po septalnem aparatu jo Koby sam primerja z vrsto *Stylosmilia michelini*, od katere pa se loči po načinu razmnoževanja, glavnem septumu in gostejših koralitih.

Razširjenost: Ta vrsta je znana do zdaj samo iz astartija Švice. Naša primerka sta P-339 iz Šumberka pri Gabru in P-475 iz Mrzovca. Obe nahajališči sta spodnjemalske starosti.

Familia: Mitrodendronidae ALLOITEAU 1952

Družino Mitrodendronidae je postavil ALLOITEAU (1952, 643). Od družine Amphistraeidae jo loči po tem, da v koralitih nastajajo žepasti disepimentalni mešički (Taschenknospung), ki so zarodki novih koralitov. Novi osebki ostanejo po razmnoževanju še dolgo časa v matičnem koralitu. Družino Mitrodendronidae priznavam, ker je tak način razmnoževanja poseben in se loči od fiziparne delitve pri družini Amphistraeidae.

Genus: *Mitrodendron* QUENSTEDT 1880

Tipična vrsta tega rodu je *Lithodendron mitratum*, ki jo je QUENSTEDT sam preimenoval v *Mitrodendron*. Podrobnejše opise rodu in posameznih vrst najdemo še pri GEYERJU (1954, 198), RONIEWICZ (1966, 225) in seveda pri OGILVIE (1897, 107), ker je njen rod *Aulastraea* bil revidiran v *Mitrodendron*. Z vrsto *Aulastraea schäferi* so doslej znane samo tri vrste rodu *Mitrodendron*.

Mitrodendron ogilvie GEYER

Tab. 25, sl. 5; tab. 26, sl. 1—3

v 1955 a, *Mitrodendron ogilvie* n. sp., Geyer, 188, Taf. 22, fig. 1, Taf. 26, fig. 7
v 1966, *Mitrodendron ogilvie* Geyer, Roniewicz, 225—227, Pl. 16, fig. 2, Textfig. 15

Opis: Kolonija je faceloidna, z okroglastimi vzporednimi koraliti. Stena je septotekalna, kostatna. V čašah je viden glavni podaljšani septum, ki je tudi precej debelejši od ostalih sept. Zaradi tega ima ves septalni aparat bilateralno simetrijo. Na notranjem robu koralitne stene so

večji ali manjši žepki, ki jih omejujejo velike disepimentalne prečke. V teh žepkih nastajajo novi zarodki, ki jih po več ostane dolgo časa v matičnem koralitu. Sčasoma se obdajo s svojo steno in se oddelijo. Glede na stadij razvoja so lahko najrazličnejših oblik. V enem koralitu lahko dobimo 3, 4 ali celo 6 zarodkov in mladih koralitov. Endoteka je v aksialnem delu tabulatna, v perifernem pa so veliki disepimenti. Kolumele ni, le glavni septum je podaljšan čez sredo koralita.

Dimenzije:	Slovenija	GEYER	RONIEWICZ
d	6—16 mm	8—12 mm	7—11 mm
s	22—26	18—25	22—32 (36)
c/mm	5—6/2 mm		

Primerjava: To vrsto loči GEYER od *M. mitratum* po daljših septih in številnejših žepastih mešičkih. Od *M. schäferi* se loči po redkejših disepimentih v periferni endoteki. Roniewicz primerja to vrsto z vrsto *Pleurophyllia trichotoma*, od katere jo prav tako loči po endotekalni strukturi. Naši primerki po strukturi in dimenzijah ustrezajo dosedanjim opisom vrste.

Razširjenost: *M. ogilvie* je doslej znana iz titonija Češke in zgornjega oksfordija Poljske. Naši številni primerki so iz Ivanje vasi pri Mirni peči (P-308, P-311, P-319, P-320), iz Sel pri Gabru (P-340), iz Babne gore pri Gabru (P-345) in iz Mrzovca (P-464, P-470). Vsa omenjena nahajališča so iz skladov zgornjega oksfordija in spodnjega kimmeridija.

Genus: *Donacosmilia* FROMENTEL 1861

Rod *Donacosmilia* je postavil FROMENTEL na podlagi tipične vrste *D. corallina*. Lepe fotografije holotipa in primerjavo rodu *Donacosmilia* v skupini amfiastreid je podal ALLOITEAU (1957, 365—366). Originalno tipično vrsto je ponovno preučila in jo sodobno opisala BEAUVAIS (1964, 203). To je rod družine Mitrodendronidae, ki po endoteki in razmnoževanju že kaže povezavo s faviidami, predvsem z rodом *Placophyllia*.

Donacosmilia corallina FROMENTEL

Tab. 27, sl. 1

1861, *Donacosmilia corallina*, FROMENTEL, 146

1957, *Donacosmilia corallina* FROMENTEL, ALLOITEAU, 365—366, Pl. 14, fig. 4, Pl. 15, fig. 8, Pl. 17, fig. 2

1964, *Donacosmilia corallina* FROMENTEL, BEAUVAIS, 203

Opis: Velika kolonija je faceloidna, z okroglastimi vzporednimi koraliti. Septa so kompaktna, z glavnim nekoliko podaljšanim in odebeljenim septom, so bilateralno simetrična. Endoteka sestoji iz tabulatnih in dolgih disepimentov. Kolumele ni. Stena je septotekalna in paratekalna. Razmnoževanje je obrobno, na notranji strani stene opazimo žepaste mešičke, v katerih se kažejo zametki sept novega zarodka, vendar manjši kot pri *Mitrodendron*. Mikrostruktura sestoji iz majhnih sklerodermitev, centri kalcifikacije tvorijo temno linijo v elementovi sredi.

Dimenzije:	Slovenija	BEAUVAIS
d	9—18 mm	10—15 mm
c—c	10—15 mm	12—20 mm
s	26—30	25—45

Primerjava: Na naših primerkih sem dobila vse strukturne značilnosti in ustrezajoče dimenzije vrste *D. corallina*. Ta vrsta je podobna vrsti *Pleurophyllia dichotoma*, ki pa ima v aksialnem delu spojena septa.

Razširjenost: Vrsta je do zdaj bila znana iz zgornjega oksfordija Francije. Naši primerki so bili najdeni v Ivanji vasi (P-315, P-322), v Mačkovcu (P-271), v Kalu nad Kanalom (1902/8) in v vasi Plave (3733/B 8). Vsa nahajališča so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Donacosmilia etalloni (Koby)

Tab. 27, sl. 2—3

1888, *Pseudothecosmilia etalloni* Koby, Koby, 428—429, Pl. 114, fig. 1—2
v 1897, *Pseudothecosmilia etalloni* Koby, OGILVIE, 112, Taf. 12, fig. 23
v 1955 a, *Donacosmilia etalloni* (Koby), GEYER, 190

Opis: Kolonija je podobna prejšnji vrsti. Septa so močna in v treh cikli. Prvi cikel pride do sredine, kjer se septa poredkoma stikajo. Glavni septum je nekoliko daljši od ostalih sept. Tako je septalni aparat bilateralen, vendar manj kot pri rodu *Mitrodendron*. Stena je septotekalna in paratekalna. Ob steni so pogostni žepasti mešički, v katerih nastajajo novi koraliti. Endoteka je iz tabulatnih in dolgih upognjenih disepimentov. Mikrostruktura je slabo ohranjena, mestoma pa vidimo enojne in dvojne trabekule s temno linijo, ki je segmentirana.

Dimenzije:	Slovenija	Koby	OGILVIE
d	10—13 mm	10—15 mm	10—14 mm
s	29—33	30—40	32
t/mm	7—10/5 mm		

Primerjava: Vrsto je Koby uvrstil v svoj novi rod *Pseudothecosmilia*, prav tako OGILVIE. VAUGHAN in WELLS (1943) sta rod *Pseudothecosmilia* revidirala in ga pridružila rodu *Donacosmilia*. GEYER je zato vrsto imenoval *Donacosmilia etalloni*. ALLOTEAU (1957, 365) je rod *Pseudothecosmilia* ponovno priznal. Tudi BEAUVAIS (1964, 203) poudarja, da se pri rodu *Pseudothecosmilia* septa v sredi koralita spajajo, pri *Donacosmilia* pa ne. Na naših primerkih jasno vidimo, da je združevanje sept odvisno od ohranjenosti oziroma prekrystalizacije in je od koralita do koralita v isti koloniji različno. Zato vrsto tudi sama uvrščam v rod *Donacosmilia*. Od tipične vrste se *D. etalloni* loči po debelejših septih in debelejši steni. *D. etalloni* je zelo podobna vrsti *Placophyllia rugosa*, ki pa nima žepastih obrobnihih brstov, zato spada k faviidam.

Razširjenost: Vrsta *D. etalloni* je bila doslej znana iz astartija Švice in titonija Štramberka na Češkem. Od našega materiala spadajo k tej vrsti primerki P-481 iz Selovca in P-382 iz Luč. Vsa nahajališča so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Subordo: Fungiida DUNCAN 1884

Familia: Microsolonidae Koby 1889

Genus: *Microsolena* LAMOUROUX 1821

Microsolena agariciformis ÉTALLON

Tab. 28, sl. 1

1858, *Microsolena agariciformis*, ÉTALLON, 252
v 1954, *Microsolena agariciformis* ÉTALLON, GEYER, 165—166, s sinonimiko
1955 b, *Microsolena agariciformis* ÉTALLON, GEYER, 254
v 1955 a, *Microsolena agariciformis* ÉTALLON, GEYER, 209
v 1965, *Microsolena agariciformis* ÉTALLON, GEYER, 233
v 1966, *Microsolena agariciformis* ÉTALLON, RONEWICZ, 227—228, Pl. 17, fig. 1—2
1968, *Actinaraea agariciformis* (ÉTALLON), LAMBELET, 191—195, Abb. 105

Opis: Masivna temna steroidna kolonija, nepravilno okroglaste ali gomoljaste oblike. Koraliti so povezani s konfluentnimi septi brez stene. Septa so grupirana v šope in se razširjajo radialno od srede koralita navzven. Septa so perforirana. Na lateralni strani nosijo zobce, ki se združujejo v karene. To so odebelitve trabekul, ki jih GILL imenuje penule. Endoteka je iz sinaptikul in redkih tabulatnih disepimentov. Kolumela je spongiozna.

Dimenzije: c—c	6—8 mm
s	ca. 50
s/mm	20—22/5 mm

Primerjava: GEYER (1954, 1955 a, b, 1965) je priključil k vrsti *M. agaricites* še sedem drugih vrst rodu *Microsolena* in vrsto *Thamnasteria subagaricites*. Njegovo revizijo je sprejela RONEWICZ razen vrste *M. subtrubinata*. O revizijah ne morem soditi, ker nimam originalnega materiala razen vrst Beckerja in Milaschewitscha, ki sem jih videla, in se glede teh z Geyerjevo odločitvijo strinjam. Vrsto *Thamnasteria subagaricites* pa uvrščam v rod *Synstraea*, ker ima redke nepravilne pore in sestavljene trabekule. LAMBELET (1968) je vrsto *M. agariciformis* uvrstil v rod *Actinaraea*. Vendar ta vrsta nima nepravilnega črva-stega medkoralitnega skeleta (periteke) in ločenih čaš, kar je značilno za rod *Actinaraea*, ampak konfluentna septa, zato omenjeno vrsto ponovno pripisujem rodu *Microsolena*.

Razširjenost: Ta vrsta je bila doslej znana iz zgornjega oksfordija Poljske, argovija Švice, argovija in kimmeridgija Francije, séquanija in kimmeridgija Portugalske, kimmeridgija srednje Nemčije in titonija Češke. Od naših zbranih primerkov pripadajo tej vrsti vzorci P-374 in P-375 iz Luč na Dolenjskem, 1778/1 in 1780/6 z Mrzovca, 1902/9 iz Kala nad Kanalom in 7241/1 iz Čepovanskega dola. Vsa nahajališča so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Microsolena thurmanni Koby

Tab. 28, sl. 2

1887, *Microsolena thurmanni* Koby, Koby, 396—397, Pl. 106, fig. 4, 5
1887, *Microsolena studeri* Koby, Koby, 392—393, Pl. 107, fig. 6, 7
1887, *Microsolena caesaris* ÉTALLON, Koby, 393—394, Pl. 106, fig. 2
1964, *Microsolena thurmanni* Koby, BEAUVAIS, 232, Pl. 29, fig. 4, Pl. 30, fig. 2
v 1966, *Microsolena thurmanni* Koby, RONEWICZ, 228—229, Pl. 17, fig. 3, Textfig. 16

Opis: Natančne opise sta podala Koby in BEAUVAIS. Tudi naši primerki imajo pravilno razvrščene koralite, s poglobljenimi okroglimi centri čaš. Septa so debela, neenaka, radialno razvrščena, ravna ali vijugasta. Na lateralnih straneh nosijo karene. Stene ni, sinaptikule so številne, disepimenti pa tanki in redki. Kolumela je parietalna.

Dimenzije:	Slovenija	BEAUVAIS	RONEWICZ
c—c	7—8 mm	4—10 mm	(4) 7—12 mm
s	ca. 50	45—55	40—65
s/mm	14—15/5 mm	10—13/5 mm	12—15/5 mm

Primerjava: BEAUVAIS (1964, 232) je pri ponovnem pregledu originalnega Kobyjevega materiala ugotovila, da ni razlik med vrstama *M. studeri* in *M. thurmanni*, zato ju je združila. RONEWICZ (1966, 228) je k tej vrsti priključila še Kobyjev primerek vrste *M. caesaris* Étallon, ker meni, da obstoj holoteke ni zadosten razlog za ločitev vrst. Revizije sprejemam, ker so bile vse izdelane na podlagi preučitve originalnih holotipov. Naši primerki ustrezajo tem razširjenim variacijskim širinam vrste.

Razširjenost: Vrsta je bila do zdaj znana iz zgornjega oksfordija Poljske, zgornjega argovija Švice in zgornjega argovija ter séquanija Francije. Od naših primerkov pripadajo

tej vrsti P-266 z Mrzovca, P-305, P-306 iz Cola, P-354 iz Frate in P-400 z Malega vrha pri Frati ter vzorec 1974/6,7 iz Kala nad Kanalom. Vsa nahajališča so uvrščena v zgornji oksfordij in spodnji kimmeridgij.

Microsolena ornata Koby

Tab. 28, sl. 3—4

1887, *Microsolena ornata* Koby, Koby, 399, Pl. 107, fig. 1—2
1966, *Microsolena ornata* Koby, Beauvais, 1016, Pl. 13, fig. 3, Pl. 14, fig. 4

Opis: Masivna kolonija ima nepravilno okroglasto ali gobasto obliko. Koraliti so v nizih, ki niso koncentrični. Centri so daleč narazen, obdani s sinaptikularnim notranjim obročem, od njih pa radialno v dve nasprotni smeri potekajo konfluentna septa do drugega koralita. Septa so enakomerno perforirana. Stene ni. Kolumela je parietalna.

Dimenzije:	Slovenija	BEAUVAIS	KOBY
c—c	4—4,5 mm	3—5,5 mm	3—5 mm
s	26—30	—	24—30
s/mm	20—22/5 mm	6—8/2 mm	20/5 mm

Primerjava: Naši primerki se popolnoma ujemajo z opisi te vrste. Od drugih vrst tega rodu se *M. ornata* loči po dvosmernem poteku sept in njihovi pravilni perforaciji. V vertikalnem preseku kaže izredno podobnost z rodом *Actinaraea*, od katerega pa se loči v prečnem preseku, ker nima v periteki črvastega skeleta, ampak povezujejo koralite konfluentna septa.

Razširjenost: Doslej je bila ta vrsta znana iz kallovija Švice. Naša primerka sta iz Otlice (P-415) in z Ojstrovce (P-449) iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Genus: *Comoseris* D'ORBIGNY 1849

Predstavniki rodu *Comoseris* imajo enako mikrostrukturo kot rod *Microsolena*, zato jih raziskovalci uvrščajo v družino Microsolenidae. Rod *Comoseris* se loči od rodu *Microsolena* po tem, da ima koralite razvrščene v serijah, med serijami pa so vzbokline ali grebeni (coline) in nepopolna sinaptikulotekalna stena. Po tej značilnosti se rod *Comoseris* približuje rodovima *Meandrophyllia* in *Microphyllia*.

Comoseris minima BEAUVAIS

Tab. 29, sl. 1—2

1888, *Comoseris meandrinoides* MICHELIN, Koby, 405—406, Pl. 111, fig. 1—2
v 1955 b, *Comoseris meandrinoides* (MICHELIN), GEYER, 335
1964, *Comoseris minima* nov. sp., BEAUVAIS, 237, Pl. 30, fig. 5, Pl. 31, fig. 1
v 1966, *Comoseris minima* BEAUVAIS, RONIEWICZ, 229—231, Pl. 18, fig. 2—3

Opis: Natančen opis in primerjavo vrste *C. minima* je razen BEAUVAIS (1964) podala še RONIEWICZ (1966). To je masivna kolonija z močno vijugastimi grebeni, med katerimi so nizi majhnih koralitov. Septa so perforirana, nekonfluentna. Notranji rob sept nosi izrastke, ki dajo spongiozno kolumelo. Sinaptikule so številne, tabulatni disepimenti pa redki. V grebenih med koraliti je nepopolna sinaptikulotekalna stena, nastala iz sept in sinaptikul.

Dimenzije:	Slovenija	BEAUVAIS	RONIEWICZ
c—c (v nizu)	ca. 2 mm	1—2 mm	3—3,5 mm
širina niza	2,5—5 mm	3—8 mm	2—10 mm
s/mm ob steni	18/5 mm	7—8/2 mm	16—20/5 mm

Primerjava: RONIEWICZ (1966, 229) je k vrsti *Comoseris minima* BEAUVAIS pridružila Kobyjeve in Geyerjeve primerke vrste *C. meandroides*, ki se od Michelinovega originala te vrste ločijo po gostejših skeletnih elementih in se ujemajo z vrsto *C. minima*. Naši primerki ustrezajo variacijskim širinam vrste *C. minima*.

Razširjenost: Doslej je bila ta vrsta znana iz zgornjega oksfordija Poljske, argovija Švice, séquanija Francije in Portugalske, kimmeridgija Španije. V Sloveniji sem to vrsto našla na Otlici (P-242, P-435) in severno od Cola (P-287). Nahajališči sta spodnjemalmske starosti.

Comoseris baltoensis RONIEWICZ

Tab. 29, sl. 3

v 1966, *Comoseris baltoensis* n. sp., RONIEWICZ, 231—232, Pl. 17, fig. 4, Pl. 18, fig. 5

Opis: RONIEWICZ je podala natančno diagnozo, opis in primerjavo. To je vrsta z razmeroma ravnimi, le malo vijugastimi grebeni, z velikimi čašami, ki so razporejene v enojnih nizih. Med serijami je skoraj popolna sinaptikulotekalna stena. Endoteka sestoji iz sinaptikul in disepimentov, ki so razširjeni po vsem koralumu. Kolumela je parietalna.

Dimenzije:	Slovenija	RONIEWICZ
c—c (v nizu)	2,5—3 mm	2,5—3,5 mm
širina serij	3—5 mm	4—6 mm
s	15—20	16—21
s/mm (ob steni)	18/5 mm	18/5 mm

Primerjava: Naši primerki se z originalnim poljskim materialom dobro ujemajo, imajo le za spoznanje ožje nize.

Razširjenost: Ta vrsta je bila doslej znana le iz zgornjega oksfordija Poljske. Naši primerki te vrste so najdeni na Mrzovcu (P-252, P-253), v Otlici (P-262, P-268) in na Colu (P-302). Vsa nahajališča so spodnjemalmske starosti.

Comoseris jumarense GREGORY

Tab. 29, sl. 4

1900, *Comoseris jumarense* nov., GREGORY, 157, Pl. 19, fig. 15
v 1954, *Comoseris jumarense* GREGORY, GEYER, 108, Taf. 13, fig. 5

Opis: Kolonija je masivna, okroglaste ali nepravilne oblike. Koraliti so razvrščeni v nize, ki potekajo radialno iz večjega koralita, ki je v sredi kolonije. Grebeni med nizi so ostri in v njih je nepopolna sinaptikulotekalna stena. Septa so perforirana, nejasnih ciklov. Iz aksialnih podaljškov nastane parietalna kolumela. Disepimenti so pogostni in prav tako sinaptikule.

Dimenzije:	Slovenija	GEYER	GREGORY
razdalja med centri nizov	ca. 6 mm	5—8 mm	3—7 mm
s	ca. 30	25—35	—
s/mm	12—14/5 mm	11—13/5 mm	—

Primerjava: Naši primerki se ujemajo z vsemi dosedanjimi opisi te vrste. Po radialnem potoku serij se ta vrsta loči od vseh drugih vrst rodu *Comoseris*.

Razširjenost: Ta vrsta je bila doslej znana iz kallovija in batonija v nahajališču Cutch v Indiji ter iz kimmeridgijskih plasti Würtemberga. Naše primerke sem našla južno od Frate (P-352, P-353) in na Malem vrhu pri Frati (P-402). Nahajališči sta 2 do 3 km oddaljeni in spadata v isti spodnjemalmski horizont, v zgornji oksfordij in spodnji kimmeridgij.

Familia: Haplaraeidae VAUGHAN et WELLS 1943
emend. ALLOITEAU 1952

Genus: *Diplaraea* BECKER et MILASCHEWITSCH 1876

BECKER in MILASCHEWITSCH sta postavila rodova *Haplaraea* in *Diplaraea* in sta ju ločila po tem, da je *Haplaraea* solitarna korala in nima kolumele, *Diplaraea* pa je kolonijska korala in ima spongiozno kolumelo. GEYER (1954, 171) je pri ponovnem študiju würtemberških koral ugotovil, da ima tudi *Diplaraea* spongiozno kolumelo in da vrsta *Haplaraea elegans* spada k rodu *Diplaraea*. Toda OGILVIE (1897) je na Češkem dobila primerke, ki popolnoma ustrezajo opisom rodu *Haplaraea*. Njeno vrsto *Haplaraea columnaris* je priznal tudi GEYER (1955 a, 208), in meni, da je tipična vrsta rodu *Haplaraea* prav ta vrsta. OGILVIE k rodu *Haplaraea* priključuje vrste rodu *Dermosmilia*, s čimer se ne strinjam, ker ima rod *Dermosmilia* mnogo redkejšo endoteko in bolj perforirana septa.

Diplaraea elegans (Milaschewitsch)
Tab. 33, sl. 1

v 1876, *Haplaraea elegans* MILASCH., BECKER et MILASCHEWITSCH, 229, Taf. 51, fig. 2
v 1954, *Diplaraea elegans* (MILASCH.), GEYER, 171, Taf. 14, fig. 3

Opis: Faceloidna kolonija sestoji iz vzporednih ovalnih koralitov, ki so na dolge razdalje nepovezani in odpadajo od kolonije. Septa so nepravilno perforirana, ravna in v več ciklih. Na distalnem robu se odebelijo v sinaptikuloseptoteko, ki ni povsod enako ohranjena. Lateralne strani sept nosijo redke zobce, aksialni redki podaljški pa sestavljajo parietalno kolumelo. Endoteka je iz disepimentov, sinaptikuli so redki.

Dimenzije:	Slovenija	MILASCH.	GEYER
d	20 × 25 mm	22 × 29 mm	—
s	ca. 90	114	—
s/mm	17—19/10 mm	17/10 mm	16—18/10 mm

Primerjava: Po strukturi in dimenzijah se naši primerki ujemajo z opisom vrste po Geyerjevi reviziji. Vsi imajo parietalno aksialno strukturo.

Razširjenost: Do zdaj je ta vrsta znana le iz kimmeridgija srednje Nemčije. Naši primerki so najdeni na Colu v Trnovskem gozdu (P-303, P-307 A) in v Mačkovcu pri Novem mestu (P-272) v skladih spodnjega malma.

Genus: *Meandrophyllia* D'ORBIGNY 1849

VAUGHAN in WELLS (1943) sta rod *Meandrophyllia* uvrstila v družino Microsolenidae, enako GEYER (1954).

ALLOITEAU (1952, 1957) je ponovno preučil originalni d'Orbignyjev material. Rod *Meandrophyllia* je na podlagi nepopolne sinaptikulotekalne stene in mikrostrukture z divergentnimi trabekulami prištel k družini Haplaraeidae. Tak sistem so sprejeli tudi BEAUVAIS (1964) in RONEWICZ (1966), BENDUKIDZE in ČUKOVANI (1962).

Predstavniki rodu *Meandrophyllia* med našim fosilnim gradivom jasno kažejo, da je ta rod v makrostrukturnih značilnostih podoben rodu *Comoseris*, tako po zgradbi stene kakor tudi sept. Žal v naših primerkih ni ohranjena mikrostruktura, zato Alloiteaujevih ugotovitev ne morem niti potrditi niti zavreči. Zaradi tega rod *Meandrophyllia* zaenkrat uvrščam v družino Haplaraeidae po zgledu večine sodobnih raziskovalcev.

Meandrophyllia edwardsi (MICHELIN)
Tab. 30, sl. 1—2

1843, *Meandrina edwardsi*, MICHELIN, n. v.

1885, *Latimeandra sinuosa* Koby, Koby, 252, Pl. 71, fig. 6, ? 7

1964, *Meandrophyllia edwardsi* (MICHELIN), BEAUVAIS, 207—208, Pl. 22, fig. 6, Textfig. 46 A

Opis: Za to vrsto je značilna masivna meandroidna kolonija z interkalicinalnim razmnoževanjem. Koralitne serije so zelo zvite in ločene z neizrazitimi grebeni. Veliko koralitov je enojnih. Centri čaš so jasni. Septa so neravna, debela, nepravilno perforirana. Na lateralnih straneh nosijo zrnca. Sinaptikule so številne v vsem koralitu, disepimenti so redkejši. Stena je nekompletna sinaptikulotekalna. Mikrostruktura v naših primerkih ni ohranjena, po BEAUVAIS je iz sestavljenih divergentnih trabekul.

Dimenzije:	Slovenija	KOBY	BEAUVAIS
d	3,5—4 mm	3—4 mm	—
c—c	2,5—4 mm	3—4 mm	2 mm
širina grebenov	3,5—5 mm	3 mm	3—4 mm
s	ca. 22	20—28	—
s/mm	14—16/5 mm	16/5 mm	—

Primerjava: Holotip Michelinove vrste *Meandrina edwardsi* je BEAUVAIS na podlagi divergentnih trabekul uvrstila v rod *Meandrophyllia*. Brez razlage je k tej vrsti prištel tudi Kobyjevo vrsto *Latimeandra sinuosa*, česar jaz brez originalnega primerka ne morem presoditi. Naši primerki ustrezajo njenim opisom vrste *M. edwardsi*. Po strukturi koralitov spominja ta vrsta na rod *Actinaraeopsis* RONEWICZ (1968), ki je pa brez stene.

Razširjenost: Vrsta *Meandrophyllia edwardsi* je bila doslej znana iz argovijskih skladov Švice in Francije. Naši primerki so vsi iz Otlice (P-261, P-263, P-419, P-421) iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Meandrophyllia amedei (ÉTALLON)
Tab. 30, sl. 3—4

1864, *Microphyllia amedei* ÉTALLON, THURMANN et ÉTALLON, 393, Pl. 56, fig. 1

1885, *Latimeandra amedei* ÉTALLON, Koby, 254—255, Pl. 71, fig. 5, Pl. 72, fig. 1—8

v 1966, *Meandrophyllia amedei* (ÉTALLON), RONEWICZ, 232, Pl. 23, fig. 1 a—d

Opis: Kolonija je masivna meandroidna. Čaše so v kratkih nizih ali pa so enojne. Vmes so grebeni. Septa v grebenih so v glavnem nekonfluentna in nepravilno perforirana. Prvi cikel sept doseže sredino koralita, kjer podaljški sestavljajo spongiozno kolumelo. Mlajša septa so krajša. Lateralna stran sept ima zrna. Stena je nepopolna sinaptikulotekalna. Endoteko sestavljajo redki majhni tabulatni disepimenti. Sinaptikule so številne.

Dimenzije:	Slovenija	KOBY	RONEWICZ
velikost kolonije	20 × 15 mm	10 × 15 mm	10 × 40 mm
d (čaš in dolin)	2,5—3 mm	2,5—3 mm	2,5—3 mm
c—c	2—3,5 mm	3—4 mm	2,5—4 mm
s	22—26	20—28	20—30
s/mm	8/2 mm	—	8—9/2 mm

Primerjava: Naši primerki v vsem ustrezajo opisom te vrste. RONEWICZ to vrsto prišteva rodu *Meandrophyllia* na podlagi sinaptikulotekalne stene in divergentno trabekularne mikrostrukture skeletnih elementov.

Razširjenost: Doslej je bila ta vrsta znana iz zgornjega oksfordija Poljske in rauracija Švice. Naši primerki P-418, P-426, P-431 in P-432 so vsi iz Otlice iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Familia: Latomeandriidae ALLOITEAU 1952

V okviru podreda Fungiida sta VAUGHAN in WELLS (1943) postavila novo družino Calamophyllidae, v katero sta vključila določene rodove (glej tudi WELLS, 1956, F 379). ALLOITEAU (1952, 671, 1957, 173—183) je to družino razveljavil in namesto nje uvedel novo naddružino Latomeandrioidae, ki jo je razdelil na dve družini: Dermosmilidae Koby in svojo novo družino Latomeandriidae. Na podlagi ponovnega študija Kobyjeve in Fromentelove zbirke in svojega bogatega gradiva je namreč ugotovil, da se nekdanje »kalamofiliide« dele na primerke s sinaptikulami in sinaptikulotekalno steno (Latomeandriidae) in primerke brez sinaptikul ali z zelo redkimi ter paratekalno oziroma septotekalno steno (Dermosmilidae). Pripadniki družine Latomeandriidae so ponavadi še meandroidni in se tako že na zunaj ločijo od rodov družine Dermosmilidae.

Pripomniti moram, da je natančna omejitev obeh družin na podlagi sinaptikul včasih težavna, ker obstajajo med koralami vse prehodne oblike. Med slovenskimi jurskimi koralami, ki spadajo k družini Latomeandriidae, so rodovi *Latomeandra*, *Microphyllia* in *Ovalastra*.

Genus: *Latomeandra* MILNE-EDWARDS et HAIME 1849

Rod *Latomeandra* sta na originalnem materialu ponovno preučila ALLOITEAU (1957, 238) in BEAUVAIS (1964, 245) in ga natančno opisala. Že pred njima so bili temu rodu pri raznih revizijah prištet rodovi *Chorisastrea* FROMENTEL 1861, *Jugodendron* in *Plicodendron* QUENSTEDT 1880 in drugi (glej WELLS, 1956, GEYER, 1954, GREGORY, 1900). Po mojem mnenju spada v ta rod tudi *Gyrodendron* QUENSTEDT 1880, ki se loči le po večjih dimenzijah, in del rodu *Protoseris* MILNE-EDWARDS et HAIME 1851, ki je bil osnovan le na podlagi luskaste oblike kolonije, struktura pa kaže podobnost z rodом *Latomeandra*, nekatere vrste pa z rodом *Thamnasteria*. LAMBELET rod *Latomeandra* združuje z rodом *Calamophyllia*, ker pravi, da je *Calamophyllia* le enocentrična oblika rodu *Latomeandra*. Mislim pa, da je stalna večcentričnost tako pomembna, da upravičuje drugi rod.

Latomeandra fromenteli (Koby)

Tab. 30, sl. 5

- 1885, *Chorisastrea Fromenteli*, Koby, Koby, 222—223, Pl. 65, fig. 13
 1889, *Chorisastrea Fromenteli* Koby, Koby, 482—483, Pl. 128, fig. 1
 1964, *Latomeandra fromenteli* (Koby), Beauvais, 247, Pl. 34, fig. 8, Pl. 35, fig. 2
 1964, *Protoseris fromenteli* (Koby), Beauvais, 258, Pl. 34, fig. 3, Pl. 35, fig. 5, Pl. 38, fig. 1

Opis: Faceloidno dendroidna kolonija s kratkimi vejnatimi koraliti, ki imajo 2—4 ali tudi več centrov, redko so tudi monocentrični. Septa so perforirana, kostatna subkonfluentna v koralitih. Distalni rob sept nosi neenake drobne zobčke, lateralni pa velika okrogla zrna. Sinaptikule so redke, prav tako disepimenti. Kolumela je spongiozna, stena je sinaptikulotekalna.

Dimenzije:	Slovenija	Koby	BEAUVAIS
d	4—20 mm	5—7 mm	4—24 mm
s	35—45	24—30	ca. 40
s/mm	3—4/1 mm	15/5 mm	5—7/2 mm

Primerjava: Naši primerki so po strukturi zelo podobni rodu *Microphyllia*, ki pa je cerioidna kolonija. K tej vrsti priključujem ponovno Kobyjev primerek, ki ga je BEAUVAIS uvrstila k rodu *Protoseris*, češ da je thamnasterioiden. Toda na fotografijah so septa subkonfluentna, ne pa thamnasterioidna.

Razširjenost: Vrsta *L. fromenteli* je bila do zdaj znana iz argovija in séquanija Švice. Naši primerki, ki jih pripisujem tej vrsti, so: P-330, P-333 iz Biča, P-343 iz Babne gore pri Gabru in P-459 z Mrzovca. Dobimo jih skupaj z aktinostromaridnimi hidrozoji in sklade uvrščamo v zgornji oksfordij in spodnji kimmeridgij.

Genus: *Microphyllia* D'ORBIGNY 1849

Rod *Microphyllia* je D'ORBIGNY komaj ustanovil, že sta ga MILNE-EDWARDS in HAIME (1850, 136) prištet k svojemu rodu *Latomeandra*. Koby (1885, 227) je rod *Microphyllia* uvrstil k rodu *Latimeandra* D'ORBIGNY, ki pa je v resnici *Latomeandra* MILNE-EDWARDS in HAIME. To revizijo sta sprejela tudi BECKER in MILASCHWITSCH (1876, 158), medtem ko je GREGORY (1900) tipično vrsto rodu *Microphyllia* uvrstil v rod *Comoseris*.

Po taki zmedbi je ponovno revizijo na podlagi vsega originalnega materiala izdelal ALLOITEAU (1952, 1957, 238, 245) in rod *Microphyllia* ponovno priznal. Prav tako ga priznavajo GEYER (1954, 149), BEAUVAIS (1964) in skoraj vsi sodobni raziskovalci mezozojskih koral. Pridružujem se jim tudi sama, saj se rod *Microphyllia* loči od rodu *Latomeandra* po cerioidni koloniji, od rodu *Comoseris* pa se loči po divergentnih trabekulah in sinaptikule so omejene na področje stene. BEAUVAIS je nekaj vrst rodu *Microphyllia* prištel k svojemu novemu rodu *Latiastrea*, ki ga loči od *Microphyllia* po manjših nizih. Glede na to, da že v isti koloniji najdemo vse prehode od velikih do majhnih nizov, je rod *Latiastrea* težko ločiti od *Microphyllia*.

Microphyllia undans ÉTALLON

Tab. 31, sl. 1—3

- 1858, *Microphyllia undans*, Étallon, n. v.
 1885, *Latimeandra undans* Étallon (*Microphyllia*), Koby, 246—247, Pl. 7, fig. 3
 v 1897, *Isastrea undans* Étallon, Ogilvie, 189, Taf. 15, fig. 8, 10, 14, 15
 v 1955 a, *Microphyllia undans* Étallon, Geyer, 205, s. sinonimiko
 1955 b, *Microphyllia undans* Étallon, Geyer, 346
 1964, *Microphyllia undans* Étallon, Beauvais, 249—250

Opis: Dobre opise sta podala Koby in Beauvais. To je meandroidno-cerioidna kolonija z interkalicinalnim razmnoževanjem. Koraliti so v nizih, ki so različno dolgi, ravni ali vijugasti. Povezani so z grebeni, v katerih je nepopolna sinaptikulotekalna stena. Septa v koralitih enega niza so konfluentna, brez stene. So nepravilno perforirana. V aksialnem delu koralita so septa ukrivljena ali pa nosijo podaljške, ki sestavljajo spongiozno kolumelo. V zunanji tekalni coni so sinaptikule.

Dimenzije:	Slovenija	BEAUVAIS	Koby
d	4—5 mm	—	5—6 mm
c—c	3—5 mm	3—6 mm	4—5 mm
širina niza	3—5 mm	3—6 mm	5 mm
s	ca. 50	—	50—60
s/mm	7—9/2 mm	7—9/2 mm	22/5 mm

Primerjava: Étallonovo vrsto *M. undans* sta FROMENTEL in nato Koby prištel k rodu *Latimeandra*, medtem ko jo OGILVIE šteje k rodu *Isastrea*. GEYER (1955 a) jo je zopet imenoval s prvim imenom in ji je prištel še nekaj drugih vrst. Uvrstitev opisane vrste v rod *Microphyllia* je pravilna. Rod *Latomeandra* ima le večcelične koralite brez nizov in faceloidno kolonijo, rod *Isastrea* pa ima sicer podobno steno, in cerioidno kolonijo, toda enocelične koralite brez nizov. Tudi naši primerki kažejo vse lastnosti rodu *Microphyllia* in vrste *M. undans*.

Razširjenost: Ta vrsta je doslej bila znana iz séquanija in kimmeridgija Švice, lusitanija Portugalske in titonija Češke. Od slovenskih koral pripadajo tej vrsti vzorci P-256, P-265 z Mrzovca, P-453, P-457, P-465 iz Korena pri Mrzovcu ter P-316 iz Ivanje vasi pri Mirni peči. Vzorca P-453 in P-465 imata nekoliko manjše nize, P-256 ima nize raznih velikosti, tako da vsi ti osebki spadajo v isto vrsto.

Microphyllia bachmayeri GEYER

Tab. 31, sl. 4

v 1955 a, *Microphyllia bachmayeri* n. sp., GEYER, 205—206, Taf. 23, fig. 5, Taf. 25, fig. 2
1960, *Microphyllia bachmayeri* GEYER, FRAJOVA, 67, Tab. 5, fig. 2

Opis: Kolonija je meandroidno cerioidna in gobaste oblike. Koraliti so v nizih, ki so kratki: vsebujejo največ tri čaše, dobimo pa tudi enojne toda odprte koralite med grebeni. Grebeni so zelo ostri. V njih je precej popolna sinaptikulotekalna stena, medtem ko med koraliti iste serije stene ni. Kolumela je spongiozna. Septa so v dveh do treh ciklih nepravilno perforirana. Na lateralni strani nosijo ostre zobce. Mikrostruktura ni ohranjena. Sinaptikule so v steni, redki disepimenti so v vsem koralitu.

Dimenzije:	Slovenija	GEYER
d	2—3 mm	1,5—3 mm
s	ca. 50	40—60
s/mm	12/2 mm	28—32/5 (= 11—12/2)

Primerjava: Naša primerka v celoti ustrezata Geyerjevi vrsti. Taki primerki z enojnimi koraliti in majhnimi nizi so zelo podobni vrstam, ki jih je BEAUVAIS (1964, 254) uvrstila v nov rod *Latiastrea*, o čemer sem že govorila pri rodu. Od vseh vrst rodu *Latiastrea* pa se *M. bachmayeri* loči po odprtih serijah in bolj popolni steni.

Razširjenost: Doslej je ta vrsta znana iz titonija Štramberka in Jasenic na Češkem. Naši primerki P-311, P-320 in P-321 so vsi iz Ivanje vasi pri Mirni peči. Vrsta *M. bachmayeri* je po številu primerkov zelo redka. Tudi GEYER je imel med češkim materialom samo en primerek te vrste. Nahajališče Ivanja vas uvrščamo v zgornji oksfordij in spodnji kimmeridgij.

Genus: *Ovalastrea* D'ORBIGNY 1849

Rod *Ovalastrea* je postavil D'ORBIGNY na podlagi Goldfussove vrste *Astrea caryophyllodes*, vendar ga je pomanjkljivo opisal. Opise so pozneje dopolnili THOMAS (1935, 35), VAUGHAN in WELLS (1943, 120), GEYER (1954, 152), ALLOITEAU (1956, 149), najpopolnejši opis pa je podala BEAUVAIS (1964, 258), ki je ponovno preučila originalni material. Večina raziskovalcev pripisuje ta rod fungidam, BEAUVAIS pa ga na podlagi sinaptikul in sinaptikularne stene uvršča v družino Latomeandriidae.

Ovalastrea lobata (Koby)

Tab. 31, sl. 5

1884, *Favia lobata* Koby, Koby, 210—211, Pl. 62, fig. 2—4
1905, *Favia lobata* Koby, Koby, 93—94, Pl. 10, fig. 7—8
1955 b, *Ovalastrea lobata* (Koby), GEYER, 333

Opis: Plokoidna kolonija z močno navzven štrlečimi koraliti. Čaše so okroglaste in majhne, med koraliti je široka kostatna periteka in vezikularna eksoteka. Septa so radialna in potekajo v več ciklih. V aksialnem delu nastaja iz podaljškov sept parietalna kolumela.

Lateralna stran sept je močno nazobčana. Disepimenti so tudi v koralitu. Stena je sinaptikulotekalna, sinaptikule so v vsem koralumu.

Dimenzije:	Slovenija	Koby	GEYER
d	4—7 mm	7—10 mm	3—8 mm
periteka	2—3 mm	2—5 mm	2—4 mm
c—c	5—7,5 mm	—	ne gosti
s	ca. 60	50—60	48—72
s/mm	8—10/3 mm	—	7—9/3 mm

Primerjava: Naši primerki popolnoma ustrezajo Geyerjevemu opisom in dimenzijam, ki se ločijo od Kobyjevih le v tem, da imajo kolonije tudi manjše koralite.

Razširjenost: Ta vrsta je bila doslej znana iz zgornjega lusitanija in kimmeridgija Portugalske in iz zgornjega oksfordija Švice. Naš vzorec P-290 je iz nahajališča severno od Cola v Trnovskem gozdu, P-294 pa je najden severno od Bukovja na Hrušici. Oba primerka sta iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Familia: Dermosmiliidae Koby 1889

Položaj te družine v sistemu sem podala že pri družini Latomeandriidae. Ne glede na Alloiteaujevo revizijo priznavam to družino, ker ima prednost pred Vaughanovo in Wellsovo družino Calamophylliidae.

Genus: *Dermosmilia* Koby 1884

Rod *Dermosmilia*, ki ga je Koby postavil na podlagi vrste *D. crassa*, je FRECH (1890) revidiral in ga priključil k rodu *Rhabdophyllia*. OGILVIE (1897, 258) pa ga je dala k rodu *Diplaraea*. Večina poznejših raziskovalcev rod priznava. BEAUVAIS (1964, 240) je ponovno preučila originalni Kobyjev material in rod sodobno podrobno opisala.

Dermosmilia laxata (Étallon)

Tab. 32, sl. 1—2

1864, *Thecosmilia laxata* Étallon, THURMANN et Étallon, 384, Pl. 54, fig. 10
1884, *Dermosmilia laxata* Étallon, Koby, 195—196, Pl. 51, fig. 1—5
v 1897, *Diplaraea laxata* Étallon, OGILVIE, 259
v 1954, *Dermosmilia laxata* (Étallon), GEYER, 144, Taf. 10, fig. 6
v 1955 a, *Dermosmilia laxata* (Étallon), GEYER, 202
v 1966, *Dermosmilia laxata* (Étallon), RONIEWICZ, 239—240, Pl. 23, fig. 2

Opis: Dendroidno faceloidna kolonija z dolgimi koraliti. Septa so kostatna, subkompaktna, pore so redke in velike. Septa so razvita v dveh popolnih in tretjem nepopolnem ciklu. V aksialnem delu koralita nastaja iz podaljškov sept spongiozna kolumela. Lateralna stran sept ima velike koničaste zobce. Koraliti se vejajo na velike razdalje. Endoteka je dobro razvita in sestoji iz dolgih disepimentov, ki so konkavni v aksialnem delu in konveksni v perifernem delu koralita. Stena je septoparatekalna.

Dimenzije:	Slovenija	GEYER	Koby	RONIEWICZ
d	8—13 mm	7—15 mm	12—15 mm	13—20 mm
s	70—115	60—120	80—110	120
c/mm	25/10 mm	18—22/10 mm	18/10 mm	20—24/10 mm

Primerjava: Naši primerki se ujemajo z drugimi primerki te vrste. Imajo le nekoliko gostejše koste, kar menim, da je dovoljeno pri tako obsežni variacijski širini vrste. Naši primerki imajo velik spongiozni aksialni prostor, kakršnega omenja Koby pri svojem prvem opisu in RONIEWICZ pri koralah iz Poljske.

Razširjenost: Do zdaj je ta vrsta bila znana iz zgornjega oksfordija Poljske, titonija Štramberka na Češkem, oksfordija severozahodne Nemčije, kimmeridgija srednje Nemčije ter rauracija in séquanija Švice.

Naše primerke te vrste sem našla v Otlici (P-422), v Colu (P-299), na Mrzovcu (P-480, P-251) in pri Frati (P-347, P-348, P-349, P-350, P-351). Vsa nahajališča so spodnjemalmske starosti.

Dermosmilia fiagdonensis STAROSTINA et KRASNOV

Tab. 32, sl. 3—4

1970, *Dermosmilia fiagdonensis* n. sp., STAROSTINA et KRASNOV, 78, Tab. 4, fig. 4

Opis: Kolonija je faceloidna, razvejana, koraliti so v preseku okrogli do ovalni. Septalni aparat sestoji iz 3 ciklov. Septa so nepravilno perforirana. Aksialni del koralita izstopa s svojo redko spongiozno strukturo. Lateralna stran sept nosi zobčke. Endoteka je iz dolgih in kratkih vezikularnih disepimentov. Stena je septoparatekalna. Mikrostruktura je v naših primerkih precej prekrizalizirana. Mestoma se vidijo veliki sklerodermi ali pa segmentirane trabekule.

Dimenzije:	Slovenija	STAROSTINA
d	6—12 mm	9—10 mm
s	ca. 60—65	64
c/mm	5/2 mm	—

Primerjava: Po septalni zgradbi in aksialni strukturi naši primerki ustrezajo ruskim, imajo pa bolj raznolične koralite, kar nekoliko poveča variacijsko širino vrste.

Razširjenost: Doslej je znana iz kimmeridgija Osetije in titonija Krima. Naše kolonije P-269, P-452 in P-469 so z Mrzovca v Trnovskem gozdu iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Genus: *Epistreptophyllum* MILASCHEWITSCH 1876

Pri novem rodu *Epistreptophyllum* je MILASCHEWITSCH (glej BECKER in MILASCHEWITSCH, 1876, 210) ugotovil, da ima sinaptikule in endotekalne tabule, torej lastnosti dveh tedaj znanih družin Astraeidae in Fungiidae. Novi rod je predstavljal prehod med obema družinama. Danes sta imenovani družini povišani v podredova, omenjene oboje značilnosti pa imajo predstavniki družine Dermosmiliidae (primerjaj še razlago pri družini Latomeandriidae).

Epistreptophyllum tenue MILASCHEWITSCH

Tab. 33, sl. 2—3

- v 1876, *Epistreptophyllum tenue* MILASCHEWITSCH, BECKER et MILASCHEWITSCH, 212, Taf. 50, fig. 4, 4 a
v 1876, *Epistreptophyllum cylindratum* MILASCHEWITSCH, BECKER et MILASCHEWITSCH, 211—212, Taf. 50, fig. 3
v 1954, *Epistreptophyllum tenue* MILASCHEWITSCH, GEYER, 143
1955 b, *Epistreptophyllum tenue* MILASCHEWITSCH, GEYER, 345
? 1966, *Epistreptophyllum cylindratum* MILASCHEWITSCH, RONIEWICZ, 238, Pl. 21, fig. 2
1968, *Epistreptophyllum cylindratum* MILASCHEWITSCH, LAMBELET, 163—169, Abb. 82—83

Opis: Solitarna podolgovata paličasta koralica z ovalnim presekom. Septa so ravna, v 4 ciklih, ki se ločijo med seboj po dolžini in nekoliko po debelini. Vsa imajo lateralne bodice. V aksialnem delu je spongiozna kolumela. Endoteko sestavljajo številni dolgi in vezikularni disepimenti, ki so v vsej koralici. V perifernem delu so redke sinaptikule. Stena je septotekalna in paratekalna, redko sinaptikotekalna.

Dimenzije:	Slovenija	RONIEWICZ	MILASCH.	LAMBELET
d	10 × 20 mm	25 mm	11 × 16 (26) mm	23, 25 mm
s	ca. 100	ca 110.	82 (125)	80, 122

Primerjava: GEYER (1954, 143) je združil vrsti *E. tenue* in *E. cylindratum*. Ker je holotip od vrste *E. cylindratum* izredno slabo ohranjen, je obdržal ime po *E. tenue*. RONIEWICZ te revizije ni upoštevala, ker je dobila med koralami na Poljskem primerke nekoliko večjih dimenzij, kakršne ustrezajo prvemu opisu vrste *E. cylindratum*. Nasprotno pa je LAMBELET dobil med severnonemškimi gradivom dva primerka, ki kažeta značilnosti obeh omenjenih vrst. Zato je vrsti združil, toda pod imenom *E. cylindratum*, ker je slednja po abecedi na prvem mestu. Med našimi primerki sem zasledila obliko, ki ustreza velikosti vrste *E. tenue*, ima pa večje število sept, kot to omenja MILASCHEWITSCH za vrsto *E. cylindratum*. Torej tudi naš primerke združuje značilnosti obeh vrst. Višje število sept ima prav tako primerke s Poljske, čeprav višina koraluma ustreza vrsti *E. tenue*. Zato menim, da sta obe vrsti res sinonima in se pridružujem ugotovitvam GEYERJA in LAMBELETA. Upoštevam ime *E. tenue*, ker ima boljše ohranjeni holotip, saj nomenklatorična pravila ne zahtevajo prednosti vrste po abecedi.

K tej vrsti je GEYER (1955 b, 345) prištel tudi vrste *Leptophyllia excelsa* Koby, *L. fragilis* Koby in *Epistreptophyllum excelsa* Koby. Ker tega portugalskega materiala nisem videla, ne morem presojati upravičenosti revizije.

Razširjenost: Doslej je bila ta vrsta znana iz kimmeridgija Nemčije in zgornjega oksfordija Poljske. Naš primerke P-293 je najden severno od Bukovja (Hrušica), 7548/2 je z Mrzovca, 1973/1 in 1974/16 pa iz Kala nad Kanalom. Vsa nahajališča so uvrščena v spodnji malm.

Epistreptophyllum bonjourii (ÉTALLON)

Tab. 33, sl. 4

- 1862, *Montlivaltia bonjourii* ÉTALLON, THURMANN et ÉTALLON, 376, Pl. 53, fig. 2
1883, *Montlivaltia bonjourii* ÉTALLON, Koby, 110—111, Pl. 34, fig. 6
1964, *Epistreptophyllum bonjourii* (ÉTALLON), BEAUVAIS, 238—239, Pl. 31, fig. 5—6
? 1965, *Epistreptophyllum bonjourii* ÉTALLON nov. var., KRKOVIĆ, 169—170, Tab. 4, sl. 2

Opis: Solitarna trochoidna koralica ima okrogle čaše. Kostosepta so ravna, redko perforirana in v 4 ciklih. Lateralna stran je nazobčana. Endoteka je iz vezikularnih dolgih disepimentov. Sinaptikule so redke. Stena je paratekalna, ponekod sinaptikotekalna. Kolumela je spongiozna, v našem primeru precej prekrizalizirana. Tudi mikrostruktura ni ohranjena.

Dimenzije:	Slovenija	BEAUVAIS
d	ca. 35 mm	33—37 mm
h	ca. 90 mm	—
s	ca. 180	ca. 200
c/mm	4—5/2 mm	4—5/2 mm

Primerjava: Naš primerke se lepo ujema z dosedanjimi opisi in dimenzijami te vrste. Premestitev vrste iz rodu *Montlivaltia* v rod *Epistreptophyllum* se mi zdi umestna, ker poleg kolumele opazimo redke sinaptikule in vezikularno endoteko. KRKOVIĆ domneva, da je

primerek iz Rumije v Črni gori nova podvrsta, ker pa ne navaja dimenzij, je popolnejša primerjava nemogoča.

Razširjenost: Doslej je bila znana iz argovija in spodnjega kimmeridgija švicarske Jure ter oksfordija in kimmeridgija Črne gore. Naš primerek P-289 je iz nahajališča severno od Cola v Trnovskem gozdu iz skladov spodnjega malma.

Genus: (?) *Calamophylliopsis* ALLOITEAU 1952

Rod *Calamophylliopsis* je imenoval ALLOITEAU že leta 1952 (str. 672) z letnico 1951. Opisal ga je natančno šele leta 1957 (str. 176) in ga tudi takrat označil z »nov. gen.«. Za tipično vrsto je vzel *Calamophyllia flabellata* FROMENTEL 1861. Rod *Calamophyllia* BLAINVILLE 1830 je razveljavil, ker je holotip tipične vrste *C. striata* BLAINVILLE izgubljen. Razne vrste, ki so bile pripisane rodu *Calamophyllia*, so po Alloiteaujevemu mnenju tako različne, da vsaka zase zahteva revizijo.

V rod *Calamophylliopsis* je ALLOITEAU (1957, 178) uvrstil poleg tipične vrste še *Calamophylliopsis crassitorquata* FROMENTEL, *C. ducreti* Koby, *C. crassa* Koby, *C. stockesi* MILNE-EDWARDS et HAIME in druge.

WELLS (1956) je rod *Calamophylliopsis* priključil rodu *Dermosmilia* Koby, medtem ko ga je BEAUVAIS sprejela in mu pripisala še nekaj vrst, ki so bile prej uvrščene v rod *Calamophyllia*. Sledila ji je tudi RONIEWICZ, medtem ko je GEYER (1955 b) uporabljal še ime *Calamophyllia*, ker je menil, da obstoječi rod ne more enostavno izginiti. Že leta 1968 (str. 18) tudi GEYER imenuje rod *Calamophylliopsis*. To ime pa uporabljajo tudi drugi raziskovalci, tako SIHARULIDZE (1970), MORYCOWA (1964, 1966) in drugi.

Sama nimam na voljo originalnega gradiva, ampak sem odvisna od podatkov iz literature. Rod *Calamophylliopsis* zaenkrat sprejemam, ker je natančno opisan in postavljen v sistem in ker imamo med slovensko koralno favno primerke, ki temu opisu ustrezajo. Vprašanje ostane le, kaj je rod *Calamophyllia*. Ker je tipična vrsta tega rodu iz terciarja, bomo morda med mlajšimi koralami našli odgovor na to vprašanje.

Calamophylliopsis flabellum (MICHELIN)

Tab. 34, sl. 1—2

- 1843, *Lithodendron flabellum*, MICHELIN, n. v.
 1884, *Calamophyllia flabellum* BLAINVILLE, Koby, 182—185, Pl. 13, fig. 1—5, Pl. 14, fig. 1
 1964, *Calamophylliopsis flabellum* (MICHELIN) var. *compacta* Koby, BEAUVAIS, 242—243, Pl. 32, fig. 6, Pl. 33, fig. 2, Pl. 34, fig. 1
 1964, *Calamophylliopsis flabellum* (MICHELIN) var. *nodosa* Koby, BEAUVAIS, 243, Pl. 33, fig. 6
 1964, *Calamophylliopsis flabellum* (MICHELIN) var. *granulosa* Koby, BEAUVAIS, 243, Pl. 33, fig. 7

Opis: Faceloidna kolonija z dolgimi vzporednimi koraliti, ki dosežejo dolžino tudi do 1 m. V prečnem preseku so okroglasti do nepravilni. Razmnožujejo se intrakalikalno, pod ostrim kotom. Septa so redko perforirana, zelo tenka in gosta, s kostami. Stena je paratekalna. Endoteka je iz številnih tabulatnih disepimentov. Sinaptikule so redke. Kolumela je parietalna. Mikrostruktura v naših primerkih ni ohranjena.

Dimenzije:	Slovenija	Koby	BEAUVAIS
h	do 1 m	20—50 cm	—
d	3—8 mm	5—10 mm	4—12 mm
c—c	4—10 mm	—	—
s	ca. 70	—	30—100
c/mm	25/5 mm	24—30/5 mm	4—10/2 mm

Primerjava: EDWARDS in HAIME (1849) ter Koby (1884, 182) so k vrsti *Calamophyllia flabellum* BLAINVILLE prišteali tudi *Lithodendron flabellum* MICHELIN. Vrsto *Calamophyllia flabellum* BLAINVILLE je GEYER (1955 b, 332) prištel Alloiteaujevemu rodu *Calamoseris*. Michelinovo vrsto *Lithodendron flabellum* pa je BEAUVAIS (1964, 242) skupaj s Kobyjevimi primerki, ki jih je imenoval *Calamophyllia flabellum* BLAINVILLE, uvrstila v rod *Calamophylliopsis*. Vrstno ime *flabellum* ostane tako pri dveh rodovih. Naši primerki ustrezajo opisu in dimenzijam opisane vrste. Posamezne podvrste, ki jih je ločila BEAUVAIS, pa združujem, ker se oblike koralitov zelo nepravilno menjavajo in prehajajo druga v drugo, da je te razlike nemogoče ločiti. Od vrst *C. cervina* in *C. stockesi* se ta vrsta loči po tanjših septih in večjem številu disepimentov. Mislim pa, da je Kobyjeva vrsta *Calamophyllia ducreti*, ki jo je BEAUVAIS prištel k *C. flabellum*, posebna vrsta, ker ima mnogo redkeje koste. K opisani vrsti spada po številu kost tudi Kobyjeva variacija *C. flabellum nodosa*.

Razširjenost: Vrsta *C. flabellum* (MICHELIN) je doslej znana iz argovija in séquanija Švice in Francije.

Od slovenskega zbranega gradiva spadajo k tej vrsti številni primerki, in sicer P-379 iz Čušperka, P-385, P-386, P-387, P-394, P-397 iz Brezove rebri, P-364, P-367 iz Frate, 1780/3, 5 z Mrzovca, 1902/1 iz Kala nad Kanalom, 3733/4, 6, 7 iz Plav in 7241/9 iz Čepovanskega dola. Vsa nahajališča so spodnjemalmske starosti.

Calamophylliopsis cervina (ÉTALLON)

Tab. 34, sl. 3

- 1864, *Rhabdophyllia cervina* ÉTALLON, THURMANN et ÉTALLON, 380, Pl. 54, fig. 1
 1884, *Rhabdophyllia cervina* ÉTALLON, Koby, 191—192, Pl. 56, fig. 3—7
 v 1897, *Rhabdophyllia cervina* ÉTALLON, OGILVIE, 215, Taf. 15, fig. 2
 v 1955 a, *Calamophyllia cervina* (ÉTALLON), GEYER, 202
 1955 b, *Calamophyllia cervina* (ÉTALLON), GEYER, 331
 1964, *Rhabdophyllia cervina* ÉTALLON, BEAUVAIS, 163, Pl. 16, fig. 11
 v 1966, *Calamophylliopsis cervina* (ÉTALLON), RONIEWICZ, 240—241, Pl. 20, fig. 2
 1969, *Calamophyllia* cf. *cervina* (ÉTALLON), DUSA, 112, Pl. 11, fig. 3

Opis: Faceloidna dendroidna kolonija z dolgimi vzporednimi koraliti, ki brstijo pod ostrim kotom. Koraliti so v preseku okrogli do ovalni. Septa so debela, nekoliko vijugasta, v treh jasnih ciklih, medtem ko je četrti cikel le iz kosti. So redko perforirana, lateralna stran nosi zobce. Stena je septotekalna, mestoma paratekalna, kostatna. Endoteka je iz redkih tabulatnih in vezikularnih disepimentov. Kolumela je spongiozna.

Dimenzije:	Slovenija	Koby	GEYER	RONIEWICZ
d	5—8 mm	7—9 mm	5—7 mm	5—10 mm
s	ca. 50	—	—	40—55
s/mm	12—13/5 mm	10/5 mm	12/5 mm	10/5 mm
kot brstenja	30—40°	30°	30—60°	—

Primerjava: Naši primerki ustrezajo opisu vrste *C. cervina*. Od prejšnje vrste se loči po debelejših in redkejših septih.

Razširjenost: Do zdaj je bila znana iz argovija Švice, séquanija Portugalske, kimmeridgija Nemčije, corallien Francije, zgornjega oksfordija Poljske in titonija Češke. Naši primerki so P-324 in P-329 iz Biča pri Gabru, P-274 iz Mačkovca ter P-275 iz Karteljevega. Vsa nahajališča so spodnjemalmske starosti.

Calamophylliopsis stockesi MILNE-EDWARDS et HAIME

Tab. 34, sl. 4

- 1851, *Calamophyllia stockesi*, Milne Edwards et Haime, 89—91, Pl. 16, fig. 1
 1888, *Calamophyllia stockesi* EDW. et H., SOLOMOKO, 68—69, Taf. 2, fig. 11
 1879, *Calamophyllia stockesi* EDW. et H., ACHIARDI, 265
 1912, *Calamophyllia cf. stockesi* EDW. et H., SPEYER, 222, Taf. 22, fig. 25
 1949, *Calamophyllia stockesi* EDW. et H., BENDUKIDZE, 286
 v 1966, *Calamophylliopsis stockesi* (EDW. et H.), RONIEWICZ, 241—242, Pl. 21, fig. 5, Pl. 23, fig. 3, Textfig. 17

Opis: Dendroidno faceloidna kolonija z dolžinami do 1 m. Korali so ravni, vzporedni, brstijo pod ostrim kotom. V preseku so okrogli. Septa so nepravilno redko perforirana, v 2 do 3 ciklih. Kolumela je spongiozna. Stena je septotekalna kostatna. Endoteka je iz redkih tabulatnih disepimentov, sinaptikule so zelo redke.

Dimenzije:	Slovenija	RONIEWICZ
d	6—8 mm	4—9 mm
s	50—70 + koste	56—84
c—c	5—10 mm	5—15 mm
c/mm	20/5 mm	17—20/5 mm

Primerjava: Naši primerki ustrezajo opisom in dimenzijam vrste. Od prejšnjih vrst se *C. stockesi* loči po gostoti kost, ki je večja kot pri *C. cervina* in po gostoti disepimentov, ki je manjša kot pri *C. flabellum*.

Razširjenost: Doslej je bila znana iz Coral rag Anglije, zgornje jure Krima, zgornje jure Italije, kimmeridgija Nemčije, lusitanija Gruzije in zgornjega oksfordija Poljske.

Naši vzorci so P-325, P-327, P-334 iz Biča pri Gabru, P-451 in P-248 z Mrzovca ter 1902/5 in 1974/15 iz Kala nad Kanalom. Vsa nahajališča so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Familia: Thamnasteriidae VAUGHAN et WELLS 1943

Genus: *Thamnasteria* LESAUVAGE 1823

Ime *Thamnasteria lamoureuxii* je dal LESAUVAGE (1823) vejasti drobnim kolonijskim korali, katere površina je pokrita z zvezdicami. Pozneje jo je imenoval *Thamnastraea* (1832). To drugo ime se je dolgo časa uporabljalo v strokovni literaturi. Šele v zadnjem času se je spet uveljavilo prvo ime *Thamnasteria*. Rod so ponovno opisovali številni poznejši raziskovalci, tako MILNE-EDWARDS in HAIME (1857), KOBY (1887), OGILVIE (1897), v novjšem času tudi GEYER (1954), BEAUVAIS (1964), bolj natančno še ALLOITEAU (1957, 201), LAMBELET (1968, 138) in drugi.

Vsi raziskovalci razen WELLSA (1956) dajejo rod *Thamnasteria* v družino Thamnasteriidae, podred Fungiida, kamor spada po sinaptikulah in delno perforiranih septih.

Thamnasteria lobata (GOLDFUSS)

Tab. 35, sl. 1—2

- 1826, *Agaricia lobata*, GOLDFUSS, n. v.
 1857, *Thamnastraea ? lobata*, MILNE-EDWARDS et HAIME, 581
 v 1876, *Thamnastraea gibbosa* MILASCHWITSCH, BECKER et MILASCHWITSCH, 170, Taf. 40, fig. 3
 v 1954, *Thamnasteria lobata* (GOLDFUSS), GEYER, 157, s sinonimiko
 1955 b, *Thamnasteria lobata* (GOLDFUSS), GEYER, 230

Opis: Majhna, masivna okroglasta ali prevlekasta tamnasterioidna kolonija ima goste enakomerno razporejene koralite. Septa so debela, redko perforirana, z zrnatimi okraski na lateralni strani. Septa prvih ciklov (8—10) segajo do centra, kjer se ne spajajo. V sredi je majhna stiliformna kolumela. Septa mlajših ciklov so krajša. Stene med koraliti ni, ampak so septa konfluentna. Endoteka je iz majhnih tabulatnih disepimentov, v tekalnem pasu so mestoma sinaptikule. Mikrostruktura v naših primerkih ni ohranjena.

Dimenzije:	Slovenija	GEYER	BECKER et MILASCH. (<i>T. gibbosa</i>)
d	2—3,5 mm	stisnjene	—
c—c	2,5—3,5 mm	2—3 mm	2—3 mm
s	15—22	14—24	14—18
s/mm	5—6/2 mm	debela	—

Primerjava: Iz primerjave dimenzij vidimo, da je GEYER vrsto *T. gibbosa* upravičeno prištel k vrsti *T. lobata*. Pripisal ji je tudi vrsto *T. bourgeati* KOBY, ki jo je pozneje RONIEWICZ (1970) pripisala novemu rodu *Kobyasraea*. Kot različno navaja različne okrasitve na lateralni in interni strani sept ter nekoliko drugačno endoteko.

RONIEWICZ (1966, 233) in LAMBELET (1968, 140) sta vrsto *T. lobata* pripisala k vrsti *T. concina*. Tej sinonimiki se ne pridružujem, ker ima *T. lobata* mnogo redkejša septa kot *T. concina* (*T. lobata* 5—6/2 mm, *T. concina* 10—12/2 mm).

Razširjenost: Doslej je bila ta vrsta znana iz kimmeridgija Nemčije, séquanija in kimmeridgija Francije in Švice, titonija Češke, lusitanija in kimmeridgija Portugalske, kimmeridgija Španije in titonija vzhodne Srbije. Naši primerki P-400 in P-403 z Malega vrha pri Frati in P-388 iz Brezove rebri pri Frati so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Thamnasteria moreana (D'ORBIGNY)

Tab. 35, sl. 3—4

- 1850, *Centrastrea moreana*, D'ORBIGNY, 37
 1955 b, *Thamnasteria moreana* (D'ORBIGNY), GEYER, 334, Taf. 1, fig. 9, s sinonimiko
 1964, *Thamnasteria nicoleti* KOBY, BEAUVAIS, 214, Pl. 25, fig. 6, Pl. 27, fig. 3

Opis: Majhna tamnasterioidna okroglasta kolonija ima goste koralite v nepravilnih vrstah. Septa so radialna, nekoliko ukrivljena. So redko perforirana z ostrimi zobci na lateralni strani. Na aksialni strani se prosto končajo in se ne vežejo s kolumelo, ki je majhna, stiliformna. Stene ni. Septa so konfluentna in se direktno spajajo s septi sosednjih koralitov. Sinaptikule so po vsem koralitu, disepimenti so zelo redki, tabulatni in vezikularni.

Dimenzije:	Slovenija	GEYER (za vse vrste)	BEAUVAIS (<i>T. nicoleti</i>)
d	2,5—4 mm	3—5 mm	3 mm
c—c	2—4 mm	—	2—4 mm
s	25—40	20—40	33
s/mm	10—13/3	13—15/3	10—12/3

Primerjava: GEYER je k vrsti *T. moreana* priključil še štiri vrste rodu *Thamnasteria*, ki jih je opisal KOBY (1887, 1905) in sicer: *T. loryi*, *T. mettensis*, *T. nicoleti* in *T. heeri*. Po njegovi razpredelnici dimenzij vidimo, da se vrste ujemajo, ker dobimo vse prehode. Zato k tej vrsti lahko prištejemo tudi *T. nicoleti*, ki jo je ponovno imenovala BEAUVAIS ne glede

na Geyerjevo revizijo. Kobyjev primerek, ki ga BEAUVAIS opisuje, se popolnoma ujema z našimi primerki. Po poteku sept je naša vrsta podobna vrsti *T. gracilis*, ima pa mnogo redkejša septa.

Razširjenost: Doslej je bila ta vrsta znana iz kimmeridgija Francije in Švice ter kimmeridgija Portugalske. Naša primerka P-430 in P-413 sta iz Otlice v Trnovskem gozdu iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Genus: *Fungiastraea* ALLOITEAU 1952

Rod *Fungiastraea* je postavil ALLOITEAU na podlagi vrste *Astraea laganum* MICHELIN. Leta 1952 (661) ga je na kratko karakteriziral kot rod v družini Thamnasteriidae, ki ima prevlekasto obliko, karne in spongiozno kolumelo. Šele leta 1957 (str. 216) ga je isti avtor natančneje opisal. Rod sta prevzeli tudi RONIEWICZ in BEAUVAIS. Tudi sama ga priznavam, ker se po spongiozni kolumeli loči od rodu *Thamnasteria*, po manj perforiranih in redkejših septih pa od rodu *Synastraea*.

Fungiastraea arachnoides (PARKINSON)

Tab. 35, sl. 5—6

? 1964, *Morphastraea arachnoides* (MILNE-EDWARDS et HAIME), BEAUVAIS, 219, Pl. 26, fig. 3
v 1966, *Fungiastraea arachnoides* (PARKINSON), RONIEWICZ, 237, Pl. 20, fig. 4

Opis: Prevlekasta thamnasterioidna kolonija ima okroglaste koralite postavljene v serijah. Centri so dobro vidni. Septa so subkompaktna, konfluentna, brez stene. Na lateralni strani so podolgovata zrna. Kolumela je spongiozna, sinaptikule pogostne. Disepimenti so redki in vezikularni.

Dimenzije:	Slovenija	RONIEWICZ	BEAUVAIS
c—c	3,5—6 mm	4—8 mm	4—7 mm
s	(25) 32—36 (43)	35—54	28—30
s/mm	13—15/5 mm	13—14/5 mm	13/5 mm

Primerjava: MILNE-EDWARDS in HAIME (1851, 97) in KOPY (1887, 358, 1905, 113) so to vrsto pripisovali rodu *Thamnasteria*, BEAUVAIS rodu *Morphastraea*, ki je bil pozneje revidiran v *Thamnasteria*. BEAUVAIS pravi, da ima vrsta stiliformno kolumelo, ki je spojena s podaljški sept v parietalno kolumelo. Toda prav ta parietalna kolumela se zdi RONIEWICZ tako pomembna, da vrsto prišteva rodu *Fungiastraea*.

Razširjenost: Doslej je bila vrsta znana iz zgornjega oksfordija Poljske, Coral rag Anglije, rauracija Francije ter kallovija in oksfordija Portugalske. Od slovenskih vzorcev pripadata tej vrsti P-360 s Frate in P-254 z Mrzovca. Obe nahajališči sta spodnjemalmske starosti.

Familia: Synastraeidae ALLOITEAU 1952

Genus: *Synastraea* MILNE-EDWARDS et HAIME 1848

Tipična vrsta rodu *Synastraea* je *Astraea agaricites* GOLDFUSS 1826. V novejšem času je ta rod ponovno preučil in opisal ALLOITEAU (1957, 203). Po thamnasterioidni rasti sept je podoben rodovom *Thamnasteria*, *Fungiastraea* in *Microsolena*, od katerih se loči po drugače perforiranih septih in kolumeli.

Synastraea dubia FROMENTEL

Tab. 36, sl. 2—3

1861, *Synastraea dubia*, FROMENTEL, 219

1964, *Synastraea dubia* FROMENTEL, BEAUVAIS, 224, Pl. 28, fig. 1

Opis: Tamnasterioidna prevlekasta kolonija ima različne debeline. Čaše so globoke, z velikim okroglim oralnim delom. Septa se pahljačasto razširjajo in so nekoliko krivuljasta. So nepravilno perforirana, pore so bolj v aksialnem delu koralitov. Bolj so perforirana septa mlajših ciklov. Mikrostruktura je iz sestavljenih trabekul in je v naših primerkih le redko ohranjena. Popolnoma se spajajo s septi sosednjih koralitov, brez vsake vmesne stene. Lateralna stran ima drobne izrastke. Interni robovi se nadaljujejo s trabekulami v močno spongiozno kolumelo. Sinaptikule so pogostne. Endoteka sestoji iz redkih disepimentov.

Dimenzije:	Slovenija	BEAUVAIS
d	(3) 4—6 mm	4—6 mm
c—c	4,5—6 mm	5—7 mm
s	25—42	38—42
s/mm	10—12/3 mm	10—13/3 mm

Primerjava: Naš primerek se ujema z vrsto, kakršno je opisala BEAUVAIS, ko je ponovno preučila originalni Fromentelov material. Le nekateri koraliti naše kolonije imajo manj sept, ker so mlajši. Ta vrsta je nekoliko podobna tudi vrsti *Synastraea* cf. *pullata* (STOLICZKA), ki jo omenja ALLOITEAU (1957, Pl. 15, fig. 10), toda zadnja ima manjšo kolumelo.

Razširjenost: Doslej je bila znana le iz séquanija Francije. Naš primerek P-477 sem našla na Ojstrovci v Trnovskem gozdu v skladih spodnjega malma.

Synastraea subagaricites (BECKER)

Tab. 36, sl. 1

v 1876, *Thamnastraea subagaricites* BECKER, BECKER et MILASCHWITSCH, 71, Taf. 40, fig. 5

Opis: Tamnasterioidna majhna gomoljasta kolonija ima nepravilno razvrščene koralite. Septa so zelo gosta, tanka in delno perforirana. Na lateralni strani sept so trnki, medtem ko se na aksialni septa podaljšujejo v spongiozno kolumelo. Sinaptikule so pogostne, disepimenti redki. Mikrostruktura je slabo ohranjena; mestoma so vidne sestavljene trabekule.

Dimenzije:	Slovenija	BECKER
d	5—7,5 mm	—
c—c	5—7 mm	4—6 mm
s	ca. 60	40—50, tudi 60—65
s/mm	26/5 mm	25—27/5 mm

Primerjava: GEYER (1954, 165) je Beckerjevo vrsto *T. subagaricites* prištel k vrsti *Microsolena agariciformis*. Toda Beckerjev vzorec in tudi naši primerki imajo nepravilna porozna septa s sestavljenimi trabekulami in spongiozno kolumelo, kar je značilno za rod *Synastraea*. Po izredni gostoti sept in drugih dimenzijah se naši primerki ujemajo z Beckerjevimi.

Razširjenost: Doslej je bila znana samo iz kimmeridgija na Württembergem. Naš vzorec (P-428) pa sem našla na Otlici v skladih zgornjega oksfordija in spodnjega kimmeridgija.

Familia: Actinacidiidae VAUGHAN et WELLS 1943

Genus: *Actinaraea* D'ORBIGNY 1849

Rod *Actinaraea* je postavil D'ORBIGNY na podlagi vrste *Agaricia granulata* MUNSTER. Od drugih fungid se loči po močni periteki. Po široki črvasti medkoralitni zgradbi se na videz močno približuje zgradbi hidrozojev, predvsem skupine Spongiomorphaidea.

Actinaraea granulata (MUNSTER)

Tab. 36, sl. 4—5

1829, *Agaricia granulata*, MUNSTER, in GOLDFUSS, n. v.
v 1876, *Actinaraea granulata* MUNSTER, BECKER et MILASCHWITSCH, 231—232, Taf. 51, fig. 4
v 1954, *Actinaraea granulata* (MUNSTER), GEYER, 171, Taf. 14, fig. 4
v 1966, *Actinaraea granulata* (MUNSTER), RONIEWICZ, 249—250, Pl. 25, fig. 2—3
1968, *Actinaraea granulata* (MUNSTER), LAMBELET, 187—191, Abb. 98—103

Opis: Preplekasta kolonija ima nepravilno razporejene koralite, ki jih loči široka periteka. Čaše so okrogle. Septa so kostatna, pravilno perforirana. Lateralne strani nosijo trnaste izrastke, ki tvorijo v vertikalnem preseku cikcak strukturo. Kolumela je spongiozna. Sinaptikule so pogostne, disepimenti redki in tanki. Stena je sinaptikulotekalna, nepopolna.

Dimenzije:	Slovenija	RONIEWICZ	GEYER	MILASCHWITSCH
d	1,6—2,0 mm	1,8—2,2 mm	—	—
c—c	4—6 mm	3—5 mm	4—8 mm	4—6 mm
s (v centru)	12—14	9—14	12	12
s (ob steni)	30—38	21—43	24	28
s/mm	8/2	8/2		

Primerjava: Naš primerek ima glede na poljskega nekoliko manjše koralite, kar ga približuje vrsti *A. minima*, vendar ima gostejša septa, kar se mi zdi važnejše in ga pripisujem vrsti *A. granulata*.

Razširjenost: Doslej je bila ta vrsta znana iz zgornjega oksfordija Poljske in kimmeridgija Nemčije. Naš primerek P-424 je iz Otlice iz skladov spodnjega malma.

Subordo: Caryophylliida VAUGHAN et WELLS 1943

Familia: Rhipidogyridae Koby 1904

Genus: *Acanthogyra* OGILVIE 1897

Tipična vrsta rodu *Acanthogyra* je *A. columnaris*, katere zelo natančen opis je podala OGILVIE (1897, 130—131). Zaradi bilateralnosti ga je uvrstila v družino Amphistraeidae. VAUGHAN in WELLS (1943) ga prištevata k družini Rhipidogyridae, podred Caryophylliida. S to uvrstitvijo se strinjam, ker je bilateralnost navidezna zaradi lamelarne kolumele, ne pa po podaljšanem glavnem septumu. ALLOITEAU (1952) daje rod *Acanthogyra* prav tako v poddružino *Rhipidogyrinae* Koby, to pa prišteva svoji novi družini *Dendrogyridae*. Za družino upoštevam sistem po VAUGHANU in WELLSU, ker ima po taksonomskih pravilih prednost.

Acanthogyra columnaris OGILVIE

Tab. 37, sl. 1—2

v 1897, *Acanthogyra columnaris* OGILVIE, OGILVIE, 131—132, Taf. 16, fig. 2
v 1955 a, *Acanthogyra columnaris* OGILVIE, GEYER, 197, Taf. 25, fig. 3

Opis: Cerioidna masivna kolonija z vzporednimi koraliti ovalnega do poligonalnega preseka. V sredi vsakega koralita je podolgovata kolumela, ki se veže z vsaj enim septumom in daje videz bilateralnega septalnega aparata. Ni pa glavnega septuma. Na vsaki lateralni strani je nadaljnjih 4 do 6 sept drugega do tretjega reda, ki pridejo do centra, in se nekatera med njimi vežejo s kolumelo. Septa naslednjih ciklov so bolj ali manj kratka, nepravilna in nepopolno razvita. Stena je septoparatekalna; ponekod je na notranji strani še disepimentalni obroč. Endoteka je tabulatna in vezikularna. Mikrostruktura je zelo prekrizalizirana. Ogilvie omenja razmnoževanje z delitvijo, ki je pri našem materialu nisem zasledila.

Dimenzije:	Slovenija	OGILVIE
d (krajši)	4—6 mm	4—5 mm
(daljši)	6—8 mm	8—9 mm
c—c	5—8 mm	—
s	ca. 10—12 + S	8—12 + S

Primerjava: Naš primerek se od originala loči po nekoliko manj ovalnih koralitih. Daljši premer koralitov je pri našem primerku krajši, vendar lahko zasledimo vse prehode, zato ga lahko pripišemo tej vrsti z nekoliko večjo variacijsko širino glede na premer koralitov.

Razširjenost: Doslej je znana ta vrsta le iz titonija Štramberka na Češkem. Naš primerek P-258 sem našla na Mrzovcu v Trnovskem gozdu v skladih spodnjega malma.

Acanthogyra multiformis OGILVIE

Tab. 37, sl. 3—4

v 1897, *Acanthogyra multiformis* OGILVIE, OGILVIE, 132—133, Taf. 16, fig. 1
v 1955 a, *Acanthogyra multiformis* OGILVIE, GEYER, 197

Opis: Cerioidna kolonija z nepravilno poligonalnimi do ovalnimi koraliti. Do centra sega 14 do 16 nazobčanih sept, kjer se nekatera spajajo s podolgovato kolumelo. Ostala septa so krajša, njih števila ni mogoče ugotoviti. Stena je septotekalna. Endoteka sestoji iz tabulatnih in vezikularnih daljših disepimentov. Mikrostruktura ni jasna, ponekod se vidi kot bi bila iz segmentnih sklerodermitev.

Dimenzije:	Slovenija	OGILVIE
d (daljši)	9—10 mm	5—20 mm
(krajši)	7—8 mm	5—17 mm
c—c	7—10 mm	—
s	14—16 + S	

Primerjava: Naš primerek se ujema z originalnim materialom v vseh strukturnih značilnostih in dimenzijah. Ima nekoliko bolj okroglaste in enakomerneje velike koralite, toda v okviru te vrste.

Razširjenost: Doslej je znana le iz titonija Češke, pri nas pa sem jo dobila na Selovcu v spodnjemalmskih skladih (P-483).

SKLEP

Med bogatim fosilnim materialom iz slovenskih nahajališč sem mogla ugotoviti pet novih jurskih vrst, med katerimi spada ena v nov rod. Nove vrste iz Slovenije so: *Actinastrea regularis* n. sp., *Pseudocoenia slovenica* n. sp., *Columnocoenia jurassica* n. sp., *Ceratothecia carniolica* n. gen. n. sp. in *Complexastrea seriata* n. sp. Novi rod sem uvrstila med faviide k družini Montlivaltidae. Pri preučevanju drugih vrst in rodov sem prišla do ugotovitev, da nekatere zahtevajo manjše spremembe v sistemu. To bom obrazložila v nadaljnjem besedilu.

Vrsto *Heliocoenia* (*Decaheliocoenia*) *regularis*, ki sem jo postavila na podlagi gostih koralitov (TURNŠEK, 1968, 359, 370), revidiram in jo priključujem vrsti *Heliocoenia* (*Decaheliocoenia*) *variabilis*, glede na to, da sem med slovenskimi primerki dobila vse prehodne oblike z gostimi in redkejšimi koraliti, kar je odvisno od stopnje razmnoževanja.

Vrsto *Latiphyllia suevica* (VAUGHAN in WELLS, 1943, GEYER, 1954), ki jo je LAMBELET pripisal rodu *Montlivaltia*, uvrščam v rod *Thecosmilia*. Ta vrsta ima namreč poleg značilne favidne tekalne in endotekalne strukture še okroglo foseto, po čemer pripada rodu *Thecosmilia*. Loči se po nepravilnem razraščanju koralitov, kar po mojem mnenju ne more biti kriterij za ločitev rodu *Latiphyllia*.

Rod *Axosmilia* (družina Axosmiliidae), ki ga je GEYER prištel zaradi bilateralne aksialne strukture podredu Amphiastraeida, uvrščam v podred Faviida, ker ima ta rod steno, endoteko in način razmnoževanja, značilne za faviide. Te strukture se mi zde važnejše za sistem kot aksialna struktura. V aksialnem delu opazimo podolgovato lamelarno kolumelo, ki septalni aparat bilateralno deli, kar samo kaže na sorodnost s skupino amfiastreid.

Rod *Comoseris* je zaradi enake mikrostrukture z rodом *Microsolena* priključen k družini Microsolenidae. Pripominjam, da je po serijah koralitov z vmesnimi grebeni in sinaptikulotekalno steno podoben rodovoma *Meandrophyllia* in *Microphyllia*. Žal je mikrostruktura naših primerkov preslabo ohranjena, zato sprejemam zaenkrat Alloiteaujev sistem.

Vrsto *Thamasteria subagrarites* BECKER, ki jo je GEYER štel k rodu *Microsolena*, pripisujem rodu *Synastrea*, ker ima spongiozno kolumelo, nepravilno perforirana septa in sestavljene trabekule, kar je značilno za ta rod.

Vrsto *Connectastrea piriformis* sem ponovno prištel k rodu *Amphiastraea* (podobno kot GEYER, 1954), ker tudi naši primerki kažejo, da se vsi znaki, značilni za rod *Connectastrea*, pojavljajo pri *Amphiastraea*. Vidimo jih celo na isti koloniji.

Iz navedenih primerov, kakor tudi iz številnih drugih, ki jih obravnavam med opisom favne, jasno vidimo, kako neenotni so bili in so še kriteriji za določanje rodov, družin ali celo podredov. Zato je nujno, da bi v prihodnje, ob sodelovanju vseh paleontologov, ki raziskujejo heksakorale, sistem poenotili.

BIOSTRATIGRAFSKI DEL

Že pri opisu slovenskih koralnih nahajališč sem omenila, da je BUSER (1965) vse sklade z grebensko favno (hidrozoje, korale, dicerace, nerineje, hetetide) uvrstil v horizont zgornjega oksfordija in spodnjega kimmeridgija. Tega horizonta doslej s pomočjo hidrozojev in koral nisem mogla podrobneje razčleniti. S tem ne mislim zanikati stratigrafskega pomena koral in hidrozojev. Ta favna je v naših jurskih skladih vodilna, toda vodilna kot celota za ves spodnji malm. V zgornjem kimmeridgiju in portlandiju pri nas teh grebenskih fosilov nismo dobili.

Na podlagi hidrozojske favne sem (TURNŠEK, 1966, 1969) vsa slovenska nahajališča regionalno delila na tri področja, in sicer severno področje z aktinostromaridnimi in sferaktinidnimi hidrozoji, srednje področje s parastromatopordnimi hidrozoji in južno področje s hidrozojem *Cladocoropsis*. Korale so pogostne v vsem severnem in srednjem področju, medtem ko so redkeje v južnem. Posamezni hidrozojski rodovi so vezani le na eno področje, korale pa ne. Na priloženi razpredelnici vidimo (tabela 1) razširjenost posameznih koralnih vrst v slovenskih nahajališčih, kakor tudi njihovo regionalno in stratigrafsko razširjenost drugod po svetu.

Z uvrstitvijo vseh, to je parastromatopordnih, aktinostromaridnih in sferaktinidnih hidrozojev v Sloveniji v spodnji malm se je zamajalo nekdanje mnenje, da je sferaktinide možno najti samo v titoniju. Prve sferaktinide so bile najdene namreč v Štramberku na Češkem, kjer je bil postavljen stratum typicum za titonij. To nahajališče vsebuje tudi zelo veliko koral. Tudi v Sloveniji nastopajo korale skupaj s hidrozoji. Zato je nastalo vprašanje, ali bodo tudi korale potrdile našo prejšnjo ugotovitev glede spodnjemalmske stratigrafske pripadnosti.

Koralna favna iz naših nahajališč obsega 65 vrst, od tega 60 že znanih. Zaradi tega je primerjava z drugimi koralnimi nahajališči v svetu lažja in stratigrafsko zanesljivejša.

Na Portugalskem je 14 istih vrst najdenih v lusitanijskih in kimmeridgijskih plasteh (Koby, 1904, GEYER, 1955 b). V Španiji je 8 istih vrst odkritih v kimmeridgijskih plasteh (GEYER, 1965). V Franciji se pojavlja 23 istih vrst v skladih rauracija, argovija in séquanija, nekaj tudi v »kimmeridgiju« (FROMENTEL, 1861, 1862, BEAUVAIS, 1964). V Švici je znanih 33 istih vrst, večinoma iz argovija, rauracija in séquanija, nekaj vrst iz kallovija in spodnjega oksfordija in »kimmeridgija« (Koby, 1880—1889). Iz nemških nahajališč poznamo 20 istih koralnih vrst iz oksfordija in kimmeridgija (BECKER et MILASCHEWITSCH, 1876, QUENSTEDT, 1858, SPEYER, 1912, 1926, GEYER, 1954). Na Svetokriških gorah na Poljskem je bilo najdenih 26 istih vrst v zgornjem oksfordiju (RONIEWICZ, 1966). Dve isti vrsti sta znani iz batonija in kallovija Indije (GREGORY, 1900), tri iz Coral raga v Angliji (MILNE-EDWARDS et HAIME, 1851, TOMES, 1883). Ena ista vrsta se pojavlja v spodnjem kimmeridgiju Avstrije (KÜHN, 1939) in ena vrsta v oksfordiju in kimmeridgiju Črne gore (KRKOVIĆ, 1965). Iz severne Italije sta znani dve isti vrsti iz zgornjejurskih skladov, ki nista natančneje stratigrafsko določeni (ACHIARDI, 1879). Šest istih vrst je bilo najdenih v raznih nahajališčih na jugozahodu Sovjetske zveze v skladih oksfordija in kimmeridgija (SOLOMKO, 1888, KRASNOV et STAROSTINA, 1970, BENDUKIDZE, 1948, BABAEV, 1970). Nadalje so znane tri iste vrste iz titonija poljskih Karpatov (MORYCOWA, 1964), ena vrsta iz titonija SSSR (KRASNOV et STAROSTINA, 1970), 18 istih vrst iz titonija Štramberka na Češkem (OGILVIE, 1897, GEYER, 1955 a) ter 2 vrsti iz titonija Romunije (DUSA, 1969).

Primerjava posameznih stopenj ali facialnih nazivov je posebej podana na tabeli 2. Stopnje argovij, rauracij in séquanij pripadajo lusitaniju, ta pa zgornjemu oksfordiju (GIGNOUX, 1960, RENEVIER, 1874, MAYNC, 1960). GEYER (1955 b) pripisuje zgornji del lusitanija spodnjemu kimmeridgiju. Astartij je ekvivalent séquanija, ki ga RONIEWICZ (1966) uvršča v zgornji oksfordij, medtem ko REYRE (1943) prišteva sklade z rodом *Astartes* v spodnji kimmeridgij. Coral rag na Angleškem in Corallien sta ekvivalenta lusitanija oziroma njegovega zgornjega dela séquanija. Zanimivo je še poudariti, da »kimmeridgij« v francoskem smislu pomeni spodnji kimmeridgij po mednarodni kronostratigrafski razdelitvi, ki je bila sprejeta na kolokviju o juri leta 1962, titonij pa je pripisan stopnji zgornjega kimmeridgija in portlandija.

Vse omenjene primerjave kažejo, da večina jurskih koralnih nahajališč sodi v obdobje spodnjega dela malma in da so primerki večinoma najdeni v horizontih zgornjega oksfordija

Vrsta — Species	Slovenija										Druga nahajališča — Other localities												
	Banjska planota	Ojstrovca Mirzovec	Otilica Col	Selovec	Bukovje	Gaber	Karteļjevo Mirna peč	Frata pri Ajdovcu	Čušperk	Luče	Srbija Crna gora	Poljska	ČSR	SSSR	France	Suisse	Deutschland	Portugal	Espana	Great Britain	Italia	Romania	India
<i>Axosmilia marcou</i> (ÉT.)		UO LK											P		UO LK								
<i>Amphistraea basaltiformis</i> ÉT.		UO LK					UO LK				P	P	P		UO LK	UO LK					UJ		
<i>Amphistraea piriformis</i> GREG.							UO LK											K					UD
<i>Schizosmilia rollieri</i> Koby		UO LK				UO LK										UO							
<i>Mitrodendron ogilvie</i> GEYER		UO LK				UO LK	UO LK				UO P				UO								
<i>Donacosmilia corallina</i> Fr.	UO LK						UO LK						P			UO							
<i>Donacosmilia etalloni</i> (Koby)				UO LK																			
<i>Microsolena agariciformis</i> ÉT.	UO LK	UO LK								UO LK	UO P				UO LK	UO K	K						
<i>Microsolena thurmanni</i> Koby	UO LK		UO LK								UO				UO	UO							
<i>Microsolena ornata</i> Koby		UO LK	UO LK												UD				LK K				
<i>Comoseris minima</i> BEAUVAIS			UO LK								UO				UO	UO							
<i>Comoseris baltovensis</i> RON.		UO LK	UO LK								UO												
<i>Comoseris junarensis</i> GREG.																K							UD

<i>Diplaraea elegans</i> (MILASCH.)		UO LK							UO LK																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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Vrsta — Species	Slovenija												Druga nahajališča — Other localities												
	Banjska planota	Ojstrovca	Mrtovca	Otila Col	Selovec	Bukovje	Gaber	Karteljevo	Mirna peč	Frata pri Ajdovcu	Čušperk	Luče	Srbija Crna gora	Poljska	ČSR	SSSR	France	Suisse	Deutschland	Portugal	Espana	Great Britain	Italia	Romania	India
<i>Synastraea dubia</i> Fr.		UO LK															UO								
<i>Synastraea subagarricites</i> (BECKER)				UO LK															K						
<i>Actinaraea granulata</i> (MUNSTER)	UO LK			UO LK										UO					K						
<i>Acanthogyra columnaris</i> OGILVIE		UO LK													P										
<i>Acanthogyra multiformis</i> OGILVIE					UO LK										P										

Tabela 1. Razpredelnica regionalne in stratigrafske razširjenosti opisanih koralnih vrst. L = spodnji, U = zgornji, D = doger, O = oksfordij, K = kimmeridgij, P = portlandij (zgornji titonij)

Table 1. The table of regional and stratigraphic distribution of the described coral species.

L = Lower, U = Upper, D = Dogger, O = Oxfordian, K = Kimmeridgian, P = Portlandian (Upper Tithonian)

Stopnje - Stages	Geyer, 1955 b				Gignoux, 1960				Renévier, 1874 (glej Beauvais, 1964)		Maync, 1960		Colloque de Jura, 1962		Calcaire a Dieres e nerinees Coral Rag oolithe/Angli./Kimmeridge inf./Reyre, 1943																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Tabela 2. Primerjava stratigrafskih stopenj in facijalnih nazivov v zgornji juri. Debelina horizontov ni sorazmerna času

Table 2. Comparison of stratigraphic stages and facial names in Upper Jurassic. The thickness of horizons is not in proportion with the time

in spodnjega kimmeridgija. Ta starost popolnoma ustreza našim nahajališčem. Iz tega obdobja je v literaturi omenjena tudi spremljevalna favna dicerason in nerinej, ki se pojavljajo prav tako v našem severnem hidrozojskem področju. Enako je v to obdobje vstet Great Oolithe iz Anglije. GEYER (1954, 1965) omenja korale na Württemberskem in v Španiji še v spodnjem delu zgornjega kimmeridgija ali v najspodnjem titoniju. Zato je možno, da so ponekod korale uspevale množično nekoliko dalj. Možno pa je tudi, da je ta uvrstitev v mlajši horizont nastala zaradi drugačne interpretacije lusitanija, ki ga GEYER postavlja v nekoliko mlajši horizont kot drugi raziskovalci. Naj bo tako ali drugače, resnica je, da korale v Evropi nikjer ne nastopajo množično v zgornjem titoniju, razen v Štramberku na Češkem, kar nam da misliti, da morda štramberški titonij s koralami in hidrozoji ni stratigrafsko pravilno določen. Številne korale omenjajo v zgornjem titoniju Hrvaškega primorja, vendar te še niso paleontološko obdelane.

GEYER (1957, 1958) je dal statistično primerjavo vseh zgornjejurskih koralnih vrst v Evropi. Ni mogel deliti koralnih vrst na starejše in mlajše, ker se nepravilno menjavajo v vseh znanih nahajališčih vključno v Štramberku. Ruski paleontologi (KRASNOV, 1964, 1965, 1967, 1970, BABAEV, 1970 in drugi) so sicer postavili starostno zapovrstnost nekaterih rodov in vrst, vendar z najdbami koral v nekaterih drugih nahajališčih ta vrstni red izgublja veljavo. Tako se na primer rodova *Amphiastraea* in *Mitrodendron*, ki naj bi veljala predvsem za titonijska, pojavljata na Poljskem (RONIEWICZ, 1966) v skladih zgornjega oksfordija, v nahajališču Praatz (KUHN, 1939) v spodnjem kimmeridgiju, v Sloveniji pa v skladih zgornjega oksfordija in spodnjega kimmeridgija. Vendar tudi ruski raziskovalci ugotavljajo, da je največ zgornjejurskih koral živelo v spodnjem malmu, v titoniju pa so močno upadle. Lahko domnevamo, da v tem najpoznejšem jurskem času na področju Evrope in verjetno vse takratne Tetide ni bilo več ugodnih pogojev za obsežne grebenske zgradbe.

Iz vsega navedenega lahko vidimo, da naša koralna favna potrjuje spodnjemalmsko starost naših nahajališč. Koralna favna obenem potrjuje moje prvotno mnenje, da štramberški titonij verjetno stratigrafsko ni popolnoma pravilno postavljen. Korale so tam enake kot v večini drugih evropskih spodnjemalmskih nahajališč. Zato moremo sklepati, da se je začel razcvet grebenske favne tudi v Štramberku že v oksfordiju in kimmeridgiju. Ali je trajal dlje kot pri nas, bodo pokazale raziskave tega področja, ki so jih češki geologi že začeli.

SUMMARY

UPPER JURASSIC CORALS OF SOUTHERN SLOVENIA

INTRODUCTION

In the southern and south-western parts of Slovenia numerous hydrozoans and corals occur in the strata dating from the Upper Oxfordian and Lower Kimmeridgian periods. After completing my researches on the hydrozoans, I commenced my studies of the corals, since only thus could the complete associations of fossils belonging to our reef formations be known.

I have been collecting fossil coral material at various sites for several years now, having made systematic researches in 1970 and 1971. At Trnovski gozd and on Banjška planota I was assisted in my work by my colleagues Dr. Stanko BUSER and Jože CAJHEN. When preparing the fossils I made at least one longitudinal and one transverse orientated microscopic thin section for each species in order to examine its microstructure. From all the material collected I was able to determine 65 different species of corals, belonging to 38 genera. With such a great variety of coral species, the Slovene localities may be counted among the world's richest.

I obtained a one-year scholarship from the Humboldt Foundation in West Germany to carry out work on coral fauna. Between March 1st, 1971 and February 29th, 1972 I undertook advanced studies at Stuttgart University under the guidance of Professor Dr. O. GEYER, the world-famous specialist in Jurassic corals. As well as complete earlier and modern literature, I also had available comparative coral material from Germany and Spain with some from Portugal and America, all of which Professor GEYER himself had worked on. I am specially grateful to him for his hospitality and all his help. I am also very much indebted to the staff and employees of the Geological Institute of the University of Stuttgart, of the Natural History Museum in Ludwigsburg, and of the Geological Institute of the University of Tübingen, for making available to me all relevant literature and their coral collections.

Our Jurassic coral fauna show a lot of resemblance to the corals from the Jurassic strata of Czechoslovakia and Poland, so I visited the State Natural History Museum in Vienna. Here, the Head of the Museum, Prof. Dr. F. BACHMAYER, kindly gave me permission to look at the important coral collection from Štramberk in Czechoslovakia, first described by OGILVIE (1897) and then revised by GEYER (1955 a). Then I went to Warsaw, where the Polish scientist, Dr. Ewa RONIEWICZ, a palaeontologist of the Palaeontological Department of the "Polska akademia nauk", showed me the whole of her extensive collection of material and gave me advice. I wish to thank her very warmly for all her help.

I am also very much indebted to my Principal, Academic Professor Dr. Ivan RAKOVEC, who has helped me in my work and given me valuable specialist and linguistic advice.

Research work has been going on for several years now and, during this period, research costs have been mainly covered by the Slovene Academy of Science and Art. In the last two years assistance has also been given by the Boris Kidrič Fund of the Research Council of Slovenia. By giving

me a one-year scholarship, the Alexander von Humboldt Foundation enabled me to carry out really intensive and successful work in Germany. I would like to take this opportunity of expressing my grateful thanks to all these institutions.

All the specimens described marked with the letter P are kept in the Palaeontological Institute of the Slovene Academy of Sciences and Arts; other specimens (with field numbers) are the property of the Geological Survey in Ljubljana.

DESCRIPTION OF CORAL LOCALITIES IN SLOVENIA

Upper Jurassic corals have been discovered at various places in southern and south-western Slovenia. They occur together with hydrozoans, chaetetids, *Diceras* and *Nerinea*, as well as other reef fauna. In some places an approximately equal number of hydrozoans and corals have been found together, elsewhere there are either more hydrozoans or more corals unless some other fauna predominate. The most important coral localities are at Trnovski gozd, where the strata are not covered with vegetation, making access to fossils easier. The Dolenjsko district is thickly overgrown with vegetation, so findings are accidental, depending on the execution of various civil engineering works, such as cuttings and road works.

The corals considered in this treatise were found at the following localities: Banjška planota, Ojstrovca, Mrzovec, Selovec, Col and Otlica on Trnovski gozd, Bukovje on Hrušica, as well as Predole, Luče, Frata, Gaber, Ivanja vas and Karteljevo in Dolenjsko (see map 2).

Banjška planota and its surroundings: The Upper Jurassic coral reef fauna sites on Banjška planota are the northernmost in Slovenia. As at Trnovski gozd and at some other places in Dolenjsko, the corals occur here together with actinostromarid and sphaeractinid hydrozoans. In this area we obtained coral fauna at the site south of Kal, at the village of Plave and at Čepovanski dol.

Ojstrovca and Mrzovec: The new forest road on the slopes of the hills Ojstrovca and Mrzovec (south of Lokve) cuts into fossil-bearing limestone, unstratified but full of coral reef fauna. Here we found a great many actinostromarid and sphaeractinid hydrozoans, in places some *Nerinea* and *Diceras*, and chaetetids. Corals, belonging to various species and genera, took a distinct place among all the fauna.

Otlica and Col: Many parastromatopodid hydrozoans and chaetetids were found at these localities. There are fewer coral species than at Mrzovec, but the species present are very numerous so that the coral fauna are dominant. Corals were discovered in the village Otlica something north of the church and on the hillocks south of the village. A rich locality of corals is also some ten metres north of the village Col, one species comes from Vodice 5 km east of Col. All the reef fauna occurs in pseudoolitic unstratified limestones of a grey colour.

Selovec: Besides some parastromatopodid hydrozoans, also corals in very large colonies, reaching lengths of up to one metre, occur.

Bukovje on Hrušica: Northern of Bukovje corals have been found in the upper part of the strata which contain hydrozoan *Cladocoropsis mirabilis*. Limestones are stratified and of dark grey colour.

Karteljevo and Ivanja vas near Mirna peč: Karteljevo and the surroundings is one of the areas containing very many actinostromarid hydrozoans in Dolenjsko. Corals are there relatively few. Some rare have been found in the quarry at the village of Karteljevo, by the motorway at the turn-off to Novo mesto and at Mačkovec near Novo mesto. On the contrary the locality in Ivanja vas near Mirna peč contains many corals, which have been found in a quarry near the brook, and close by beside the road which runs from Ivanja vas towards Vrbovec. The coral and other reef fauna occur in unstratified light grey limestones.

Gaber and local district: Corals have been found at three localities in the vicinity of the village of Gaber: in the coppice beside the motorway near the village of Bič, by the road which runs from Gaber towards Žužemberk and branches off towards Sela and Šumberk, and south of Babna gora near Gaber. I found a lot of actinostromarid and sphaeractinid hydrozoans at all these sites, too. The limestone is light-grey in colour and is not stratified. The whole area is fairly thickly covered with vegetation, so fossil findings are accidental, usually being made by the sides of roads and in fields.

Frata at Ajdovec: At the Frata Hunting Lodge on Ajdovska planota in Dolenjsko, north-east of the village of Ajdovec. In the pseudo-oolitic limestone some parastromatopodid hydrozoans and chaetetids were found, but corals occur in far greater numbers. Like those at Selovec, the corals here attract attention by their large colonies up to one metre high. I found some corals next to the lodge itself, one kilometre south of the building on the road which leads towards Brezova reber; I found others east of this village and east of Frata beside the old military road, which runs across the slope of the hill towards Mali vrh. Coral reef fauna can be obtained in all parts of the pseudo-oolitic, partly stratified, grey-coloured limestone.

Predole and Čušperk: I obtained relatively few hydrozoans, chaetetids and corals in the oolitic and pseudo-oolitic limestone of this area. Such fauna can be obtained along the sides of the forest tracks west of the railway line and on the slopes of Zajčji hrib and Stari grad.

Luče: Along the first section of the new road which leads towards Ilova gora there is a cutting with many coral reef fauna, situated west of the village Luče in Dolenjsko. I discovered several corals among the parastromatopodid hydrozoans and chaetetids in the same place. The fauna occur in thickly-stratified pseudo-oolitic limestone of a grey colour.

The rocks at all above mentioned coral localities in Slovenia correspond to the same stratigraphic horizon, considered by BUSER (1965) to belong to the Upper Oxfordian and Lower Kimmeridgian periods. For, in fact, at all sites the corals invariably lie under the stratigraphic horizon of the limestone containing the alga *Clypeina jurassica* FAVRE, which are characteristic for beds of the Upper Kimmeridgian and Portlandian age. Thus the coral reef formations must date from an earlier period. (For a more precise explanation see: TURNŠEK; 1966, 1969). I shall compare our coral findings to those discovered elsewhere around the world in greater detail in the section concerning the stratigraphy.

PROBLEMS OF CLASSIFICATION

Two modern works represent the basis for the present system for the classification of post-palaeozoic corals. One system is that set up by VAUGHAN and WELLS (1943) and the other is that used by ALLOITEAU (1952). The system employed by VAUGHAN and WELLS is based on the one used by MILNE-EDWARDS and HAIME; ALLOITEAU supplements it with numerous genera, families and sub-orders.

The majority of present day researchers make use of ALLOITEAU's system, and especially of his division into sub-orders. Such researchers are, for instance, BEAUVAIS (1964), RONIEWICZ (1966), and BENDUKIDZE and ČUKOVANI (1962), among others. GEYER (1954, 1955 b) recognizes ALLOITEAU's new suborders Stylinida and Amphistraeida, but he uses the names given by VAUGHAN and WELLS for Astrocoeniida and Faviida. GILL (1967, 1970) assigns much significance to the presence of penulae in the skeleton structure of corals. He has proposed the combination of all corals with penulae into the super family Pennulaceae. KRASNOV (1965, 1970) on the whole takes into account ALLOITEAU's division into suborders; however he combines them into three new orders, namely Fungiida, Montlivaltiida and Pinacophylliida. He defines them according to the porosity of their skeletal elements as well as by some of their other structures. It is interesting to note that he combines Styli-

nida and Archaeocaeniida into one group, like VAUGHAN and WELLS except that he combines them into a higher classification category.

A comparison between the division into suborders used by VAUGHAN and WELLS and that used by ALLOITEAU is given in the Slovene text.

In my account of the system used by VAUGHAN and WELLS I have mentioned only those families which have been promoted by ALLOITEAU into independent orders.

ALLOITEAU changed the name of Vaughan and Wells' suborder Astrocoeniida to Archaeocaeniida, since he had determined (1954, 1957, 51—56) that *Astrocoenia* was distinguished from *Actinastraea* by its microstructure. The skeletal elements of the genus *Actinastraea* have large trabeculae with a few well spread-out centres of calcification, whereas the genus *Astrocoenia* is characterized by its numerous small centres of calcification and its axis of divergence. On account of this ALLOITEAU attributed the genus *Astrocoenia* to the family Stylocaeniidae (and includes it in the Astraeoidea). I cannot judge whether or not Alloiteau's inclusion is correct because I have no specimens of this genus available for examination. Anyhow, the genus *Astrocoenia*, with a microstructure as described by ALLOITEAU, does not belong to the same family as the genus *Actinastraea*. Therefore the family Astrocoeniidae and the suborder Astrocoeniida have no proper basis if we consider them within the system used by VAUGHAN and WELLS. For the time being I myself am prepared to accept Alloiteau's suborder Archaeocaeniida.

All later researchers, including myself, have accepted Alloiteau's new suborder Stylinida. It is distinguished from the suborder Archaeocaeniida by the fact that it has a compact lamellar microstructure of septa and not a discontinuous one. This difference has been clearly demonstrated by MORYCOWA (1971, Textfig. 7 a, b).

Like GEYER, I name the third suborder Faviida in accordance with Vaughan and Wells' system and not Astreoida in accordance with Alloiteau's system. A good explanation of this has already been given by GEYER (1955 b, 329).

ALLOITEAU promoted the family Amphistraeidae OGILVIE into the independent suborder Amphistraeida, whereas VAUGHAN and WELLS attributed the former to the suborder Faviida. The suborder Amphistraeida can be distinguished from all other scleractinians by its particular way of reproduction and by its bilateral symmetry. This characteristic is important and I myself consider that the suborder Amphistraeida can be treated as an independent suborder.

All present-day researchers unanimously make use of the suborders Fungiida and Caryophylliida.

I have no representatives of the suborders Meandriida, Dendrophylliida, or Eupsammiida, among my material, so I am not able to discuss these suborders here.

Unfortunately the criterions for the differentiation of the suborders mentioned are non-uniform. One researcher considers the microstructure to be the decisive criterion, another considers it to be the method of reproduction, while a third may choose the porosity of septa, not to mention other criteria.

Non-uniformity of criteria is still greater when we come to consider the subdividing of families and genera. The structure of the septa seems more important to one researcher, the building and occurrence of a wall seem noteworthy to another; a third attaches much significance to the septal ornamentations. ALLOITEAU and BEAUVAIS are of the opinion that each minute difference in the construction of the skeleton is a sufficient criterion for the division of genera. VAUGHAN and WELLS, GEYER and some other researchers have tried to combine similar structures. Formerly, palaeontologists used to consider the shape and growth of colonies and corallites, whereas nowadays the microstructure of skeletal elements is considered to be more important.

It is interesting to compare two almost simultaneous revisions of two collections. ALLOITEAU (1957) revised some species of the genus *Montlivaltia* from Fromentel's collection. From each

species, he established a new genus. Thus ten new genera and one new subgenus came into existence. Conversely, LAMBELET (1968), when revising Speyer's collection, combined 18 species of the genus *Montlivaltia* into one species, *M. obconica*. He combined all intermediate forms and accepted a wide variation range for that single species.

None of these extreme propositions are correct in my opinion. If we combine all the intermediate forms into one species, we could easily end up by neglecting some important evolutionary changes. If, on the other hand, we consider every little triviality as having generic significance, then we are deprived of a survey of the fossil fauna, since comparisons can no longer be made.

On account of the great extent of non-uniformity in past and present literature, it is frequently impossible to be certain who is right on some point. It would therefore be best if all those palaeontologists concerned with corals could decide upon an order of priority for individual structural elements to be used in classification and for individual classification categories.

For the time being I myself can neither add anything new to the system nor can I change it. Our Jurassic corals make up only a small part of the large group of hexacorals. Many genera, which are perhaps characteristic for individual families or suborders, do not appear at all in strata from the Jurassic period, but they are known from earlier or later strata or else they are represented among recent corals. In addition to this, the microstructure of our Jurassic corals is badly preserved, so I have not been able to get any new insight on the basis of microstructures. I therefore include the Jurassic corals of Slovenia for now in the system used by the majority of present-day researchers. In my descriptions of the fauna I shall explain in greater detail why I tend to agree with one author or another in their assessment of individual families or genera.

SYSTEMATIC DESCRIPTION OF FAUNA

I have arranged the corals found at our localities in a system which is given in the Slovene text. A list of synonyms and a comparison of the dimensions of individual species are also given there. The regional and stratigraphic distribution of species can be seen clearly in Table 1, so, for individual species, I have named only the new Slovene findings. All our sites are located in the same stratigraphic horizon, which has been established as belonging to the Upper Oxfordian — Lower Kimmeridgian periods.

In my descriptions of fauna I have used the following abbreviations:

d = diameter of corallite

c—c = distance between centres of adjacent calices or corallites

s = number of septa

c = number of costae

t = number of tabulae

dis. = dissepiments

t/mm = density (number) of tabulae over a distance of 1 or more mms

s, c/mm = number of septa or costae over a certain number of mms

Suborder: Archaeocaeniida ALLOITEAU 1952

Family: Actinastraeidae ALLOITEAU 1952

Genus: *Actinastraea* D'ORBIGNY 1849

In 1948 MILNE-EDWARDS and HAIME proposed the genus *Astrocoenia* for cerioid colonial corals with small corallites. A year later D'ORBIGNY proposed the genus *Actinastraea* whose appearance is very much like that of the genus *Astrocoenia*. Because of this great degree of similarity between the two genera, many later authors made no distinction between them. ALLOITEAU re-examined the original material and in 1952 he split up the two genera, claiming that the genus *Astrocoenia*

did not have a columella. On the basis of this statement, GEYER (1954) attributed all Jurassic species of the genus *Astrocoenia* with a columella to the genus *Actinastraea*. In the same year, Alloiteau's treatise dealing with the affinity of this genus to other genera was published. Although in the treatment of the genus *Astrocoenia* mention is made of the columella, this genus is distinguished from the *Actinastraea* by other criteria, again presented with still greater precision in 1957 (pp. 52—56). I have already discussed in detail the microstructure as well as the classification of the *Astrocoenia* in the chapter about the problems of classification.

According to the macroscopic structure described by ALLOITEAU, our material belongs to the *Actinastraea*. The microstructure has not been preserved well. The species of the *Astrocoenia* date mainly from the Tertiary period.

Actinastraea regularis n. sp.

Pl. 1, Fig. 1—2; Pl. 2, Fig. 1—2

Derivatio nominis: Named after its regular septal system

Holotypus: Specimen 3733/1

Locus typicus: The village of Plave

Stratum typicum: Upper Oxfordian - Lower Kimmeridgian

Material: Six encrusted colonies, two thin sections

Diagnosis: *Actinastraea* with 16 septa; diameter of corallite: 1 mm.

Description: A subcerioid colony with polygonal calices which are of very small dimensions. Budding is intercalicinal. The wall is septothecal. Septa are arranged, without exception, in an octomeral system. The first eight septa almost reach the centre of the corallite where, in some places, one or two septa attach themselves to the columella. The eight septa of the second cycle are less than half the length of the septa of the first cycle. Apart from these 16 septa there are no other septa or costae. Corallites attach themselves to the theca quite strongly but in an irregular fashion. Septa are subconfluent.

The microstructure is badly preserved but, in some parts, we can still observe dark spots which might represent the calcification centres. The columella is styliiform.

Dimensions: $d = 1.0$ mm, $c-c = 1-1.2$ mm, $s = 16$.

Comparison: With respect to the octomeral system of the septa, a comparison can be drawn between our species and the species *A. ramosa*, *A. sowerbyi*, *A. tuberculata*, and *A. octolamelosa*. However, our species has noticeably smaller corallites than all the above mentioned species. The diameter of the corallites of the species *A. furcata* (ÉTALLON) is 1 mm but the latter's system of septa is hexameral. Judging by the size of the corallites (1—2 mm) and partly by the number of septa (16—24), our species resembles the species *Stephanocoenia trochiformis* MICHELIN (cf. Koby, 1885, 301—302), which was attributed to the genus *Allocoenia* by BEAUVAIS (1964, 112). Nevertheless, this species has a varying number of septa and pali unlike our specimens. Their constant number of septa, the small and unvarying diameter of their corallites, and their absence of pali distinguish our specimens from all similar known species and therefore I think that the establishment of a new species is justified.

Locality: I found a number of encrusted colonies in just one place, at the village of Plave near Banjška planota (No. 3733/1). BUSER places the strata containing this species in the Upper Oxfordian-Lower Kimmeridgian periods.

Family: Acroporidae VERRILL 1902

Genus: *Etallonia* RONIEWICZ 1966

The genus *Etallonia* was established by RONIEWICZ in 1966. After she had re-examined the original material she defined the species *Cyathophora minima* ÉTALLON (1864) as the typical species of this genus. Because of its somewhat perforated wall she included the new genus in the suborder

Fungiida, family Poritidae. She distinguished *Etallonia* from the other genera of the same family by its compact septa. It was this very characteristic which later on led her to the conclusion that *Etallonia* is closer to the family Acroporidae (verbal report). She advised me to include this genus in the Acroporidae family; she herself is going to give a more detailed explanation.

Our material fits in with the description and all the characteristics of the *Etallonia*. If we compare the wall of our genus with the walls of the *Cyathophora* and *Convexastraea* the differences are so noticeable and important that they justify the existence of *Etallonia*. Here I should also remark that *Cyathophora* and *Convexastraea* remain valid.

Etallonia minima (ÉTALLON)

Pl. 2, Fig. 5—6

Description: The colony is massive and cerioid. Calices are squashed and of an irregularly round shape. They are connected by means of a synapticulothecal, fairly thick, wall, with pores. Septa are compact and arranged radially in a hexameral system. They are divided into two very uneven cycles. There are no costae. Endotheca is composed of small tabular dissepiments. Budding is extracallicinal.

Dimensions: $d = 1.5-2.0$ mm, $c-c = 1.5-2$, $s = 12 (6 + 6)$, $t/mm = 13-15/5$ mm. The microstructure is badly preserved; only in some places can single trabeculae be seen.

Comparison: RONIEWICZ has tentatively attributed the specimens found in the Jurassic strata in Czechoslovakia and Portugal, described by OGILVIE (1897) and GEYER (1955 a, b) with the name *Convexastrea minima* (ÉTALLON), to the same species. However, while examining this material I noticed that these specimens have a clearly marked costal paratheca and therefore they do not belong to *Etallonia*. MORYCOWA (1964) described the species *Cyathophora minima*, found in strata in Poland, and listed as synonymous all the specimens which RONIEWICZ had placed in the genus *Etallonia*. MORYCOWA's specimens are really representatives of the *Cyathophora*, whereas other holotypes will have to be determined for the species *Convexastraea minima* and *Cyathophora minima*.

Localities: A specimens of the above described species has been found at the village of Otlica on Trnovski gozd (P-264).

Suborder: Stylinida ALLOITEAU 1952

Family: Cyathophoridae VAUGHAN et WELLS 1943, emend. ALLOITEAU

The subfamily Cyathophorinae was established within the family Stylinidae by VAUGHAN and WELLS. ALLOITEAU raised the status of this subfamily to that of a family because it is distinguished from the Stylinidae by its tabular endotheca; the Stylinidae has a vesicular endotheca. GEYER (1955 b) considers the division into the Cyathophoridae and Stylinidae unnecessary, since the subtabular endotheca also occurs, in some places, in the family Stylinidae; and both families have vesicular dissepiments. However, already OGILVIE had pointed out the existence of explicit tabulae in species belonging to the genus *Cyathophora*. The tabulae are so strong that they look quite like the crossmembers of the tabulate corals from the Paleozoic era, and therefore I think that the Cyathophoridae family can be considered an independent family, which includes the genus *Pseudocoenia* too.

Genus: *Pseudocoenia* D'ORBIGNY 1850

The genus *Pseudocoenia* was established by D'ORBIGNY on the basis of the type species *P. suboctonis*. Since the original diagnosis is very incomplete many later authors did not recognize this genus (cf. WELLS, 1956, F 376) and attributed it to the genus *Stylina*. ALLOITEAU (1948, 704—705)

provided a new definition, based on a lectotype from d'Orbigny's collection. RONIEWICZ supplemented the description of the *Pseudocoenia* by a study of the fossil material from Poland. Because having the strong tabulate endotheca she attributed this genus, together with the *Pseudocoenia*, to the family Cyathophoridae. She distinguished *Pseudocoenia* from the *Cyathophora* by the longer septa and richer perithea of the former.

The Slovene fossil material shows that the species of the genus *Pseudocoenia* with the hexameral system of septa are extremely close to some species of *Cyathophora*; especially so, because, in some places, the septa are not well preserved. However, in every our specimen, at least a few long septa can be found. This proves that septa are not rudimentary as they are in *Cyathophora*; they are only re-crystallized.

Pseudocoenia hexaphyllia (D'ORBIGNY)

Pl. 3, Fig. 1, 2, 5.

Description: The massive plocoid colony has round or subpolygonal calices. Septa in hexameral system, the first two cycles being complete, the third incomplete. Septoparatheca is costal. Costae are short and non-confluent. Endotheca is tabulate; there are large concave dissepiments in the perithea. Columella is absent.

Dimensions: $d = 4-6$ mm, $c-c = 5-7$ mm, $s = 12 + S 3$, $t/mm = 5-6/5$ mm.

Comparison: With respect to the endotheca and the size of corallites this species very much resembles the species *Cyathophora bourgueti* (DEFrance). The latter, however, has shorter rudimentary septa; this even places it in a different genus. Perhaps the species *Cyathophora jakovlevi* KRASNOV (1964) could be attributed to *Pseudocoenia*, since the author mentions septa of this species as reaching up to 1/3 of the length of the corallite radius. I did not see the Russian material to be able to re-examine this case. When dealing with the species *Pseudocoenia hexaphyllia*, RONIEWICZ mentions smaller corallites than the ones our specimens have; but, at the same time, she says that in d'Orbigny's original material there are colonies with corallites which have diameters of up to 5.5 mm. Thus our specimens fall within the variation range of the species.

Locality: In Slovenia, I found this species on Ojstrovca (specimen P-443) and on Mrzovec (P-458, P-462 and P-479).

Pseudocoenia radisensis (D'ORBIGNY)

Pl. 3, Fig. 3-4

Description: Plocoid colony has septa formed in a hexameral system. The first six septa reach up to half the length of the radius of the calice. Wall is septoparathecal and costal. Endotheca is distinctly tabular; dissepiments in the perithea are in some places somewhat bent.

Dimensions: $d = 2.5-3$ mm, $c-c = 2.8-4$ mm, $s = 12 + S 3$, $t/mm = 9-12/5$ mm.

Comparison: According to the dimensions of the corallites, the strong tabular endotheca and the hexameral system of the septa, the specimens of the above described species could be attributed to the species *Cyathophora tithonica*. However, our specimens have longer septa and therefore they belong to the genus *Pseudocoenia*. The species *P. radisensis* also bears a strong resemblance to the species *Cryptocoenia nivernensis* BEAUVAIS, which the author compares only with the species *C. hexaphyllia* (1964, 125). The former has smaller corallites than the latter; this is also characteristic for our species. I have not seen Beauvais's original material and for this reason I have placed her species in the synonymy of the species *P. radisensis* only tentatively.

Localities: From the findings on the Slovene sites, the following specimens belong to this species: P-405 from Mali Vrh near Frata and the somewhat more re-crystallized specimens P-393 from Brezova reber and P-371, P-372, P-384, all from Luče in Dolenjsko.

Pseudocoenia slovenica n. sp.

Pls. 4, 5

Derivatio nominis: It was found on Slovene territory

Holotypus: Specimen P-304, Pl. 4, fig. 1-2, Pl. 5, fig. 1-4

Locus typicus: Col

Stratum typicum: Upper Oxfordian - Lower Kimmeridgian

Material: Two colonies, five thin sections

Diagnosis: *Pseudocoenia* with a hexameral number of septa (12). The diameter of the corallites is 0.8-1.3 mm and the distance between the centres of the calices is 1-1.5 mm. The endotheca consists of incomplete tabulae.

Description: Massive plocoid colony has thick, even, round calices. Corallites run parallel or are slightly divergent. Septa are arranged in a hexameral system. Six septa are well developed and they reach half or even three-quarters of the length of the corallite radius. The septa of the second cycle are shorter and usually they are only like the costal thickenings in the wall. In some places they are not preserved due to recrystallization. In the perithea septa are not confluent. Wall is septotabulothecal and costal. Endotheca consists of complete and incomplete tabulae, perithea of somewhat bent dissepiments. There is no columella nor are there any axial extensions of septa. The microstructure is recrystallized.

Dimensions: $d = 0.8-1.3$ mm, $c-c = 1-1.5$ mm, $s = 12$, $t/mm = 9-11/5$ mm, width of perithea = 0.25-0.60 mm.

Comparison: According to the size of corallites, our specimens bear quite a close resemblance to the species *Cyathophora parva* BABAEV (1964, 32). They are distinguished from this species by their longer septa and incomplete tabulae; these then place them among the representatives of a different genus. Moreover, in our species the distance is shorter. Our specimens have a few corallites without septa. However, in some places long septa are preserved, which proves that the septa are not rudimentary but only recrystallized. Therefore our specimens undoubtedly belong to *Pseudocoenia* and not to *Cyathophora*. With dimensions of corallites our species resembles a few species of *Cyathophora* such as: *C. parvula* WELLS (1948) from Albion of Trinidad, and *C. pygmaea* WOLZ (1903) from Albion of Bukovina, which has slightly bigger corallites and a polygonal shape and was later placed in the *Orbignyoenia*. Here mention must also be made of the specimen found in the Tithonian of Poland and described by MORYCOWA (1964) with the name *C. minima*. Our species is distinguished from all these other species by its longer septa.

Locality: The holotypus P-304 was found at Col, and the specimen P-286 in Vodice E of Col.

Pseudocoenia baltovensis RONIEWICZ

Pl. 6, Fig. 1-2

The Description of this species was made by RONIEWICZ (1966, 186).

Dimensions of our specimen are: $d = 3.5-4$ mm, $c-c = 6-7$ mm, $s = 16$ (also 14), $dis/mm = 6/5$ mm.

They correspond with the description and dimensions of the specimens from Poland, except for the diameter of the calices which, in our case, is somewhat greater. Since all intermediate forms have been found, I think that the above difference can be considered as falling within the variation range of the species. Owing to its long perithecal costae, this species comes close to *Stylina* but because the former has distinct tabulae, nonconfluent septa, and no columella, it belongs to *Pseudocoenia*.

Locality: I found our only specimen (P-477) at Mrzovec on Trnovski gozd.

Pseudocoenia aff. *longiseptata* RONIEWICZ

Pl. 6, Fig. 3—4

Description: The massive plocoid colony has corallites of different sizes which, in cross-section, are round. The peritheca is large. The septa are arranged in a decamerall system in two cycles. On the inner edge of the septa axial extensions can be noticed in some places. The endotheca and the wall are similar to those of the previous species. Budding is extracalicular.

Dimensions: $d = 2.5-5$ mm, $c-c = 3.5-6$ mm, $s = 20$, as a rule,
 $t/mm = 8-9/5$ mm, $dis./mm = 5-6/5$ mm.

Comparison: In size of its corallites our specimen is closer to the species *P. maxima* RONIEWICZ (1966) than to the *P. longiseptata*, but because of its decamerall septal structure I have placed it, with the designation "aff", in the latter species. The axial extensions of our specimen show its affinity to *Columnocoenia*.

Locality: Our specimen (P-307) comes from Col on Trnovski gozd.

Family: Stylinidae D'ORBIGNY 1851

Within the suborder Stylinida, the family Stylinidae comprises every genus with a vesicular endotheca. In the Slovene coral material the following genera belong to this family: the plocoid genera *Stylina*, *Heliocoenia* and *Convexastraea*, the phaceloid genera *Stylosmilia*, *Goniocora*, *Aplohyllia* and the meandroid colony *Myriophyllia*.

Genus: *Stylina* LAMARCK 1816

D'ORBIGNY divided up Lamarck's genus *Stylina* according to type of wall, septa and columella into eleven new genera, including *Cryptocoenia*, *Convexastraea*, *Pseudocoenia*. M.-EDWARDS and HAIME (1851, 77—78), as well as OGILVIE (1897, 168) and KOBY (1881, 73), re-attributed the majority of d'Orbigny's new genera to the *Stylina* again, as well as GREGORY (1900, 50—52), VAUGHAN and WELLS (1943) and WELLS (1956). ALLOITEAU (1952, 607—608; 1948, 700) recognized once more most of d'Orbigny's genera. It is only *Cryptocoenia* that ALLOITEAU attributes to *Cyathophora* while GEYER (1954, 126, 135) considers it to be a synonym of *Stylina* and RONIEWICZ (1966) considers it, partly, to be a synonym of *Pseudocoenia*.

Nowadays, the species with costal paratheca confluent septa subtabular and, particularly, vesicular endotheca are attributed to the genus *Stylina*. Their columella is styliform.

Stylina decipiens ÉTALLON

Pl. 7, Fig. 1—3

Description: Massive plocoid colony has parallel corallites. Septa are arranged in an octamerall system. The first cycle of thick septa reaches almost to the middle of the corallite. The axial edges are thickened but not touching columella, which is large and round but not preserved in all corallites. Septa are confluent. In some places subconfluent. Endotheca consists of vesicular and, in some parts, of subtabulate dissepiments; exotheca is formed of long, straight or bent, dissepiments.

Dimensions: $d = 2-3$ mm, $c-c = 4-6$ mm, $s = 16 + S 3$.

Comparison: Already SOLOMKO (1887) pointed out the great resemblance between the species *Stylina decipiens* and *S. octosepta*. Afterwards GEYER (1954) combined both species because, in his opinion, some differences in dimensions fall within the variation range of the same species. In septal arrangement the species *S. decipiens* also resembles, the species *S. excelsa* Ét. but the latter has smaller and denser calices.

The species *S. decipiens* has an interesting feature: the columella is not always present. Thus GEYER noticed a columella in the Czechoslovakian material, the Portuguese and German specimens do not have one. In our specimens the columella is preserved only in some of the corallites.

Locality: In Slovenia this species was found at Selovec on Trnovski gozd (specimen P-485) and south of Frata in Dolenjsko (P-369).

Genus: *Convexastraea* D'ORBIGNY 1849

D'Orbigny's genus *Convexastraea* is now accepted among the stylinides. It is distinguished from *Stylina* by its absence of a columella and by its nonconfluent or subconfluent septa. Many species of *Cryptocoenia* have been attributed to *Convexastraea* D'ORBIGNY.

Convexastraea intricata (FROMENTEL)

Pl. 7, Fig. 4—5

Description: Plocoid colony has a dendroid shape. Corallites are dense and in peritheca they are connected by the subconfluent costal septa. Septa are arranged in a hexamerall system. Wall is parathecal and costate. Endotheca is subtabulate and vesicular. Columella is absent, and the microstructure is not preserved.

Dimensions: $d = 1-1.5$ mm, $c-c = 2$ (2.5) mm, $s = 12$.

Comparison: FROMENTEL included the species *intricata* in the genus *Stylina* and mentioned the very small and indistinct columella. While re-examining the original material, BEAUVAIS discovered that the holotypus does not have a columella and therefore she attributed the species to *Cryptocoenia*. Nowadays the stylinid corals with subconfluent costal septa and without a columella are considered to belong to *Convexastraea*, to which our species also corresponds. The dimensions of our species well agree with those of the holotypus. The species *Cryptocoenia granulosa*, which BEAUVAIS included in this species, has bigger corallites.

Locality: Those of our specimens which belong to the species *Convexastraea intricata* are: P-337 from Šumberk at Gaber and P-249 from Mrzovec on Trnovski gozd.

Genus: *Heliocoenia* ÉTALLON 1859

Heliocoenia was very critically and precisely dealt with by RONIEWICZ (1966, 201—210). This genus is distinguished from *Stylina* by its nonconfluent septa and its lamellar columella. Because of its axial structure of corallites *Heliocoenia* resembles *Stylosmilia*, but the former does not have a peritheca. All these differences suffice for the recognition of the genus *Heliocoenia*.

Heliocoenia (*Hexaheliocoenia*) *costulata* KOBY

Pl. 8, Fig. 1—2

Description: Colony is massive and plocoid. Calices round to slightly oval with hexamerall septal structure. The six septa of the first and of the second cycles do not essentially differ in length. The remaining septa are shorter and unevenly developed. Lamellar columella is in some places recrystallized. The costate septoparatheca only partially preserved. Endotheca subtabular; exotheca consists of vesicular dissepiments.

Dimensions: d (lumen) = $1.4-1.8$ mm, $c-c = (2.5) 3-4$ mm, $s = 6 + 6 + S 3$.

Comparison: Our specimen fits in well with KOBY's specimen except for the fact that the second cycle of septa is almost as long as the first one; KOBY states that the septa of the second cycle are shorter. Both specimens have a hexamerall septal system.

Locality: Our only specimen of this species is P-296 from Bukovje on Hrušica.

Heliocoenia (Decaheliocoenia) variabilis ÉTALLON

Pl. 8, Fig. 3; Pl. 9, Fig. 1—6

Description: The colony is massive, plocoid and of varying shape. Corallites are parallel, calices round to oval, of varying density and different sizes. The wall is septoparathecal. In the middle there is an lamellar columella usually joined with two opposite septa. This gives the corallites an apparent lateral symmetry. The septal structure has been described by Roniewicz as decamer, having developed from a hexamer structure. Four septa have been reduced, leaving finally only 20 instead of 24 septa in the peripheral part of the corallite. In some corallites or colonies this number, twenty, is constant while in others it varies, depending on the maturity of the corallite. We can count 20, 19, 18 or 17 septa. Endotheca consists of small subtabulate dissepiments, exotheca of vesicular cross-members. The lateral side of the septa has spinous septal ornamentations. Budding is extracalicular and, in some colonies, very exuberant.

Dimensions: d (up to the wall) = 1.5—2.3 mm, d (lumen) = 1.4—1.8 mm,
c—c = 1.5—2.5 mm, t/mm = c. 9/3 mm, s = 20 (17—19).

Comparison: In 1968 I named the new species *H. (D.) regularis* which I had distinguished from the species *H. variabilis* by the greater density of corallites of the former. Among the material from Slovene localities I found all the intermediate colonies, from those with few calices to those with very dense calices. In the colony P-384 the corallites are in some places very crowded and in others much more widely spread with a peritheca between them. Therefore I have reviewed my new species *H. regularis* and included it in the species *H. (D.) variabilis*. A difference in density can occur because of stronger budding in some parts of the colony.

Locality: Among the specimens from Slovene findings, the following ones belong to the species *H. (D.) variabilis*: P-384 from Dobrnič, P-423, P-427, P-433, P-436 from Otlica and the two somewhat badly preserved specimens, P-380 and P-381 from Predole.

Genus: *Stylosmilia* MILNE-EDWARDS et HAIME 1848

The type species of the genus *Stylosmilia* is *S. michelini*, the holotypus of which is lost. The description of this genus was completed by ALLOTEAU (1957, 360) on the basis of the neotypus. The whole corallite structure strongly reminds one of the genus *Heliocoenia*, except that *Stylosmilia* has a phaceloid dendroid and not a plocoid colony.

OGILVIE (1897) placed *Stylosmilia* into the family *Amphistraeidae*. VAUGHAN and WELLS (1943), ALLOTEAU (1952, 607), GEYER (1954, 138), BEAUVAIS (1964, 116), RONIEWICZ (1966, 191) and others attributed this genus to the family *Stylinidae*. I also accept this system because *Stylosmilia* shows all the characteristics of the stylinides. The septal structure is radial and budding is extracalicular, peripheral, not in pockets ("Taschenknospung") or fissiparous as is the case with the *Amphistraeidae*. It is only the lengthened columella of this genus which shows its affinity with the *Amphistraeidae*.

Stylosmilia corallina Koby

Pl. 10, Fig. 1—2

Description: The colony is phaceloid-dendroid with irregularly branched-out corallites which bud laterally at a sharp angle. Costosepta are developed in hexamer system in three cycles. The first six septa reach up towards the columella and, for the most part, touch it. The next cycles are shorter or even rudimentary. Wall is septoparathecal and thick. Columella is somewhat lengthened, as in *Heliocoenia*. Endotheca is made up of small subtabular dissepiments.

Dimensions: d (lumen) = 1.5—2.5 mm, d (up to the wall) = 2—3 mm, s = 24 + S 4.

Comparison: *S. corallina* is distinguished from the type species *S. michelini* Koby by its growth of corallites and its larger number of costae. Our specimens wholly correspond to the species *S. corallina*.

Locality: In Slovenia specimens of this species were found in Ivanja vas (P-318), in Babna gora near Gaber (P-344, P-346) and on Mali vrh near Frata (P-412). I attribute to this species also the specimen P-397 from Griči near Predole which is not so well preserved.

Stylosmilia chaputi ALLOTEAU

Pl. 10, Fig. 3

Our specimens fit in with the up-to-the-present description and dimensions of the species *S. chaputi* (d = 0.8—1.7 mm, c—c = 1.5—4 mm, s = 12 + S 3). This species is distinguished from *S. corallina* by its smaller corallites and thinner wall. On the outside the species *Cladophyllia babiana*, too, is very similar to the species in question; the former has no columella but it has a thicker wall (cf. BEAUVAIS, 1964, 117). Our specimen 1974/5 bears a strong resemblance to the genus *Haly-sitastrea* GEYER (1968/1969) because of its vigorous lateral budding. However, Geyer's genus has a strong main septum and therefore the author includes this genus in the family *Amphistraeidae*.

Locality: The following specimens from the Slovene material belong to this species: P-454, 1778/3, 1780/1 from Mrzovec, P-456 from Koren near Mrzovec, 1902/3, 14 and 1974/5 from the site south of Kal on Banjška planota.

Genus: *Goniocora* MILNE-EDWARDS et HAIME 1851

The genus *Goniocora* was established by MILNE-EDWARDS and HAIME on the basis of the species *Lithodendron sociale* ROEMER. They included this genus in the dendroid astreines and compared it with the genera *Calamophyllia*, *Rhabdophyllia* and *Cladophyllia*. They separated *Goniocora* from all these genera by its manner of reproduction, which is lateral (budding) and not division and that, the genus "*Goniocora* has no columella" nor pali, (1851, 93). It is interesting to mention that later authors noticed in this genus a columella and they mentioned, for individual species, all forms of columella, e. g. styliform, lamellar, parietal and rudimentary.

Koby (1886), as well as GREGORY (1900, 41—42), included this genus in the family *Stylinidae*. OGILVIE (1897, 144) attributes it to the *Oculinidae* and VAUGHAN and WELLS (1943), as well as GEYER (1954), to the family *Faviidae*. ALLOTEAU (1952, 621) puts it in the *Heliastreaeidae*. At present all the three just mentioned families are considered to belong to the suborder *Faviida*. RONIEWICZ re-attributes *Goniocora* to the *stylinides*; this system was also adopted by LAMBELET (1968, 151). I, too, accept it because *Goniocora* has a stylinid endotheca and wall.

Goniocora pumila (QUENSTEDT)

Pl. 11, Fig. 1—2

Description: The dendroid-phaceloid colony has round corallites. The side branches split out of the central stem at an angle of 50°. Septa are straight, small, in two cycles, and decamer system. The septa of the first cycle rarely reach the centre but have very much dentate extensions. Such an trabecular axial structure can be seen well in the longitudinal section of the corallites. Columella is styliform and somewhat flattened; it is not so well developed as in *Stylosmilia*. Wall is septothecal and costate; endotheca is composed of sparsely spaced subtabular dissepiments.

Dimensions: d = 2.5—3 mm, s = 20.

Comparison: Geyer justly attributed to this species the *G. gracilis*, which distinguishes itself from the former only by the occurrence of somewhat smaller corallites in the same colony.

Locality: Our specimens belonging to the species *Goniocora pumila* are P-434 and P-437 from Otlica, and P-406 from Mali vrh near Frata.

Goniocora annulata RONIEWICZ

Pl. 11, Fig. 3

Description: This is a phaceloid colony, similar to the one of the previous species. Septa, too, are arranged in a decamer system and have axial trabeculae. Columella is styliform. Wall is septothecal, costate and thin. Endotheca is made up of horizontal subtabular dissepiments.

Dimensions: $d = 3-4$ mm, $s = 20$, $c/mm = 4/1$ mm.

Comparison: Our specimen corresponds to Roniewicz's originals in its septal structure, wall and dimensions. Only its columella is not so well preserved because, in some places, it is recrystallized. *G. annulata* is distinguished from *G. pumila* by its larger corallites. Although this is a small difference I recognize both species since I did not find the intermediate sizes. Besides this, *G. annulata* has somewhat more densely spaced corallites while the *G. pumila* is very small and dendroid in form. Thus the difference between these two species can be first perceived in the rock itself.

Locality: I found our specimen, P-376, at Luče in Dolenjsko.

Genus: *Aplophyllia* D'ORBIGNY 1849

The genus *Aplophyllia* has been established on the basis of the species *Lithodendron dichotomum* MICHELIN. This dendroid-phaceloid colony is distinguished from the genera *Stylosmilia* and *Goniocora* by its absence of a columella. All palaeontologists attribute this genus to the family Stylinidae.

Aplophyllia sexradiata RONIEWICZ

Pl. 11, Fig. 4

Description: The colony is dendroid-phaceloid and reaches the length of a few centimetres. Corallites are more or less parallel, and tiny. Septal structure is hexamer and developed in three cycles. The septa have extensions on their axial edge but there is no columella. Wall is septothecal and costate. RONIEWICZ calls the reproduction extracalicular because the structure of the original corallite does not change during budding; the wall just lengthens.

Dimensions: $d = 2.5-3$ mm, $s = 12 + S3$, $t/mm = 4/5$ mm.

Comparison: RONIEWICZ compares her new species only with the species *A. guettardi*. Mention must still be made of the great similarity in the structure and dimensions of this species with the species *Goniocora radiata*. However, the latter has a columella.

Locality: In Slovenia, specimens of the species *A. sexradiata* have been found at Frata in Dolenjsko (P-361, P-362) and at Selovec on Trnovski gozd (P-486).

Genus: *Myriophyllia* D'ORBIGNY 1849

D'ORBIGNY established this genus on the basis of the species *Meandrina rastelina* MICHELIN. BEAUVAIS re-examined the typical species using the topotypus because the holotypus is lost. She has given an up-to-date description of this genus (1964, 150-151).

Myriophyllia shows a great resemblance to *Felixgyra* but the latter has no columella and is hydnothoroid. Some meandroid Jurassic corals, which Koby had attributed to *Dendrogyra*, were later included in *Myriophyllia*. Nowadays *Dendrogyra* is known from the Tertiary and is distinguished from *Myriophyllia* by its mode of reproduction. A clear comparison of the similar meandroid genera has been given by ALLOITEAU (1957, 172) and MORYCOWA (1971, 54; Pl. 6).

Myriophyllia angustata (D'ORBIGNY)

Pl. 11, Fig. 5

Description: The massive meandroid colony has rounded shapes. Corallites are arranged in long straight series, which are separated by colinae with a septothecal wall. Columella is styliform and, in some parts, connected with the septa of the valleys. Septa are compact and very thick. In the valleys they end freely; They have lateral granulae and distal little teeth. Endotheca consists of numerous small dissepiments.

Dimensions: width of valleys = 2.5-3.5 mm, $c-c = 2-3$ mm,
 s/mm along the carina = 17-18/10 mm.

Comparison: Our specimens correspond to the species *M. angustata* by their structures and dimensions. This species is distinguished from the other species of the same genus by its narrower valleys.

Locality: I found our specimens belonging to this species at Mrzovec on Trnovski gozd (P-260) and near Karteljevo (P-280, P-281, P-282).

Suborder: Faviida VAUGHAN et WELLS 1943

Family: Montlivaltidae DIETRICH 1926

Genus: *Montlivaltia* LAMOUROUX 1821

The genus *Montlivaltia*, with *M. caryophyllata* as its type species, is one of the most widely-spread coral genera from the Mesozoic era. About 400 species, found in strata dating from the Triassic to the Cretaceous period, have been described. According to the earliest descriptions, *Montlivaltia* is equal to *Thecosmilia* with respect to its septal and thecal structure, but it is distinguished by the fact that it is a solitary coral. However, nowadays, it is sometimes difficult to distinguish them, since we now also have solitary specimens of *Thecosmilia* and some species of *Montlivaltia* with more corallites (GEYER, 1966). CUIF (1965, 530) points out other differences between the two genera, such as those in the ornamentation of the distal and lateral edges of the septa, etc. LAMBELET (1968, 121-137) sees a difference between the two genera in the building of the axial part of the corallite. *Thecosmilia* always has a rounded axial opening (fossula) in its axial part whereas the genus *Montlivaltia* always has an oblong-shaped fossula. This difference can be clearly observed on our specimens too, so I agree with LAMBELET here. Of course, in the main *Thecosmilia* is considered as a colonial coral, *Montlivaltia* as a solitary coral.

Montlivaltia champlittensis FROMENTEL

Pl. 12, Fig. 1

Description: The turbinate corallite is somewhat thickened in the middle. Septa are straight or slightly bent, numerous, compact and much dentate laterally. We can distinguish five cycles. In the axial part, the septa of the first two cycles freely end or bend genicularly at an oblong opening. Endotheca is made up of numerous long dissepiments, which, in the axial part, are predominantly straight; in the peripheral part they are bent. The wall, which in our specimens is not preserved anywhere, is, in fact, septoparathecal. The microstructure is very badly preserved, too, but in places we can still see the calcification centres and the trabecular thickenings.

Dimensions: $d = c. 25-50$ mm, $s = c. 100$, $t = 12-13/10$ mm.

Comparison: The species *M. ellipsocentra* is very similar to this species; the former is distinguished by its more strongly dentate septal edges from the latter. According to Lambelet's revision (1968, 9-120), all the above-quoted dimensions of our specimens would fit in with those of the

species *M. obconica*. The author mentioned includes in the species *M. obconica* all montlivaltiae with various forms of corallites, with calical sizes varying from 10 to 65 mm and a number of septa varying from 50 to 265. Such a big variation range for this species seems too wide to me as it would include practically all species of the genus. The number of septa or dissepiments is the important thing to rely on. A range of from 200 to 280 septa is quoted in the first descriptions of the species *M. obconica*. All our specimens have only approximately 100 septa, so I include them in the independent species *M. champlittensis*.

Locality: This species has been found at various places in Slovenia. Specimens P-370, P-401 and P-407 are from Frata, P-377 from Luče and P-388 from Brezova reber near Frata.

Montlivaltia renevieri Koby

Pl. 12, Fig. 2

Description: Corallum is longiconiform and bent. Calice is slightly oval. Septa are straight, dentate, and arranged in 4 cycles. The longest septa bend genicularly in the axial part. Endotheca is faviid and is made up of straight and bent dissepiments.

Dimensions: $d = 15\text{--}25$ mm, $s = c. 100$, $dis./mm = 16\text{--}18/10$ mm.

Comparison: According to Lambelet's revision, this species, too, could belong to the species *M. obconica*. Nevertheless, I recognize this species as independent because of its smaller number of septa. It is distinguished from *M. champlittensis* by its smaller corallite and its more densely spaced dissepiments.

Locality: Our two specimens of this species come from Brezova reber near Frata (P-396) and from Ojstrovca on Trnovski gozd (P-440).

Genus: *Thecosmilia* MILNE-EDWARDS et HAIME 1848

The genus *Thecosmilia* was established by MILNE-EDWARDS and HAIME on the basis of the species *Lithodendron trichotomum* Goldfuss. The first description denoted only the morphological characteristics of the colony. Numerous descriptions of other species of this genus and various revisions followed later on.

I dealt with the great similarity of *Thecosmilia* and *Montlivaltia* in my discussion of the previous genus.

Thecosmilia minuta Koby

Pl. 13, Fig. 1—2

Description: The small styliiform phaceloid colony has round single and double corallites. Septa are arranged in three to four cycles. The wall is septothecal and parathecal. Endotheca consists of convex and concave dissepiments. In our specimens the microstructure is not preserved. Septa have distal granulae and lateral spines.

Dimensions: $d = 9\text{--}12$ mm, $s = c. 30\text{--}40$.

Comparison: According to their typical septal structures, endotheas and fossula and small dimensions our specimens undoubtedly belong to the species *Thecosmilia minuta*. They resemble the species *T. dichotoma* but they are somewhat smaller. Their appearance also recalls the genus *Ceratocoenia* (TOMES 1883), which has even smaller corallites and shorter septa. LAMBELET (1968, 136, Abb. 62) considers such small specimens as ours to be the young corallites of the *T. dichotoma*. Since I found, on one site, numerous specimens, all of the same size and having no larger or intermediate forms, I think that this is not only a case of young specimens but also of an other species.

Locality: All our specimens of this species, P-410, P-411 and P-404, come from Mali vrh near Frata.

Thecosmilia dichotoma Koby

Pl. 13, Fig. 3—4

Description: The phaceloid colony has single or double corallites. Costal septa are arranged in three distinct and one incomplete cycles. They form a round axial opening (fossula). The lateral side has small septal teeth. Endotheca is made up of numerous long convex and concave dissepiments. The wall is septoparathecal and costate, columella is absent.

Dimensions: $d = 12\text{--}15$ mm, $s = 45\text{--}60$, $t/mm = 3\text{--}4/5$ mm.

Comparison: Koby attributed this species first to *Thecosmilia* tentatively, and later to the *Dermoseris*. Geyer rightly re-attributed it to *Thecosmilia* because this species has compact and not perforated septa. The double corallites, after which the species was named, are only one of the characteristics of this species, but not an essential one. This species is distinguished from the other species mainly by its fixed number of septa.

Our specimens have fairly evenly-sized corallites, 12—15 mm long. According to the size of corallites (6—15 mm) mentioned by RONIEWICZ and GEYER, the specimens which I determined as *T. minuta* could also be included in this species; but the species *T. minuta* has fewer septa.

Locality: In Slovenia, specimens of the species *T. dichotoma* have been found on the site south of Frata (P-359 and P-363).

Thecosmilia trichotoma (GOLDFUSS)

Pl. 14, Fig. 1—2; Pl. 15, Fig. 3

Description: More or less complete descriptions of the species *Th. trichotoma* can be found, as well as in the synonym list of the works mentioned, also in the published works of MILNE-EDWARDS and HAIME (1848), Koby (1884), SOLOMKO (1888), SPEYER (1926), etc. LAMBELET (1968) wrote the most up-to-date comparative treatise on and revision of this species.

Like all species of the genus *Thecosmilia*, also the species *Th. trichotoma* is a phaceloid coral, but its corallites are free and individual ones appear to be independent or solitary. Septa are numerous, forming at least five cycles. Lateral edges are much dentate. Wall is parathecal and costate. Endotheca consists of large concave and convex dissepiments. The axial opening is round and without a columella. In the polycentric corallites the centres are connected by confluent septa. Budding is intracalicular.

Dimensions: $d = c. 20$ mm, $s = c. 70\text{--}100$.

Comparison: GEYER mentions five variations of this species with respect to the shape and growth of corallites. LAMBELET adds two more variations and includes in this species also *T. irregularis* ÉTALLON and *T. costata* FROMENTEL, which also GEYER considered very similar. I have not seen the original material and therefore I cannot give any judgement on the revision. Because of the wide variation range of dimensions mentioned by Lambelet, the species *T. dichotoma* could as well be attributed to this species. However, all other authors, when dealing with the specimens of the species *T. trichotoma*, mention the number of septa as being more than 70. Besides this, the dissepiments of our specimens are more densely spaced than those of the species *T. dichotoma*; these two species can therefore be singled out as independent.

Locality: Our specimen, P-463, comes from Mrzovec. I have not made thin sections out of the several other colonies of this species found at the same site.

Thecosmilia suevica (QUENSTEDT)

Pl. 15, Fig. 1—2

Description: The corallite grows out into two or three new corallites which remain together and have irregular shapes. The septal and axial structures are the same as those of the other species of the genus *Thecosmilia*. Septa are formed in three to four cycles. The lateral side is dentate.

Wall is septoparathecal, endotheca is made up of densely spaced dissepiments, some of which are tabulate, the remainder being long and bent. In two- and polycentric corallites septa are confluent.

Dimensions: $d = c. 12-15$ mm, $s = c. 70$.

Comparison: VAUGHAN and WELLS (1943), and GEYER (1954), attributed those specimens having the structure of the genus *Thecosmilia* and irregular branching of corallites to the genus *Latiphyllia*. LAMBELET (1968) included these specimens in the *Montlivaltia*. I was able to observe a nice round axial fossula in all our numerous corallites and therefore I re-attribute this species to the genus *Thecosmilia*. In my opinion the branching of corallites is not a good enough reason for including these specimens in the genus *Latiphyllia*. The latter is most likely only a synonym for the genus *Thecosmilia*. Such branching was observed also by BEAUVAIS (1959) in the species *Thecosmilia langa* Koby. BECKER mentions the great number of septa of this species but his material shows that the single corallites have only up to 70 septa; the polycentric corallites have, of course, more septa. GEYER rightly included in the mentioned species the species *Thecosmilia moraviensis* OGILVIE because the latter is distinguished from the former only by the slightly different shape of its corallites.

Locality: Our specimens of the species *T. Suevica* come from Ojstrovca (P-450) and Mrzovec (7514/2 and 28).

Ceratothecia nov. gen.

Derivatio nominis: This name is a compound of the name of the genus, *Cerato* (*coenia*) and the word (endo) theca.

Type species: *Ceratothecia carniolica* n. sp.

Diagnosis: A solitary, corniform coral with a circular cross-section. The septal structure is composed of compact, short, sparsely spaced septa, which are occasionally dentate. There is no columella. Endotheca is faviid and consists of rare tabulate straight dissepiments which are in the same levels, and restricted mainly to the lower part of the corallite. The wall is septoparathecal. Simple trabeculae, with a central dark line, form the microstructure. In places the trabecular thickenings can be seen.

Comparison: By its external appearance the new genus very much resembles the specimens of the genus *Ceratocoenia*, established by TOMES (1884, 703) on the basis of the species *C. elongata* from the Great Oölitic strata of Boulonnais. Another species of this genus, *C. tenuis*, from the Bathonian strata in Switzerland, was described by Koby (1905, 849). Our specimens are well preserved. They resemble *Ceratocoenia* in the shape of their corallites, in their sparsely spaced short septa and in their lack of a columella. However, they have an endotheca which in *Ceratocoenia* has never been mentioned. Also, the septa of the new genus have some septal teeth whereas the septa of *Ceratocoenia* have none. The presence of an endotheca is a good enough reason for the establishment of a new genus. On the other hand a new genus is similar to *Thecosmilia*. The representatives of *Thecosmilia* also have a faviid endotheca but the endotheca of the new genus is thin, tabulate and without long bent dissepiments. The septa of a new genus are shorter than those of *Thecosmilia* and have only occasionally dentate ornamentations on the lateral side.

Classification: TOMES placed *Ceratocoenia* in the family Eusmiliinae. VAUGHAN and WELLS include it in the Amphistraeidae. ALLOITEAU (1957, 363) suggests that because of its smooth septa this genus should be placed close to the family Parasmiliidae, suborder Caryophylliida. Our specimens of the new genus show several characteristics of the family Montlivaltiidae; they have a faviid endotheca, a septoparathecal wall and septal ornamentation in a few places. Therefore I include the new genus in the family Montlivaltiidae.

Ceratothecia carniolica n. sp.

Pls. 16, 17

Derivatio nominis: It is named after Dolenjska, (Lower Carniolia), where it was found

Holotypus: Specimen P-352

Locus typicus: 1 kilometre south of the Frata Hunting Lodge in Dolenjsko

Stratum typicum: Upper Oxfordian - Lower Kimmeridgian

Material: 15 corallites, 6 orientated thin sections (P-352, P-357)

Diagnosis: *Ceratothecia* with a hexamerous number of short septa, with a corallite diameter of 7–10 mm and with infrequent lateral dentations on the septa.

Description: A solitary coral with oblong corniform corallites which, towards their lower ends, are tapered. On the outer side of the epitheca there are oblong ribs. The septal structure is hexamerous. There are only few septa; they are short, mostly smooth, and straight or slightly bent. On the lateral side, in places, infrequent septal teeth can be seen. The six septa of the first cycle are the longest; they reach up to two-thirds of the corallite radius. The septa of the second cycle are half the size of the septa of the first cycle; the remaining septa are very short, and unevenly developed. The axial opening is round but there is no columella and there are no pali. The wall is in some places thick and septothecal; in others it is thin and parathecal. Endotheca is restricted mainly to the lower peripheral part of the corallite. The dissepiments are infrequent and tabulate; which appear in the same levels. I described the microstructure when I gave the description of the genus.

Dimensions: $d = 7-10$ mm, $s = 6 + 6 + S3$, $t/mm = 4-5/10$ mm.

Comparison: Our numerous specimens resemble the species *Ceratocoenia tenuis* Koby in their septal structure and dimensions. However, Koby's species has no endotheca, which even places this species in a different genus; It resembles also the species *Thecosmilia minuta*; The new species distinguished from the latter by its shorter septa, its exclusively tabulate dissepiments and its rare lateral dentations.

Locality: Our specimens (P-352, P-357) consist of some 15 corallums of the species *C. carniolica*. All of them have been found together on a small place south from Frata.

Genus: *Complexastraea* D'ORBIGNY 1849

The genus *Complexastraea* was established by D'ORBIGNY on the basis of the species *Astraea rustica* DEFRANCE (= *Astraea burgundiae* LEYMERIE). Because of the incomplete first description without the necessary photographs, in later literature considerable confusion arose about the type species as well as about the relationship of *Complexastraea* with other similar genera. Koby (1885) included many species of *Complexastraea* in the *Confusastraea*. Conversely, VAUGHAN and WELLS (1943), and WELLS (1956), attributed *Confusastraea* to *Complexastraea*. GREGORY (1900) gave a comparison between the *Complexastraea* and numerous other genera, such as *Montlivaltia*, *Thecosmilia*, and *Isastraea*. GREGORY, as well as GEYER (1954) and RONIEWICZ (1966), attributed *Confusastraea* to *Isastraea*. Very similar to *Complexastraea* is also the genus *Clausastraea*; it is distinguished from the former by its confluent, almost thamnasterioid septa. For a final revision of all species attributed to one genus or another, it would be necessary to re-examine all original material.

WELLS (1956, F 399), as well as GEYER (1954), attributed the genus *Complexastraea* to the family Montlivaltiidae. ALLOITEAU (1952, 614) includes this genus in its new family Isastraeidae. Although RONIEWICZ recognizes this new family, she attributes the genus *Complexastraea* to the family Montlivaltiidae. I accept Roniewicz's classification because the specimens of *Complexastraea* have large, tabulate and bent, dissepiments like *Thecosmilia*. They are also close to *Montlivaltia* and *Thecosmilia* in their septal and thecal structures, except that they are cerioid or plocoid colonies.

Complexastraea lobata GEYER

Pl. 18, Fig. 1—2

Description: The massive plocoid-meandroid colony has polycentric corallites, arranged in series, and connected by one or two septa of the valleys. The septa are very thick, subconfluent and, in places, confluent. They are developed in three cycles and are laterally dentated. The wall between corallites is septothecal incomplete; or are the septa in places discontinuous or bent. There is no columella. Microstructure is composed of simple or compound trabeculae, which are preserved only in some places.

Dimensions: $d = 7-12$ mm, $c-c = 7-10$ mm, $s = c. 30-40$,
 $t = 14-21/10$ mm, $s/mm = 13-15/10$ mm.

Comparison: Our specimens correspond in their structure to GEYER's specimens, except in the size of corallites; in our specimens some of the corallites are somewhat smaller. Nevertheless, there are large differences in size between individual corallites in the Spanish material as well; therefore even 3 mm smaller calices can be included in the same species. According to its partly confluent septa and series, this species can be considered to be an intermediate species, connecting genera *Complexastraea* and *Clausastraea*.

Locality: Our specimens which I include in the above described species have been found on Mrzovec (1780/1), and near Kal (1902/7).

Complexastraea seriata n. sp.

Pls. 19, 20

Derivatio nominis: The calices are arranged in series

Holotypus: Specimen P-245

Locus typicus: Mrzovec on Trnovski gozd

Stratum typicum: Upper Oxfordian - Lower Kimmeridgian

Material: Three well preserved colonies, four thin sections

Diagnosis: *Complexastraea* with monocentric to polycentric corallites, arranged in series. Septa are non-confluent and thin. The diameter of the corallites is 8—20 mm, number of septa 40—55.

Description: The massive subcerooid colony has its corallites closely packed together. The cross-section of the monocentric corallites is round to oval. After budding, some of the corallites remain in the same series and are connected with the septa of the valleys. The septa are very thin, straight and arranged in four cycles. On their lateral sides they have dentations. In the axial part there is a round place without a columella, as is the genus *Thecosmilia*. Septa between individual corallites or series are non-confluent; the wall between them cannot be observed because it is probably re-crystallized. In the area around the wall the septa bend or simply discontinue. Endotheca is made up of numerous tabulate and long bent dissepiments. Microstructure consists of divergent trabeculae with lateral thickenings, which are preserved only in some places (cf. pl. 20, fig. 3—4).

Dimensions: $d = 8-20$ mm, $c-c = 12-16$ (in the same series 8) mm,
 $s = c. 40-55$ (in adult corallites), $s/mm = 11/10$ mm,
 $t/mm = 10/5$ mm.

Comparison: The septal structure of our new species is composed like that of *Thecosmilia*, except that the colony in our species is subcerooid. In its dimensions the species *C. seriata* resembles *C. carinata* RONIEWICZ; it is distinguished from the latter by its series of corallites, which remain together in series after budding. In its series the new species resembles the species *C. lobata* GEYER. The latter, however, has confluent and subconfluent septa, which are also much thicker than those of the species *C. seriata*.

Locality: Specimens of the new species have been found on Mrzovec (P-245, P-257) and south of Kal on Banjška planota (1974/10).

Genus: *Clausastraea* D'ORBIGNY 1850

The first incomplete description of this genus, by D'ORBIGNY, (the type species is *C. tessellata*) was later improved on a few times. All the history and problems concerning this genus and a description of it with comparisons were given anew by ALLOITEAU (1960b, 3—8).

I share the opinion of present-day researchers of Jurassic corals who all recognize *Clausastraea*. Following Roniewicz's example, I attribute this genus to the family Montlivaltiidae because it shows all of the latter's characteristics: septal structure, microstructure and endotheca. *Clausastraea* is distinguished from other genera of this family by its subthamnasterioid septa and by its very incomplete wall.

Clausastraea confluens (QUENSTEDT)

Description: The colony is massive and subthamnasterioid. Calices round in some places arranged in rows. Septa are compact, straight and confluent. They are arranged in several cycles which vary from one corallite to another. Endotheca is of many tabulate and long bent dissepiments. Columella is absent. Wall is incomplete. Budding is extracalicular.

Dimensions: $c-c = 6-15$ mm, $s = 15-28$, $s/mm = 6/5$ mm, $dis./mm = 8-12/5$ mm.

Comparison: The structure of our corallites almost entirely corresponds to that described by MORYCOWA, except that in our corallites there are a few more septa. But OGILVIE quotes 32 to 40 septa for this species. GEYER attributed this species to *Synastraea* but since our specimens have no synapticalae and no axial structure, I include them, like MORYCOWA, in *Clausastraea*. This species does not belong to the genus *Thamnasteria* either, because it has no columella, just a rich faviid endotheca.

Locality: Two specimens of this species, 7826/1C and 7826/2B, have been found south of Kal on Banjška planota.

Family: Isastraeidae ALLOITEAU 1952

Genus: *Isastraea* MILNE-EDWARDS et HAIME 1851

The genus *Isastraea* was established by MILNE-EDWARDS and HAIME on the basis of the species *Astraea helianthoides* GOLDFUSS. Numerous descriptions of this genus followed. The most complete description was given by PELETIER (1950, 1951) who had re-examined the original material from Goldfuss's collection.

With regard to classification of *Isastraea*, experts' opinions differ considerably.

I am going to mention only the more up-to-date systems. VAUGHAN and WELLS (1943), and WELLS (1956), attribute this genus to the family Calamophylliidae, suborder Fungiida. Because of its compact septa, ALLOITEAU (1952) places it in the suborder Faviida where he established a new family, Isastraeidae. Alloiteau's system has been accepted also by BEAUVAIS (1964) and RONIEWICZ (1966). GEYER (1954) and BENDUKIDZE (1962) do not recognize the family Isastraeidae; they include the genus *Isastraea* in the family Montlivaltiidae.

Similarly to the families Cyathophoridae and Stylinidae, the Montlivaltiidae and the Isastreidae as well are distinguished by their different types of endotheca. Isastraeidae has a vesicular endotheca and besides this it sometimes has synapticalae. This family also has an axial structure which, in the representatives of Montlivaltiidae, cannot be observed. For these reasons I find justified the existence of the family Isastraeidae, to which I have attributed the genus *Isastraea*.

Isastraea helianthoides (GOLDFUSS)

Pl. 21, Fig. 1—2

Description: The species *Isastraea helianthoides* has been mentioned, apart from on the synonym list of the quoted authors, also by numerous other researchers, such as BECKER and MILASCHIEWITSCH (1876, 164), KOBY (1885, 282), SOLOMKO (1888, 168), BEAUVAIS (1964, 164), etc. A complete synonym list has been given by RONIEWICZ (1966).

Characteristic for this species is a massive cerioid colony which corallites vary in dimensions and shape. They are either round, oval, polygonal or oblong. Septa are compact in uneven cycles. Axial ornaments fuse into a parietal columella. Sometimes only two opposite septa are connected and so a kind of lamellar columella is formed. Budding is intracalicular. The new corallites grow in the longitudinal direction or on the three sides of the mother-corallite. Wall is parathecal and septothecal. The thecal section of our corallites is in places very much re-crystallized and therefore empty spaces between the corallites can be seen. Endotheca consists of numerous vesicular and long thin dissepiments.

Dimensions: $d = 5-10$ mm, $c-c = 6-9$ mm, $s = 30-35$, $dis./mm = 14/5$ mm.

Comparison: The described species resembles the species *Isastraea oblonga*; which was included in the genus *Pseudodiplocoenia* by RONIEWICZ (1970, 527-530) on the basis of its wall. In our specimens, too, there is, in some places, a gap between the corallites, which looks like a furrow. However, the septoparathecal wall is mostly preserved, which proves that the gaps occurred on account of recrystallization. Therefore I have attributed our specimens to *Isastraea*.

Locality: I found our specimen of this species (P-292) at Col on Trnovski gozd.

Family: (?) Placocaeniidae ALLOITEAU 1952

Genus: *Columnocoenia* ALLOITEAU 1952

This genus was established by ALLOITEAU (1957, 134-135) on the basis of the type species *C. lamberti* from Santonian of French. ALLOITEAU included this genus in the family Placocaeniidae. Afterwards BEAUVAIS (1964, 172-176) described several species of this genus found in Jurassic strata. MORYCOWA (1971, 95-98) described a species belonging to *Columnocoenia*, found in Albian strata in Poland. Thus, at present, the species of this genus from the Upper Jurassic to the early Cretaceous period are known.

By its costal wall this genus shows a great resemblance to some species of *Pseudocoenia*. It is distinguished from the latter by its axial lobiform structure. Its large corallites with well developed endotheca separate it even from the suborder Stylinida and include it in the suborder Faviida, family Placocaeniidae.

Columnocoenia jurassica n. sp.

Pls. 22, 23

Derivatio nominis: The species has been named after the Jurassic strata where it was found

Holotypus: Specimen P-484

Locus typicus: Selovec on Trnovski gozd

Stratum typicum: Upper Oxfordian - Lower Kimmeridgian

Material: A very well preserved colony and two thin sections

Diagnosis: *Columnocoenia*, with a decamer system of septa (20), the diameter of the corallites being 4 mm and the distance between the calices 5-6 mm.

Description: The massive plocoid colony has long parallel corallites. Budding is extratentacular. Calices are round. Septa are arranged in a decamer system in two cycles. Septa of the first cycle reach right into the middle of the corallite; the septa of the second cycle are less than half the length of the septa in the first cycle. The inner edges of the long septa are much dentate. The trabecular extensions of the septa form a parietal columella. The lateral edge of the septa has granulae. Septa are costal and compact, except in the axial part where they have big pores in some places. Wall is septoparathecal with rare synapticulae. Endotheca is tabulovesicular; exotheca consists of large bent dissepiments. Costae are non-confluent. Microstructure is badly preserved, only in places can divergent trabeculae be seen.

Dimensions: $d = 4$ mm, $c-c = 5-6$ mm, $s = 20$ ($10 + 10$),
 $dis./mm = 6-8/5$ mm, $t/mm = 7-9/5$ mm.

Comparison: The only species of the genus *Columnocoenia*, with a decamer septal system, known so far is the species *C. lamberti* from the Santonian period in France. The diameter of its calices is larger than in our species. In its dimensions our new species corresponds well to the species *Pseudocoenia maxima* RONIEWICZ, but is distinguished from the latter by its already mentioned axial trabeculae and synapticulae.

Locality: Our specimen, P-484, has been found at Selovec on Trnovski gozd.

Family: (?) Placosmiliidae ALLOITEAU 1952

Genus: *Placophyllia* D'ORBIGNY 1848

This genus was established by D'ORBIGNY on the basis of the species *Lithodendron dianthus* GOLDFUSS. Afterwards his description of this genus was improved on by various authors.

OGILVIE (1897) attributed *Placophyllia* to the genus *Stylosmilia* whereas some later authors recognized it as independent again. ALLOITEAU (1957, 361) states that *Placophyllia* can be distinguished from *Stylosmilia* by its circumcalicular parietal reproduction (*Stylosmilia* reproduces laterally) and by its wall, which is without costae. More than *Stylosmilia* the genus *Placophyllia* resembles *Donacosmilia*. However, the latter is distinguished from *Placophyllia* by its definitely lengthened main septum and its lateral pocket-like ("Taschenknospungen") buds. This places *Donacosmilia* in the family Amphistraeidae.

Placophyllia has been included in many different families because of its similarity to the above mentioned genera. RONIEWICZ includes this genus in the family Placosmiliidae, suborder Faviida. I, too, accept her classification since *Placophyllia* does not have a lengthened main septum and the characteristic pocket-like ("Taschenknospung") budding of amphistraeids. Neither does this genus have a stylinid microstructure and endotheca. Its endotheca is faviid. For the time being I accept Alloiteau's and Roniewicz's allocation of this genus to the family Placosmiliidae.

Placophyllia rugosa BECKER

Pl. 24, Fig. 1-2

Description: The phaceloid-dendroid colony has round, long, parallel corallites. Septa are compact and developed in at least three cycles. Twelve septa reach the middle of the corallite where some of them attach themselves to the parietal columella and form a strong axial structure. Endotheca is well developed and consists of large tabulate and bent dissepiments. Wall is parathecal, in places also septothecal. Microstructure of the skeletal elements shows simple trabeculae with thickenings or infrequent sclerodermites. However, the microstructure is badly preserved.

Dimensions: $d = 4-8$ mm, $s = 12 + 12 + S$.

Comparison: Our specimens have corallites with widely varying diameters. From the comparative table of dimensions it can be seen that our corallites do not exceed the sizes given by BECKER and RONIEWICZ. By the way in which its septa run this species resembles the species *Donacosmilia etalloni* but the latter has lateral pocket-like sacks and bilateral symmetry.

Locality: Our specimens belonging to the species *Placophyllia rugosa* BECKER have been found near the village Selo (P-336) at Bič near Gaber (P-327, P-332), on Ojstrovca (P-438), and on Mrzovec (P-472, P-476, P-478).

Family: Axosmiliidae GEYER 1955

The family Axosmiliidae was established by GEYER (1955 a). He attributed to this family the genus *Axosmilia* which had been previously included in the family Amphistraeidae. GEYER distinguishes his new family from the other amphistraeids by its parathecal wall and its mode of repro-

duction. *Axosmilia* does not have the pocket-like buds; its septa reach from one wall to another. Because of these differences GEYER rightly established a new family. Moreover, I think that the Axosmiliidae belongs even to a different suborder, the suborder Faviida. Its mode of reproduction, its wall and endotheca are, in fact, typically faviid. Its lamellar columella, giving the corallite a bilateral appearance, shows only an affinity with the family Amphistraeidae.

Genus: *Axosmilia* MILNE-EDWARDS and HAIME 1848

Axosmilia marcou (ÉTALLON)

Pl. 21, Fig. 3

Description: Solitary turbinate coral has ellipsoid calices. Septa are compact, even, and with rarely preserved septal lateral teeth. They are developed in four cycles. Lamellar columella attaches itself to some of the axial edges of the longest septa, while some septa bend beside it. Endotheca consist thin tabulae and long dissepiments. Wall is parathecal. In our specimen the microstructure is not preserved.

Dimensions: $d = c. 30 \text{ mm}$, $s = 50-60$, $\text{dis./mm} = 4-5/5 \text{ mm}$.

Comparison: GEYER (1955 a, 191) included *Pleurosmilia* in the genus *Axosmilia* because the septal ornamentation, by which these two genera should be distinguished, depends only on the state of preservation of fossils. The species *Pleurosmilia valida* BECKER also fits in with all the characteristics of the above described species and therefore GEYER, after re-examining the original material, rightly included it in the species *A. marcou*.

Locality: I found our specimen of this species, P-460, on Mrzovec on Trnovski gozd.

Suborder: Amphistraeida ALLOITEAU 1952

Family: Amphistraeidae OGILVIE 1897

Genus: *Amphistraea* ÉTALLON 1859

ÉTALLON established the genus *Amphistraea*, but it lacked a sufficient description at that time. Improvements were made to the description by Koby (1888, 432), OGILVIE (1897, 104-105) and ALLOITEAU (1957, 353-357); individual species have been well described by various other researchers.

Although WELLS (1956, F 397) attributed the genus *Connectastra*, among others, to the genus *Amphistraea*, ALLOITEAU (1957) and BEAUVAIS (1964) re-established the former genus. I myself, like WELLS, consider that it is a synonym of the genus *Amphistraea*, as least as far as the species *A. piriformis* is concerned. This is explained in more detail in my description of the latter species.

Amphistraea basaltiformis ÉTALLON

Pl. 24, Fig. 3-4

Description: The colony is massive and cerioid. In cross-section the corallites are prismatic. Septal structure is bilateral and irregular. Main septum is somewhat larger than the other septa. Septa are arranged in two cycles. In places they reach up to the wall; elsewhere, at the edges, they become little vesicular pockets with new buds, which soon branch off as independent corallites. In the same colony, however, we can also see the division along the septa into two or more organisms. Endotheca consists of numerous tabulate and vesicular dissepiments.

Dimensions: $d = 4-7 \text{ mm}$, $c-c = 4-5 \text{ mm}$, $s = 16-20$, $c/\text{mm} = 16-17/5 \text{ mm}$.

Comparison: ÉTALLON named the species *A. basaltiformis* without photography or a precise description. It was well described by Koby (1888, 433). Besides this species, he also established

the species *A. gracilis*, which he considers similar to *A. basaltiformis*, except that it has finer costae. On the basis of well-preserved material from Czechoslovakia OGILVIE described the species *A. gracilis*, but she considers that the species *A. gracilis* is so close to *A. basaltiformis* that it could be the latter's synonym. Her conjecture was confirmed by several later researchers, who combined the two species (VAUGHAN and WELLS, 1943; GEYER, 1955 a). BEAUVAIS (1964), on the contrary, again separated the two species, but in such a way that she attributed ÉTALLON's original holotypus of *A. basaltiformis* to the species *A. gracilis* Koby, while claiming the species *A. basaltiformis* Koby (non ÉTALLON) to be independent. Such an appellation does not conform with the rules of nomenclature. However, setting the rules aside, I still consider that both species are synonyms. Also our specimens, in fact, clearly show that it is possible to find costae of different thicknesses on one specimen. Furthermore, the density of costae and the size of the corallites in our specimens are such as to indicate a real transition between the two named species.

Locality: Our two specimens are P-277 from the surrounding of Karteljevo and P-259 from Mrzovec.

Amphistraea piriformis GREGORY

Pl. 25, Fig. 1-2

Description: A massive cerioid colony which is composed of tightly squeezed parallel, polygonal corallites. In cross-section they have various irregular shapes, being even more irregularly divided in reproduction. The septal structure is bilateral. Septa are divided into three cycles. Main septum is somewhat more strongly developed than the other septa. Endotheca is made of dissepiments. Wall is thick, having risen out of double dissepimental rings or from the thickenings and junctures of costae.

Dimensions: $d = 2-6 \text{ mm}$, $c-c = 2-4 \text{ mm}$, $s = c. 24$.

Comparison: In 1904 Koby established the new genus *Connectastra*, to which he also attached GREGORY's species *Amphistraea piriformis*. VAUGHAN and WELLS (1943) did not recognize the genus *Connectastra*, but they included it in the genus *Amphistraea*; so did GEYER (1955 b, 326), who had re-examined Koby's Portuguese material and had not found any basic difference between *Connectastra* and *Amphistraea*. He also attached Koby's two species *Connectastra gregoryi* and *C. ogilviae* to the species *A. piriformis*. Conversely, ALLOITEAU (1957, 366-367) once again recognized the genus *Connectastra*, as also did BEAUVAIS (1966, 20-21). The ornamentation of the septa seems to be the most important of all the differences between both genera to ALLOITEAU. If, however, we look at Ogilvie's description of the genus *Amphistraea* (1897, 104-105), then we see that she had already stated "Septaldornen", which ÉTALLON and Koby call costae. Thus we see that it is a case of the same structural elements, which have been differently named. Therefore I agree with GEYER that it is necessary to ascribe the species *Connectastra piriformis* to the genus *Amphistraea*. At our specimens the wall seems double in places, elsewhere on the same corallite single, with no columella, the distal edge of the septa being dentate or costal. Thus a characteristic of both genera can be seen in the same colony.

Locality: Our specimens, which have been attributed to this species, are P-309 and P-317 from Ivanja vas near Mirna peč.

Genus: *Schizosmilia* Koby 1888

Koby included in the genus *Schizosmilia* (type species *S. excelsa*) the dendroid-phaceloid colonies which reproduce by division (fissiparité) along the main septum. Some researchers (ALLOITEAU; 1952, 643) include this genus in the family Mitrodendronidae, whereas MORYCOWA places it in the Amphistraeidae (MORYCOWA, 1971, 100). According to its method of reproduction, this genus is really closer to the family Amphistraeidae. By its way of reproduction, this genus can be distinguished from the genera *Donacosmilia*, *Placophyllia*, *Pleurophyllia* and *Stylosmilia*, to all of which it bears a resemblance in its septal structure.

Schizosmilia rollieri Koby

Pl. 25, Fig. 3—4

Description: Phaceloid-dendroid colony which has densely spaced parallel corallites, the majority of which are oval in cross-section, though they are sometimes circular. Septa are dense, numerous, and sometimes slightly bent. The main septum is parallel with the shorter axis of the calice and only a fraction thicker than the remaining septa. Septa are developed in two to three cycles. Wall is septothecal, being parathecal in parts. Endotheca is dissepimental and well developed. No costae can be seen. In the axial part of the corallite there is, in some places, a vermiform structure made up of the extensions of septa; in some corallites the axial space is empty. The microstructure is not preserved.

Dimensions: $d = 2-3$ mm, $s = 24 + S3$.

Comparison: Koby compares the species *S. rollieri* to the species *Stylosmilia michelini* by its septal structure. The former is distinguished from the latter by its reproduction, its main septum and its denser corallites.

Locality: In Slovenia, the two specimens of the species *S. rollieri* have been found at Šumberk near Graben (P-339) and on Mrzovec (P-475).

Family: Mitrodendronidae ALLOITEAU 1952

According to ALLOITEAU (1952, 643) the family Mitrodendronidae is distinguished from Amphistraeidae by its mode of reproduction. In the corallites of Mitrodendronidae new buds are developed in vesicular pockets ("Taschenknospungen"). The new organisms remain in the mother-corallite after budding.

Genus: *Mitrodendron* QUENSTEDT 1880

The type species of this genus is *Lithodendron mitratum*, which QUENSTEDT himself re-named *Mitrodendron*. Detailed descriptions of this genus and its individual species were given by GEYER (1954, 198), RONIEWICZ (1966, 225) and OGILVIE (1897, 107), whose genus *Aulastraea* was later revised to *Mitrodendron*. Including the species *Aulastraea schäferi*, only three species of the genus *Mitrodendron* are so far known.

Mitrodendron ogilvie GEYER

Pl. 25, Fig. 5; Pl. 26, Fig. 1—3

Description: The colony is phaceloid and has roundish corallites. The wall is septothecal and costal. In the calices, the main long septum, can be seen; it is much thicker than the other septa. The septal structure has bilateral symmetry. On the inner edge of the corallite wall there are large or small pockets surrounded by large vesicular dissepiments. The new corallites are developing in these sacks. Many of them remain in the mother corallite for a long time. They can have different shapes, depending on their stage of development. In one corallite, three, four or even six buds and young corallites can be seen. Endotheca is tabulate in the axial part; in the peripheral part it is composed of large dissepiments. There is no columella; but the main septum is extended over the centre of the corallite.

Dimensions: $d = 6-16$ mm, $s = 22-26$, $c/mm = 5-6/2$ mm.

Comparison: GEYER distinguished this species from the species *M. mitratum* by its longer septa and more numerous buds. The species *M. ogilvie* is distinguished from the species *M. schäferi* by its more sparsely spaced dissepiments in the peripheral endotheca. RONIEWICZ compares the species *M. ogilvie* with the species *Pleurophyllia trichotoma*; a distinction between these two species is again made on the basis of the form of the endothecal structure. Our specimens correspond in their structure and their dimensions to the hitherto made descriptions of the species *M. ogilvie*.

Locality: On our sites many specimens of this species have been found; they come from Ivanja vas near Mirna peč (P-308, P-311, P-319, P-320), from Sela near Gaber (P-340), from Babna gora near Gaber (P-345), and from Mrzovec (P-464, P-470).

Genus: *Donacosmilia* FROMENTEL 1861

The genus *Donacosmilia* was established by FROMENTEL. The type species is *D. corallina*. Good photographs of the holotypus and a comparison of *Donacosmilia* within the Amphistraeidae group was given by ALLOITEAU (1957, 365—366). The original type species was re-examined by BEAUVAIS (1964, 203), who gave an up-to-date description of this species. *Donacosmilia* belongs to the family Mitrodendronidae but in its endotheca and its septal structure this genus resembles the faviids, especially the genus *Placophyllia*.

Donacosmilia corallina FROMENTEL

Pl. 27, Fig. 1

Description: The colony is large and phaceloid. It has round parallel corallites. Septa are compact and the main septum is somewhat lengthened and thickened. They show bilateral symmetry. Endotheca consists of tabulate and long dissepiments. Columella is absent. Wall is septothecal and parathecal. Reproduction is taking place in vesicular pockets, which are smaller than those in *Mitrodendron*.

Dimensions: $d = 9-18$ mm, $c-c = 10-15$ mm, $s = 26-30$.

Comparison: In our specimens I found all the structural characteristics and dimensions of the species *D. corallina* as given for the original specimens.

Locality: Specimens of this species have been found at Ivanja vas (P-315, P-322), at Mačko-vec (P-271), at Kal on Banjska planota (1902/8) and at Plave (3733/B 8).

Donacosmilia etalloni (Koby)

Pl. 27, Fig. 2—3

Description: The colony is similar to that of the species *D. corallina*. Septa are well developed in three cycles. The first cycle reaches the middle of the corallite where the septa touch one another in some places. The main septum is somewhat longer than the other septa. Therefore the septal structure is bilateral but not so strong as it is in *Mitrodendron*. Wall is septothecal and parathecal. Along the wall there are densely spaced vesicular pockets in which new corallites are developed. Endotheca is composed of tabulate and long bent dissepiments. Microstructure is badly preserved but, in places, single and double trabeculae with dark, segmented lines can be seen.

Dimensions: $d = 10-13$ mm, $s = 29-33$, $t/mm = 7-10/5$ mm.

Comparison: Koby included this species in his new genus *Pseudothecosmilia*. OGILVIE agreed with this classification but VAUGHAN and WELLS (1943) revised *Pseudothecosmilia* into *Donacosmilia*. So GEYER named this species *Donacosmillia etalloni*. ALLOITEAU (1957, 365) again recognized *Pseudothecosmilia*. Also BEAUVAIS (1964, 203) points out that the septa of the *Pseudothecosmilia* are fused together in the middle of the corallite; this is not the case with *Donacosmilia*. Our specimens clearly show that the joining together of septa depends on the preservation of specimen (i. e., how much it is re-crystallized); in the same colony it varies from one corallite to another. For this reason I myself also include the species *D. etalloni* in the genus *Donacosmilia*. This species is distinguished from the type species of *Donacosmilia corallina* by its thicker septa and its thicker wall. *D. etalloni* shows a great resemblance to the species *Placophyllia rugosa*; the latter, however, does not have vesicular pockets and it therefore belongs to the faviid group.

Locality: In our material the following specimens belong to the species *D. etalloni*: P-481 from Selovec and P-382 from Luče.

Suborder: Fungiida DUNCAN 1884

Family: Microsolenidae Koby 1889

Genus: *Microsolena* LAMOUROUX 1821

Microsolena agariciformis ÉTALLON
Pl. 28, Fig. 1

Description: The massive thamnasterioid colony is of irregularly round or bulbous shape. The corallites are connected by confluent septa without a wall. Septa are perforated, with lateral teeth which are joined together to form carinae. Carinae are thickened trabeculae; GILL calls them penulae. Endotheca is made up of synapticalae and infrequent tabulate dissepiments. The columella is spongy.

Comparison: GEYER (1954, 1955 a, b, 1965) added seven other species of *Microsolena* and the species *Thamnasteria subagaricites* to the species *M. agariciformis*. RONIEWICZ accepted Geyer's revision, except with regard to the species *T. subturbinata*. I cannot give a judgement on the revisions since I have not seen original material except for the species of BECKER and MILASCHWITSCH which I have seen; as far as these species are concerned I agree with Geyer's statement. I include the species *Thamnasteria subagaricites* in the genus *Synastraea* because of its irregular pores and compound trabeculae. LAMBELET (1968) placed the species *M. agariciformis* in the genus *Actinaraea*. However, this species does not have an irregular vermiform peritheca nor does it have separate calices, characteristic for *Actinaraea*, but it has confluent septa and therefore I re-attribute the species being discussed to *Microsolena*.

Locality: In our collection, the specimens belonging to the species *M. agariciformis* come from Luče in Dolenjsko (P-374, P-375), from Mrzovec (1778/1, 1780/6), from Kal (1902/9) and from Čepovanski dol (7241/1).

Microsolena thurmanni Koby
Pl. 28, Fig. 2

Description: This species was described in detail by Koby and BEAUVAIS. Our specimens, too, have regularly arranged corallites with round, hollowed calices. Septa are thick, uneven, straight or twisted, and radially arranged. They have carinae on their lateral sides. There is no wall. Synapticalae are numerous. Dissepiments are thin and infrequent. Columella is parietal.

Dimensions: c—c = 7—8 mm, s = c. 50, s/mm = 14—15/5 mm.

Comparison: BEAUVAIS (1964, 232) combined the species *M. studei* and *M. thurmanni*. RONIEWICZ (1966, 228) attached Koby's specimen of the species *M. caesaris* ÉTALLON to this species. I accept these revisions because they are based on the results of examinations of each original holotypus. Our specimens correspond well with this extended variation range for the species.

Locality: In our collection the following specimens belong to this species: P-266 from Mrzovec, P-305, and P-306 from Col, P-354 from Frata, P-400 from Mali vrh near Frata, and 1974/6, 7 from Kal.

Microsolena ornata Koby
Pl. 28, Fig. 3—4

Description: The massive colony has an irregularly round or fungoid shape. Corallites are arranged in sets which are not concentric. The centres are far apart and are surrounded by a synaptical inner ring. From the centres the confluent septa run radially outwards in two opposite directions as far as the adjacent corallite. Septa are evenly perforated. There is no wall. Columella is parietal.

Dimensions: c—c = 4—4.5 mm, s = 26—30, s/mm = 20—25/5 mm.

Comparison: Our specimens entirely fit in with the description of this species. The species *M. ornata* is distinguished from the other species of this genus by the way its septa reach out in two directions and by its regular perforation of septa. When observed in the vertical plane, this species shows a great resemblance to *Actinaraea*. It differs from the latter when viewed in cross-section because it does not have a vermiform peritheca, its corallites are connected by confluent septa.

Locality: In Slovenia, two specimens of this species have been found, at Otlica (P-415) and on Ojstrovca (P-449).

Genus: *Comoseris* D'ORBIGNY 1849

Representatives of the *Comoseris* have the same microstructure as those of *Microsolena* and therefore researchers include the former in the family *Microsolenidae*. *Comoseris* is distinguished from *Microsolena* by the arrangement of its corallites in series; between the series there are collinae and incomplete synapticalothecal wall. Because of these later characteristics *Comoseris* comes close to *Meandrophyllia* and *Microphyllia*.

Comoseris minima BEAUVAIS
Pl. 29, Fig. 1—2

Description: After BEAUVAIS (1964), RONIEWICZ (1966) gave a detailed description of the species *C. minima*. This is a massive colony with very twisty collinae with series of small corallites between them. Septa are perforated and non-confluent. The inner edge of the septa bears outcrops which form a spongy columella. Synapticalae are numerous; tabulate dissepiments are rare. In the collinae between the corallites there is an incomplete synapticalothecal wall.

Dimensions: c—c (in a set) = c. 2 mm, width of series = 2.5—5 mm,
s/mm (along the wall) = 18/5 mm.

Comparison: RONIEWICZ (1966, 229) attached Koby's and Geyer's specimens, called *C. meandroides*, to the species *Comoseris minima* BEAUVAIS. These specimens are distinguished from Michelin's original specimen of this species by their denser skeletal elements; Our specimens fit within the variation range of the species *C. minima* as well.

Locality: In Slovenia, I found specimens of this species on Otlica (P-242, P-435) and north from Col (P-287).

Comoseris baltovensis RONIEWICZ
Pl. 29, Fig. 3

Description: RONIEWICZ gave an exact diagnosis, description and comparison of this species. It has fairly straight, only slightly twisty collinae and large calices, arranged in single series. Between the series there is an almost complete synapticalothecal wall. Endotheca consists of synapticalae and dissepiments which are distributed over the whole corallum. Columella is parietal.

Dimensions: c—c (in set) = 2.5—3 mm, width of series = 3—5 mm,
s = 15—20, s/mm (next to the wall) = 18/5 mm.

Comparison: Our specimens in all their aspects correspond to the original Polish material except their series are a fraction narrower.

Locality: Specimens of this species have been found here on Mrzovec (P-252, P-253), at Otlica (P-262, P-268) and at Col (P-302).

Comoseris jumarense GREGORY
Pl. 29, Fig. 4

Description: The colony is massive and of a roundish or irregular shape. Corallites are arranged in series which run from a large corallite in the middle of the colony radially outwards. Collinae between the series are sharp and inside them there is an incomplete synapticalothecal

wall. Septa are perforated; septal cycles are hard to distinguish. The axial extensions form a spongy columella. Dissepiments, as well as synapticalae, are frequent.

Dimensions: distance between centres of series = c. 6 mm, $s = c. 30$,
 $s/mm = 12-14/5$ mm.

Comparison: This species is distinguished from all other species of *Comoseris* by the way its series run radially.

Locality: I found our specimens of the above described species south of Frata (P-352, P-353) and at Mali vrh near Frata (P-402).

Family: Haplaraeidae VAUGHAN et WELLS 1943 emend ALLOITEAU 1952

Genus: *Diplaraea* BECKER et MILASCHEWITSCH 1876

The revision of the genus *Diplaraea* and the latter's connection with the genus *Haplaraea* was well explained by GEYER (1954, 171; 1955 a, 208).

Diplaraea elegans (MILASCHEWITSCH)

Pl. 33, Fig. 1

Description: Phaceloid colony consists of parallel oval corallites which are separate over long distances and fall away from the colony. Septa are straight, irregularly perforated and arranged in several cycles. On the distal edge the septa thicken into a synapticalotheca, which is not preserved to the same extent everywhere. Lateral sides of the septa have widely spaced septal teeth. Infrequent axial extensions form a parietal columella. Endotheca is made up of dissepiments; synapticalae are rare.

Dimensions: $d = 20 \times 25$ mm, $s = c. 90$, $s/mm = 17-19/10$ mm.

Comparison: The structure and dimensions of our specimens correspond to those in Geyer's description of this species. All our specimens have a parietal axial structure.

Locality: In Slovenia, specimens of the species *D. elegans* have been found at Col on Trnovski gozd (P-303, P-307 A) and at Mačkovec near Novo mesto (P-272).

Genus: *Meandrophyllia* D'ORBIGNY 1849

VAUGHAN and WELLS (1943), as well as GEYER (1954), included *Meandrophyllia* in the family Microsolenidae.

ALLOITEAU (1952, 1957) re-examined d'Orbigny's original material. On the basis of its incomplete synapticalothecal wall and its microstructure with divergent trabeculae, he attributed *Meandrophyllia* to the family Haplaraeidae. This classification has also been accepted by BEAUVAIS (1964), RONEWICZ (1966), and by BENDUKIDZE and ČUKOVANI (1962).

The representatives of *Meandrophyllia* in our fossil material clearly show that this genus resembles the genus *Comoseris* in its macrostructural characteristics: in the structure of its wall and septa. Unfortunately, in our specimens the microstructure is not preserved and so I can neither confirm nor reject Alloiteau's statement. For this reason I include *Meandrophyllia* in the family Haplaraeidae, for the time being.

Meandrophyllia edwardsi (MICHELIN)

Pl. 30, Fig. 1-2

Description: This species is characterized by a massive, meandroid colony with intercalinal budding. Corallite series are very sinuous and they are separated by incompletely developed collinae. Many corallites are monocentric. The calicinal centres can be clearly seen. Septa are not straight; they are thick and irregularly perforated, and have lateral granulae. Synapticalae are numerous

in the whole colony whereas dissepiments are rare. In our specimens microstructure is not preserved; in Beauvais's material it consists of compound divergent trabeculae.

Dimensions: $d = 3.5-4$ mm, $c-c = 2.5-4$ mm, width of carinae = $3.5-5$ mm,
 $s = c. 22$, $s/mm = 14-16/5$ mm.

Comparison: BEAUVAIS included the holotypus of Michelin's species *Meandrina edwardsi* in the *Meandrophyllia* on the basis of its divergent trabeculae. Without any explanation she also attached Koby's species *Latimeandra sinuosa* to this species. I myself cannot give an opinion on this revision without an examination of the original specimen. Our specimens fit in with Beauvais's description of the species *M. edwardsi*. In the structure of its corallites this species resembles the genus *Actinaraeopsis* RONEWICZ (1968) but the latter has no wall.

Locality: Specimens of the species *Meandrophyllia edwardsi* have been found at Otlica on Trnovski gozd (P-261, P-263, P-419, and P-421).

Meandrophyllia amedei (ÉTALLON)

Pl. 30, Fig. 3-4

Description: The colony is massive and meandroid. The calices are single or arranged in short series. Among the calices there are collinae. Septa in collinae are mainly non-confluent and irregularly perforated. The axial extensions form a spongy columella. The lateral side of the septa has granulae. Wall is synapticalothecal and incomplete. Endotheca is composed of infrequent small tabulate dissepiments. Synapticalae are numerous.

Dimensions: size of colony = 20×15 mm, d (of calices and valleys) = $2.5-3$ mm,
 $c-c = 2-3.5$ mm, $s = 22-26$, $s/mm = 8/2$ mm.

Comparison: Our specimens entirely correspond to the description of the species in question. RONEWICZ attributes this species to *Meandrophyllia* on the basis of its synapticalothecal wall and the divergent trabecular microstructure of its skeletal elements.

Locality: Our specimens, P-418, P-426, P-431 and P-432, all come from Otlica.

Family: Latomeandriidae ALLOITEAU 1952

Within the suborder Fungiida, VAUGHAN and WELLS (1943) established a new family, Calamophylliidae (cf. also WELLS, 1956, F379). ALLOITEAU (1952, 671; 1957, 173-183) replaced this family with a new superfamily, Latomeandriidae which he then divided into two families: the family Dermosmiliidae Koby and his own new family, Latomeandriidae. On the basis of his re-examination of Koby's and Fromentel's collection as well as of his own extensive collection, ALLOITEAU found out that the former family Calamophylliidae could be divided into a family consisting of specimens with synapticalae and a synapticalothecal wall (Latomeandriidae), and a family without synapticalae or with only a very few of them and with a parathecal or a septothecal wall (Dermosmiliidae).

I must add that an exact specification of both families on the basis of synapticalae is sometimes difficult to obtain because in corals all intermediate forms exist. Therefore I accept Alloiteau's system only temporarily. Among the Slovene Jurassic corals belonging to the family Latomeandriidae are the genera *Latomeandra*, *Microphyllia* and *Ovalastraea*.

Genus: *Latomeandra* MILNE-EDWARDS et HAIME 1849

The genus *Latomeandra* was re-examined on the original material and described in detail by ALLOITEAU (1957, 238) and BEAUVAIS (1964, 245). Various other genera had been added to this genus in previous revisions (cf. WELLS, 1956, GEYER 1954, GREGORY, 1900). In my opinion the genus *Gyrodendron* QUENSTEDT 1880 belongs to the genus *Latomeandra* since the former is distin-

guished from the latter only by its larger dimensions. A part of the genus *Protoseris* MILNE-EDWARDS et HAIME 1851 could also be included in *Latomeandra*; the former was established only on the basis of its lamellar colony whereas its structure shows a resemblance to *Latomeandra* and *Thamnasteria*. LAMBELET unites *Latomeandra* with *Calamophyllia*, claiming that *Calamophyllia* is only a monocentric form of *Latomeandra*. However, I think that the constant polycentricity is so important that it justifies the establishment of an independent genus.

Latomeandra fromenteli (Koby)

Pl. 30, Fig. 5

Description: The phaceloid-dendroid colony has short dendroid corallites which have 2—4 or more centres and are seldom monocentric. Septa are perforated; they are costal and subconfluent in the corallites. The distal edge of the septa has fine septal teeth. Synapticulae are infrequent and so are the dissepiments. Columella is spongy. Wall is synapticulothecal.

Dimensions: $d = 4\text{--}20\text{ mm}$, $s = 35\text{--}45$, $s/\text{mm} = 3\text{--}4/1\text{ mm}$

Comparison: In their structure our specimens very much resemble the genus *Microphyllia* but the latter has a cerioid colony. To this species I re-attribute Koby's specimen which BEAUVAIS included in the genus *Protoseris*, claiming that Koby's specimen was thamnasterioid. But the photographs do not show any difference between these two specimens; in both specimens septa are subconfluent and not thamnasterioid.

Locality: Our specimens which I attribute to the species *L. fromenteli* are: P-330 and P-333 from Bič, P-343 from Babna gora near Gaber and P-459 from Mrzovec.

Genus: *Microphyllia* D'ORBIGNY 1849

After a period of non-uniformity in the relevant literature, a new revision of the genus *Microphyllia* was made by ALLOITEAU (1952, 1957, 238, 245) on the basis of all the original material. This genus has been recognized by GEYER (1954, 149), by BEAUVAIS (1964) and by almost all modern researchers of Mesozoic corals. I agree with them since this genus is distinguished from *Latomeandra* by its cerioid colony and from *Comoseris* by its divergent trabeculae and its synapticulae. BEAUVAIS attributed a few species of *Microphyllia* to her new genus *Latiastrea*. She distinguished the latter from *Microphyllia* by its smaller series. Considering the fact that in the same colony all transitions from the large to the short series and even monocentric corallites can be found, it is hard to distinguish *Latiastrea* from *Microphyllia*.

Microphyllia undans ÉTALLON

Pl. 31, Fig. 1—3

Description: Good descriptions of this species were given by Koby and BEAUVAIS (1964). This is a meandroid-cerioid colony with intercalicinal budding. Corallites are arranged in series which are of different length and are straight or sinuous. They are connected by collinae inside which there is an incomplete synapticulothecal wall. Septa inside the corallites of one series are confluent and without a wall. These septa are irregularly perforated. In the axial part of the corallite the septa are bent or they have extensions forming a spongy columella. In the outer thecal zone there are synapticulae.

Dimensions: $d = 4\text{--}5\text{ mm}$, $c\text{--}c = 3\text{--}5\text{ mm}$, width of set = $3\text{--}5\text{ mm}$,
 $s = c. 50$, $s/\text{mm} = 7\text{--}9/2\text{ mm}$.

Comparison: FROMENTEL and later Koby (1885) attributed Étallon's species *M. undans* to the genus *Latimeandra*, whereas OGILVIE attributed it to *Isastrea*. GEYER (1955 a) again called it by its first name and attached a few other species to it. It is correct to include the described spe-

cies in the genus *Microphyllia*. *Latomeandra* has only multicelled corallites without series, and a phaceloid colony. *Isastrea* certainly has a similar wall to that of the species *M. undans* and a cerioid colony but it also has monocentric corallites without series. Our specimens, too, show all the characteristics of *Microphyllia* and those of the species *M. undans*.

Locality: Among the Slovene specimens the following belong to this species: P-256 and P-265 from Mrzovec, P-453, P-457 and P-465 from Koren near Mrzovec, and P-316 from Ivanja vas near Mirna peč.

Microphyllia bachmayeri GEYER

Pl. 31, Fig. 4

Description: The colony is meandroid-cerioid and has a fungoid shape. Corallites are arranged in series which are short and contain three calices at the most. Single but open corallites between collinae can also be found. Collinae are very sharp and have a fairly complete synapticulothecal wall; there is no wall between corallites of the same series. Columella is spongy. Septa are arranged in two to three cycles and are irregularly perforated, bearing lateral teeth. Microstructure is not preserved. Synapticulae are inside the wall; the infrequent dissepiments are in the whole of the colony.

Dimensions: $d = 2\text{--}3\text{ mm}$, $s = c. 50$, $s/\text{mm} = 12/2\text{ mm}$.

Comparison: Our specimens entirely correspond to Geyer's species. Those specimens with single corallites and small series bear a great resemblance to the species which BEAUVAIS (1964, 254) included in a new genus, *Latiastrea*. I have already dealt with this problem when discussing the genus *Microphyllia*. The species *M. bachmayeri* is distinguished from all other species of the genus *Latiastrea* by its open series and more complete wall.

Locality: Our specimens P-311, P-320 and P-321 all come from Ivanja vas near Mirna peč. The species *M. bachmayeri* is, according to the number of specimens collected, very rare. Geyer, too, had only one specimen of this species among the Czechoslovakian material.

Genus: *Ovalastrea* D'ORBIGNY 1849

The majority of researchers attribute this genus to the fungiids; BEAUVAIS (1964, 258) includes it on the basis of its synapticulae and synapticular wall in the family Latomeandriidae.

Ovalastrea lobata Koby

Pl. 31, Fig. 5

Description: The plocoid colony has round calices; between the calices there is a wide costal perithea and a vesicular extotheca. Septa are radial and arranged in several cycles. In the axial part a parietal columella is formed out of the septal extensions. The lateral side of the septa is much dentate. Dissepiments are rare, synapticulae more common. Wall is synapticulothecal.

Dimensions: $d = 4\text{--}7\text{ mm}$, perithea = $2\text{--}3\text{ mm}$, $c\text{--}c = 5\text{--}7.5\text{ mm}$,
 $s = c. 60$, $s/\text{mm} = 8\text{--}10/3\text{ mm}$.

Comparison: Our specimens entirely correspond to Geyer's descriptions and dimensions. Koby's specimens differ from Geyer's only in that they also have smaller corallites.

Locality: Our specimens, P-290, come from Col on Trnovski gozd, P-294 from Bukovje on Hrušica.

Family: Dermosmiliidae Koby 1889

I have dealt with the classification of this family when discussing the family Latomeandriidae. Without regard to Alloiteau's revision I recognize the family Dermosmiliidae because it has an advantage over Vaughan and Well's family Calamophylliidae.

Genus: *Dermosmilia* Koby 1884

The genus *Dermosmilia* was established by Koby on the basis of the species *D. crassa*. FRECH (1890) revised it and attributed it to the *Rhabdophyllia*. OGILVIE (1897, 258) included *Dermosmilia* in the genus *Diplaraea*. The majority of later researchers recognize the *Dermosmilia* again. BEAUVAIS (1964, 240) has re-examined Koby's original material and has given an up-to-date and detailed description of this genus.

Dermosmilia laxata (Étallon)

Pl. 32, Fig. 1—2

Description: The dendroid-phaceloid colony has long corallites. Septa are costal and sub-compact; the pores are rare and large. Septa are developed in two complete and a third incomplete cycles. A spongy columella is formed of septal extensions. Large lateral teeth occur. Endotheca consists of large dissepiments which are concave in the axial part and convex in the peripheral part of the corallite. Wall is septoparathecal.

Dimensions: $d = 8-13$ mm, $s = 70-115$, $c/mm = 25/10$ mm.

Comparison: Our specimens correspond to the other specimens of this species; among others things they have a large spongy axial space which was mentioned by Koby (1884) in his first description and by RONEWICZ (1964) in her description of the corals from Poland.

Locality: I found our specimens of this species at Col (P-299), at Otlica (P-422), on Mrzovec (P-480, P-251) and south of Frata (P-347, P-348, P-349, P-350, P-351).

Dermosmilia fiagdonensis STAROSTINA et KRASNOV

Pl. 32, Fig. 3—4

Description: The colony is phaceloid and dendroid. Corallites are round to oval in cross section. Septa are of three cycles, irregularly perforated with lateral teeth. The axial part of the corallite stands out because of its fragmentary spongy structure. Endotheca consists of long and short vesicular dissepiments. Wall is septoparathecal. Microstructure of our specimens is considerably re-crystallized. In places, large sclerodermites or segmented trabeculae can be seen.

Dimensions: $d = 6-12$ mm, $s = c. 60-65$, $c/mm = 5/2$ mm.

Comparison: In their septal and axial structures our specimens correspond to the Russian ones but the corallites of our specimens vary more in size. This somewhat widens the variation range of the species.

Locality: Our colonies belonging to this species, P-269, P-452 and P-469, come from Mrzovec on Trnovski gozd.

Genus: *Epistreptophyllum* MILASCHWITSCH 1876*Epistreptophyllum tenue* MILASCHWITSCH

Pl. 33, Fig. 2—3

Description: The solitary oblong rod-like coral has an oval cross-section. Septa are straight and developed in four cycles. They have lateral spines. In the axial part there is a spongy columella. Endotheca is composed of numerous long and vesicular dissepiments, which are spaced throughout the whole coral. There are infrequent synapticalae in the peripheral part. Wall is septothecal and parathecal, seldom synapticalothecal.

Dimensions: $d = 10 \times 20$ mm, $s = c. 100$.

Comparison: GEYER (1954, 143) united the species *E. tenue* and *E. cylindratum*. Since the holotypus of the species *E. cylindratum* is very badly preserved he retained the name after the species *E. tenue*. RONEWICZ (1966) did not consider this revision because among the corals in Poland she had found a specimen with somewhat larger dimensions which corresponded to the first de-

scription of the species *E. cylindratum*. Conversely, LAMBELET (1968) found among the material from Northern Germany two specimens showing the characteristics of both mentioned species. Therefore he united these two species, giving them the name *E. cylindratum*. Among our specimens I have found a specimen corresponding in size to the species *E. tenue* but it has a larger number of septa; MILASCHWITSCH (1876) mentions this number for the species *E. cylindratum*. Thus also our specimens show the characteristics of both species. The specimen from Poland, too, has a larger number of septa, even though the height of the corallum corresponds to that of the species *E. tenue*. For this reason I think that these two species really are synonymous and I agree here with the statements of GEYER and LAMBELET. I recognize the name *E. tenue* first accepted by GEYER, since this species has a better preserved holotypus; the nomenclature rules do not have to give alphabetical priority to the species *E. cylindratum*.

GEYER (1955 b, 345) attributed to this species also the species *Leptophyllia excelsa* Koby, *L. fragilis* Koby and *Epistreptophyllum excelsa* Koby. Since I have not seen this Portuguese material I cannot judge whether this revision is justified or not.

Locality: Our specimen P-293 comes from Bukovje, 7548/2 comes from Mrzovec, and 1973/1 with 1974/16 from Kal.

Epistreptophyllum bonjourii (Étallon)

Pl. 33, Fig. 4

Description: The solitary trochoid coral has round calices. Costosepta are straight, rarely perforated and arranged in four cycles. Lateral side is dentate. Endotheca consists of long vesicular dissepiments. Synapticalae are infrequent. Wall is parathecal and, in places, synapticalothecal. Columella is spongy and, in our specimen, fairly much re-crystallized. Microstructure is not preserved either.

Dimensions: $d = c. 35$ mm, $h = c. 90$ mm, $s = c. 180$, $c/mm = 4-5/2$ mm.

Comparison: Our specimen fits in well with the descriptions and dimensions of this species given so far. I find the shifting of this species from *Montlivaltia* to *Epistreptophyllum* justified because, apart from a columella, infrequent synapticalae and vesicular endothecas can be seen in this species. KRKOVIĆ assumes that the specimen from Rumija in Montenegro is a new subspecies; but she gives no dimensions and therefore a more complete comparison cannot be made.

Locality: Our specimen of this species, P-289, has been found at Col on Trnovski gozd.

Genus: (?) *Calamophylliopsis* ALLOITEAU 1952

The genus *Calamophylliopsis* was established by ALLOITEAU in 1952 (p. 672), annotated 1951. He described it in detail only in 1957 (p. 176) and then he also marked it "nov. gen.". ALLOITEAU considered as a typical species the species *Calamophyllia flabellata* FROMENTEL 1861. He rejected the genus *Calamophyllia* BLAINVILLE 1830 as invalid because the holotypus of the type species *C. striata* BLAINVILLE was lost. The various species attributed to *Calamophyllia* so far are, in Alloiteau's opinion, so different from one another that each individual one needs to be revised.

ALLOITEAU (1957, 178) included in *Calamophylliopsis*, apart from its typical species, also the species *Calamophyllia crassitorquata* FROMENTEL, *C. ducreti* Koby, *C. crassa* Koby, *C. stockesi* MILNE-EDWARDS et HAIME, and some others.

WELLS (1956) attached *Calamophylliopsis* to *Dermosmilia* Koby. Conversely BEAUVAIS recognized *Calamophylliopsis* and attributed to it some species previously included in *Calamophyllia*. RONEWICZ followed this system. Some other researchers, for instant, SIHARULIDZE (1970) and MORYCOWA (1964, 1966), also use the name *Calamophylliopsis*.

I myself have no original material and I am dependent on data from the relevant literature. For the time being I accept *Calamophylliopsis* because it has been precisely described and fitted

into the system and because among the Slovene coral fauna specimens corresponding to this description can be found. Only the question of the identity of *Calamophyllia* remains unanswered. Since the typical species of this genus dates from the Tertiary period the answer to this question might be found in the examination of younger corals.

Calamophylliopsis flabellum (MICHELIN)

Pl. 34, Fig. 1—2

Description: The phaceloid colony has long parallel corallites up to 1 m long. In cross-section they are round to irregular in shape. Septa are only occasionally perforated, very thin but densely spaced. They have costae. Wall is parathecal. Endotheca is made up of numerous tabulate dissepiments, synapticalae are infrequent. Columella is parietal. In our specimens the microstructure is not preserved.

Dimensions: h = up to 1 m, d = 3—8 mm, c—c = 4—10 mm,
s = c. 70, c/mm = 25/5 mm.

Comparison: MILNE-EDWARDS and HAIME (1848), and Koby (1884, 182), attributed to the species *Calamophyllia flabellum* BLAINVILLE the species *Lithodendron flabellum* MICHELIN. GEYER (1955 b, 332) included the species *Calamophyllia flabellum* BLAINVILLE in Alloiteau's genus *Calamoseris*. BEAUVAIS (1964, 242) placed Michelin's species *Lithodendron flabellum*, together with Koby's specimens (he called them *Calamophyllia flabellum* BLAINVILLE) in the genus *Calamophylliopsis*. The name of the species, "*flabellum*", thus remains in two genera. Our specimens correspond to the descriptions and dimensions of the above described species. I combine the individual subspecies distinguished by BEAUVAIS because the forms of the corallites change in a very irregular manner, transforming from one form to another, so that the differences among them cannot be made out. This species is distinguished from the species *C. cervina* and *C. stockesi* by its thinner septa and larger number of dissepiments. In my opinion Koby's species *Calamophyllia ducreti*, which BEAUVAIS attributed to the species *C. flabellum*, is an independent species since it has much more sparsely spaced costae. Koby's variation *C. flabellum nodosa* belongs to the species being discussed.

Locality: In the Slovene collection numerous specimens belong to this species. They come from Čušperk (P-379), from Brezova reber (P-385, P-386, P-387, P-394, P-397), from Frata (P-364, P-367), from Mrzovec (1780/3, 5), from Kal (1902/1), from Plave (3733/4, 6, 7), and from Čepovanski dol (7241/9).

Calamophylliopsis cervina (ÉTALLON)

Pl. 54, Fig. 3

Description: The phaceloid-dendroid colony has long parallel corallites which bud at a sharp angle. Corallites are round to oval in cross-section. Septa are thick and somewhat sinuous. They are developed in three clear cycles while the fourth cycle consists only of costae. Are occasionally perforated with lateral teeth. Wall is septothecal, in places parathecal, and costal. Endotheca is composed of infrequent tabulate and vesicular dissepiments. Columella is spongy.

Dimensions: d = 5—8 mm, s = c. 50, s/mm = 12—13/5 mm,
angle of budding = 30—40°.

Comparison: Our specimens correspond to the description of the species *C. cervina*. This species is distinguished from the previous one by its thicker and more sparsely spaced septa.

Locality: Our specimens of this species are P-324 and P-329 from Bič near Gaber, P-274 from Mačkovec, and P-275 from Karteljevo.

Calamophylliopsis stockesi MILNE-EDWARDS et HAIME

Pl. 34, Fig. 4

Description: The dendroid-phaceloid colony is up to 1 m long. Corallites are straight and parallel and they bud at a sharp angle. In cross-section they are round. Septa are irregularly perforated here and there; they are developed in two to three cycles. Columella is spongy. Endotheca is made up of infrequent tabulate dissepiments, synapticalae are few in number.

Dimensions: d = 6—8 mm, s = 50—70 + c., c—c = 5—10 mm, c/mm = 20/5 mm.

Comparison: Our specimens correspond to the description and dimensions of the species *C. stockesi*. This species is distinguished from the previous two species by its density of costae which is greater than that of the species *C. cervina*, and by its density of dissepiments which is less than in the species *C. flabellum*.

Locality: Our specimens of this species come from Bič near Gaber (P-325, P-327, P-334), from Mrzovec (P-451, P-248) and from Kal (1902/5 and 1974/15).

Family: *Thamnasteriidae* VAUGHAN et WELLS 1943

Genus: *Thamnasteria* LESAUVAGE 1823

A small dendroid colonial coral, covered with tiny stars, was given the name *Thamnasteria* by LESAUVAGE (1823). Later he called it *Thamnastraea* (1832), which name was used in relevant literature for a long time. It is only recently that the first name, *Thamnasteria*, has been re-adopted. This genus has been described anew by many later researchers, such as MILNE-EDWARDS and HAIME (1857), Koby (1887), OGILVIE (1897) and, more recently, by GEYER (1954) and BEAUVAIS (1964), in more detail by ALLOITEAU (1957, 201) and LAMBELET (1968, 138).

All researchers except WELLS (1956) include *Thamnasteria* in the family *Thamnasteriidae*, sub-order *Fungiida*, because of its synapticalae and partly perforated septa.

Thamnasteria lobata (GOLDFUSS)

Pl. 35, Fig. 1—2

Description: The small, massive, round or encrusted thamnasterioid colony has densely and evenly arranged corallites. Septa are thick, perforated with granulous ornamentations on their lateral side. The septa of the first cycles (8—10) reach to the centre where they do not fuse together. In the middle there is a small styloform columella. There is no wall between the corallites; the septa are confluent. Endotheca consists of small tabulate dissepiments; in some places, in the thecal part, the synapticalae can be seen. In our specimens the microstructure is not preserved.

Dimensions: d = 2—3.5 mm, c—c = 2.5—3.5 mm, s = 15—20, s/mm = 5—6/2 mm.

Comparison: From the comparison of dimensions it can be seen that GEYER rightly included the species *T. gibbosa* in the species *T. lobata*. He attributed to the latter also the species *T. bourgeati* Koby, which RONIEWICZ later included in the new genus *Kobyastrea*. According to RONIEWICZ the difference between the species *T. lobata* and *T. bourgeati* Koby is shown in the different septal ornamentations on the lateral and inner side of septa and in the somewhat differently constructed endotheca.

RONIEWICZ (1966, 233) and LAMBELET (1968, 140) attributed the species *T. lobata* to the species *T. concina*. I do not accept this synonymy because the species *T. lobata* has much more sparsely spaced septa than *T. concina* (*T. lobata* 5—6/2 mm, *T. concina* 10—12/2 mm).

Locality: Our specimens of this species are P-400 and P-403 from Mali vrh near Frata, and P-388 from Brezova reber near Frata.

Thamnasteria moreana (D'ORBIGNY)

Pl. 35, Fig. 3—4

Description: The small, round, thamnasterioid colony has corallites densely spaced in irregular lines. Septa are here and there perforated and have lateral teeth. On the axial side they freely end and they are not attached to the columella. Columella is small and styliiform. There is no wall; the septa are confluent. Synapticulae are distributed throughout the colony. Dissepiments are infrequent, tabulate and vesicular.

Dimensions: $d = 2.5-4$ mm, $c-c = 2-4$ mm, $s = 25-40$, $s/mm = 10-13/3$ mm.

Comparison: GEYER attached four more species of *Thamnasteria* to the species *T. moreana*. These were the species *T. loryi*, *T. mettensis*, *T. nicoleti* and *T. heeri*, which were described by Koby (1887, 1905). His table of dimensions shows that these species mutually correspond to one another, because all intermediate forms are given. For this reason the species *T. nicoleti* can be included in the species *T. moreana*, although BEAUVAIS re-established the former without regard to Geyer's revision. Koby's specimen which BEAUVAIS describes corresponds to our specimens. Our species resembles the species *T. gracilis* in the way its septa run, but its septa are much more sparsely spaced than those of the species *T. gracilis*.

Locality: Two specimens, P-430 and P-413, have found at Otlica on Trnovski gozd.

Genus: *Fungistraea* ALLOITEAU 1952

The genus *Fungistraea* was established by ALLOITEAU on the basis of the species *Astraea lagnum* MICHELIN. In 1957 (p. 216) he gave a more detailed description of this genus, which was later accepted also by RONIEWICZ and BEAUVAIS. I, too, recognize the *Fungistraea* because it is distinguished from *Thamnasteria* by its spongy columella and from *Synastraea* by its less perforated and less densely spaced septa.

Fungistraea arachnoides (PARKINSON)

Pl. 35, Fig. 5—6

Description: The encrusted thamnasterioid colony has round corallites, arranged in rows. The centres can be well seen. Septa are subcompact, confluent, without a wall, with lateral granulae. Columella is spongy. Synapticulae are frequent, dissepiments occur infrequently and are vesicular.

Dimensions: $c-c = 3.5-6$ mm, $s = (25) 32-36 (43)$, $s/mm = 13-15/5$ mm.

Comparison: MILNE-EDWARDS and HAIME (1851, 97) and Koby (1887, 358; 1905, 113) attributed this species to *Thamnasteria*. BEAUVAIS included it in the genus *Morphastraea* which was later revised to *Thamnasteria*. BEAUVAIS states that this species has a styliiform columella which is joined with the septal extensions to the parietal columella. It is just this parietal columella which RONIEWICZ finds so important that she attributes this species to *Fungistraea*.

Locality: Among the Slovene specimens the following belong to the species *F. arachnoides*: P-360 from Frata, P-254 from Mrzovec on Trnovski gozd.

Family: Synastraeidae ALLOITEAU 1952

Genus: *Synastraea* MILNE-EDWARDS et HAIME 1848

The type species of the genus *Synastraea* is *Astraea agaricites* GOLDFUSS 1826. In more recent times this genus was re-examined and described by ALLOITEAU (1957, 203). In its thamnasterioid growth of septa it resembles the genera *Thamnasteria*, *Fungistraea* and *Microsolena*; it is distinguished from them by its differently perforated septa and by its columella.

Synastraea dubia FROMENTEL

Pl. 36, Fig. 2—3

Description: The encrusted thamnasterioid colony is of varying thickness. Septa are somewhat broadened into fan-like shapes and are sinuous to a certain extent. They are irregularly perforated; the pores are more in the axial part of the corallite. Microstructure is composed of compound trabeculae which, in our specimens, are seldom preserved. Septa are confluent, their lateral sides have small outcrops. The inner edges carry on into a strong spongy columella. Synapticulae are frequent, dissepiments rare.

Dimensions: $d = (3) 4-6$ mm, $c-c = 4.5-6$ mm, $s = 25-42$, $s/mm = 10-12/3$ mm.

Comparison: Our specimen fits in well with the species as it was described by BEAUVAIS after she had re-examined Fromentel's original material. Only some corallites of our colony have less septa than those described by BEAUVAIS. This species somewhat resembles the species *Synastraea* cf. *pullata* (STOLICZKA, 1873), mentioned by ALLOITEAU (1957; Pl. 15, Fig. 10), but the latter has a smaller columella.

Locality: I found our specimen P-477 at Ojstrovca on Trnovski gozd.

Synastraea subagaricites (BECKER)

Pl. 36, Fig. 1

Description: The small bulb-shaped thamnasterioid colony has irregularly arranged corallites. Septa are very densely spaced, thin and partly perforated, with lateral spines; axial protuberances lengthen into a spongy columella. Synapticulae are frequent; dissepiments are rare. Microstructure is badly preserved; in some places compound trabeculae can be seen.

Dimensions: $d = 5-7.5$ mm, $c-c = 5-7$ mm, $s = c. 60$, $s/mm = 26/5$ mm.

Comparison: GEYER (1954, 165) attached Becker's species *T. subagaricites* to the species *Microsolena agariciformis*. However, Becker's specimen as well as our specimens have irregularly perforated septa with compound trabeculae and a spongy columella, which is characteristic for the *Synastraea*. In their exceptional density of septa and in their dimensions our specimens correspond to BECKER's.

Locality: I found our specimen, P-428, at Otlica.

Family: Actinacidae VAUGHAN et WELLS 1943

Genus: *Actinaraea* D'ORBIGNY 1849

The genus *Actinaraea* was established by D'ORBIGNY on the basis of the species *Agaricia granulata* MUNSTER. This genus is distinguished from the other fungiids by its strong perithecium. The appearance of the vermiform perithecium structure of this genus approaches the appearance of the structure of hydrozoans, especially of those belonging to the group Spongiomorphaeidea. However, by its septal structure *Actinaraea* is distinguished from hydrozoan astrorhizae.

Actinaraea granulata (MUNSTER)

Pl. 36, Fig. 4—5

Description: The encrusted colony has irregularly arranged corallites separated by a wide perithecium. Calices are round. Septa are costal and regularly perforated, with lateral spinous outcrops. Columella is spongy, synapticulae are frequent, dissepiments rare and thin. Wall is synapticulothecal and incomplete.

Dimensions: $d = 1.6-2.0$ mm, $c-c = 4-6$ mm, s (in centre) $= 12-14$,
 s (at wall) $= 30-38$, $s/mm = 8/2$ mm.

Comparison: Our specimen has, in comparison with the Polish one, somewhat smaller corallites. This brings it close to the species *A. minima*; however, the density of septa corresponds to the species *A. granulata*.

Locality: A specimen of this species, P-424, has been found at Otlica.

Suborder: Caryophylliida VAUGHAN et WELLS 1943

Family: Rhipidogyridae Koby 1904

Genus: *Acanthogyra* OGILVIE 1897

Acanthogyra columnaris OGILVIE

Pl. 37, Fig. 1—2

Description: The massive cerioid colony has parallel corallites. In cross-section they are oval to polygonal. In the middle of each corallite there is lamellar columella, which gives the colony the appearance of a bilateral septal structure. On each lateral side there are the remaining four or six septa of the second to third cycles; these septa reach the centre where some of them attach themselves to the columella. Septa of the remaining cycles are more or less short, irregular and incompletely developed. The wall is septoparathecal and, in some places, there is a dissepimental ring on its inner side. Endotheca is tabulate and vesicular. Microstructure is very much re-crystallized. OGILVIE mentions reproduction by division which I have not been able to observe in our material.

Dimensions: d (short) = 4—6 mm, d (long) = 6—8 mm, c—c = 5—8 mm,
s = c. 10—12 + S.

Comparison: Our specimen is distinguished from the original one by its somewhat less oval corallites but basically this difference does not fall outside the variation range of the species.

Locality: I found our specimen of this species, P-258, on Mrzovec at Trnovski gozd.

Acanthogyra multiformis OGILVIE

Pl. 37, Fig. 3—4

Description: The cerioid colony has irregularly polygonal to oval corallites. Fourteen to sixteen indented septa reach the centre where they fuse with the oblong columella. The remaining septa are shorter; their number cannot be determined. Wall is septothecal. Endotheca consists of tabulate and long vesicular dissepiments. Microstructure cannot be clearly distinguished; in some places it seems as if it were composed of segmented sclerodermites.

Dimensions: d (long) = 9—10 mm, d (short) = 7—8 mm, c—c = 7—10 mm,
s = 14—18 + S.

Comparison: Our specimen corresponds to the original material in all its structural characteristics and dimensions. It has somewhat rounder more evenly sized corallites than the holotypus.

Locality: In Slovenia, I found a specimen of this species, P-483, on Selovec.

CONCLUSIONS

I have been able to establish five new species of Jurassic corals from material collected at the localities of Slovenia. The five new species from Slovenia are: *Actinastraea regularis* n. sp., *Pseudocoenia slovenica* n. sp., *Columnocoenia jurassica* n. sp., *Ceratothecia carniolica* n. gen. n. sp. and *Complexastraea seriata* n. sp. I have placed the new genus among the faviids, in the family Montlivaltiidae. During my study of other species and genera, I came across a number of facts which necessitate various minor changes in the system of classification.

I revise the species *Heliocoenia* (*Decaheliocoenia*) *regularis*, which I established on the basis of its densely packed corallites (TURNŠEK, 1968, 359, 370), and now I incorporate it in the species *Heliocoenia* (*Decaheliocoenia*) *variabilis*. My reason for doing this is the fact that among the Slovene specimens I obtained all the intermediate forms with densely and sparsely spaced corallites, density depending on the stage of reproduction reached.

I include *Latiphyllia suevica* (VAUGHAN and WELLS, 1943; GEYER, 1954) in the genus *Thecosmilia*, unlike LAMBELET, who attributed it to *Montlivaltia*. As well as having its characteristic faviid thecas and endothecas, this species also has a round axial opening (fossula), by which it can be identified as belonging to *Thecosmilia*. It is distinguished by the irregular growth of its corallites which, in my opinion, cannot be a criterion for the setting apart of *Latiphyllia*.

I place *Axosmilia* (family Axosmiliidae) in the suborder Faviida because this genus has a wals, an endotheca and the method of reproduction characteristic for the faviids. GEYER included this genus in the suborder Amphiastraeida on account of its bilateral axial structure. However, I consider the structural characteristics first mentioned to be more important than the axial structure for the purposes of classification. An oblong lamellar columella, which divides the septal structure bilaterally, can be observed, but this only indicates some affinity of this genus to the amphiastraeid group.

The genus *Comoseris* has the same microstructure as *Microsolena*. On account of this similarity it had been placed in the family Microsolenidae. However I must add here that in having series of corallites with intermediate collinae and a synapticulothecal wall it is similar to genera *Meandrophyllia* and *Microphyllia*. Unfortunately the microstructures of our specimens are not well preserved, so I must accept ALLOTEAU's system here. There are further difficulties in distinction when we come to consider the families Latomeandridiidae and Dermosmiliidae. I accept these two families for now, but only temporarily.

GEYER placed the species *Thamnasteria subagarcites* BECKER in *Microsolena*, but I place it in *Synastraea*, since it has a spongy columella, irregularly perforated septa and compound trabeculae, all of which are characteristic for this latter genus.

I have re-included *Connectastraea piriformis* in the genus *Amphiastraea* (as did also GEYER, 1954), since our specimens, too, show that all the characteristics of *Connectastraea* can be seen in *Amphiastraea*, even on the same colony.

From the cases mentioned, as well as from numerous others dealt with in the description of the fauna, it is clear that criteria for the determination of genera, families and even suborders have been in the past and still are not at all uniform. The system must be unified as soon as possible, with the co-operation of all those palaeontologists conducting research into hexacorals.

BIOSTRATIGRAPHICAL SECTION

When describing the Slovene coral localities I mentioned that BUSER (1965) attributed all strata with reef fauna (hydrozoans, corals, Dicerias, Nerinea, chaetetides) to the stratigraphic horizon of the Upper Oxfordian and Lower Kimmeridgian periods. So far I have not been able to define precisely this stratigraphic horizon by means of hydrozoans and corals. Here I am not trying to deny the stratigraphical importance of corals and hydrozoans. These fauna are the leading fauna in our Jurassic strata but they are leading as a whole for all Lower Malmian. In the Upper Kimmeridgian and Portlandian strata of Slovenia the reef corals have not been found.

Taking into account the hydrozoan fauna of Slovenia, I have divided up our country so that each site belongs to one of three different regions (TURNŠEK, 1966, 1969): the Northern Region, with its actinostromarid and sphaeractinid hydrozoans, the Central Region with its parastromatopod hydrozoans and the Southern Region with its *Cladocoropsis* hydrozoan. Corals occur frequently all over the Northern and Central Regions and few in southern one, but they are not so

sharply divided as the hydrozoans into the belts. Whereas not one single hydrozoan genus appears in all regions, the corals tend to be mixed up together. The annexed table (Table 1) shows the distribution of individual coral species at the Slovene localities as well as their regional and stratigraphical distribution in other parts of the world.

With the inclusion in the Lower Malmian of all the hydrozoans in Slovenia i.e. the parastromatopod, the actinostromarid and the sphaeractinid hydrozoans, the formerly held opinion that the sphaeractinids can be found only in the Tithonian strata, is now open to doubt. The first sphaeractinids were found at Štramberg, Czechoslovakia, where the stratotypus for the Tithonian was established. This locality contains also many corals. In Slovenia, too, corals appear together with hydrozoans; the question therefore arises as to whether or not corals will also prove our previous statement about their stratigraphical adherence to the Lower Malmian.

The coral fauna of our sites include sixty-five species, sixty of which are already known. Therefore a comparison with coral localities in other parts of the world is relatively easy to make and stratigraphically reasonably reliable.

Fourteen of these species have been found in Lusitanian and Kimmeridgian strata in Portugal (Koby, 1904; GEYER, 1955 b). In Spain 8 of these species have been discovered in Kimmeridgian strata (GEYER, 1965). In France, 23 of these species appear in the Rauracian, Argovian and Séquanian strata and a few also in the Kimmeridgian strata (FROMENTEL 1861, 1862; BEAUVAIS, 1964). In Switzerland 33 of these species are known, belonging mainly to the Argovian, Rauracian and Séquanian strata; a few belong to the Callovian and Lower Oxfordian and "Kimmeridgian" (Koby, 1880—1889). On German localities 20 of these coral species have been found in Oxfordian and Kimmeridgian strata (BECKER et MILASCHEWITSCH, 1876; QUENSTEDT, 1858; SPEYER, 1912, 1926; GEYER, 1954). On Svetokriške gore in Poland 26 of these species have been discovered in Upper Oxfordian strata (RONIEWICZ, 1966). Two of these species are known from the Bathonian and Callovian strata in India (GREGORY, 1900) and three from Coral rag in England (MILNE-EDWARDS et HAIME, 1851; TOMES, 1883). One of these species appears in the Lower Kimmeridgian strata in Austria (KUHN, 1939) and two in the Oxfordian — Kimmeridgian strata in Montenegro (KRKOVIĆ, 1965). In Northern Italy two of these species are known in Upper Jurassic strata but they have not been precisely stratigraphically determined (ACHIARDI, 1879). Six of these species have been found in the south-west part of the Soviet Union, in Oxfordian and Kimmeridgian strata (SOLOMKO, 1888; KRASNOV et STAROSTINA, 1970; BENDUKIDZE, 1948; BABAEV, 1970). Furthermore three of these species are known in the Tithonian strata of the Polish Carpathians (MORYCOWA, 1964), one in the Tithonian strata of the U.S.S.R. (KRASNOV et STAROSTINA, 1970) and 18 of these species from the Tithonian strata of Štramberg, Czechoslovakia (OGILVIE, 1897; GEYER, 1955 a).

A comparison of individual stages or facial denominations is given separately in table 2. The Argovian, Rauracian and Séquanian stages belong to the Lusitanian; the latter belongs to the Upper Oxfordian (GIGNOUX, 1960; RENEVIER, 1874; MAYNC, 1960). GEYER (1955 b) attributes the upper part of the Lusitanian to the Lower Kimmeridgian. The Astartian is equivalent to the Séquanian; RONIEWICZ (1966) places it in the Upper Oxfordian, whereas REYRE (1943) includes the strata with the *Astartes* in the Lower Kimmeridgian. Coral rag and great Oölithe in England and Coralien are the equivalents of Lusitanian and its upper period, Séquanian. It is interesting to mention that "Kimmeridgian" in the French sense of the word, means, in fact, the Lower Kimmeridgian, according to the international chronostratigraphical division, which was accepted at the colloquium of the Jurassic in 1962. The Tithonian was attributed to the Upper Kimmeridgian and Portlandian.

All the above mentioned comparisons show that the majority of Jurassic coral localities date from the lower part of the Malmian period, mainly from the Upper Oxfordian and the Lower Kimmeridgian. The age of our sites fits in well with this given point in time. For this period relevant literature mentions the accompanying fauna of dicerases and nerineas, which appear also in our

Northern Region. GEYER (1954, 1965) mentions the corals in the Württemberg district and in Spain which belong to the lower part of the Upper Kimmeridgian (to the lowest Tithonian). Therefore it is possible that in some places corals were thriving in mass for a somewhat longer time. On the other hand it is possible that this placing in a younger stratigraphic horizon occurred on account of a different interpretation of the Lusitanian; GEYER attributes it to a somewhat younger stratigraphic horizon than other researchers. Be that it as it may, the fact is that in Europe corals nearly never appear in mass in Portlandian (Upper Tithonian) strata. The strata at Štramberg, Czechoslovakia, represents an exception which leads to an assumption that the corals and hydrozoans of the Tithonian strata at Štramberg might not have been correctly stratigraphically determined.

GEYER (1957, 1958) gave a statistical comparison of four richest Jurassic coral localities in Europe including Štramberg. He was not able to divide species into older and younger because they interchange irregularly. The Russian palaeontologists (KRASNOV, 1964, 1965, 1967, 1970; BABAEV, 1970, and others), in fact, established the order of succession of some genera and species but this order is losing its validity on account of finds on other sites. Thus, for example, the *Amphistraea* and *Mitrodendron*, which have been considered to belong mainly to the Tithonian, appear in Poland (RONIEWICZ, 1966) in the Upper Oxfordian, at Praatz in Austria (KUHN, 1939) in the Lower Kimmeridgian and in Slovenia, in the Upper Oxfordian and Lower Kimmeridgian. However, the Russian researchers, too, state that the majority of early Jurassic corals were living in the Lower Malmian whereas in the Tithonian their number much decreased. We can assume that, in the latest period of the Jurassic in Europe and probably over the whole of the Thetys, there were no longer good conditions for the growth of extensive atoll-type structures.

From all the above remarks it can be seen that our coral fauna prove that our localities date from the Lower Malmian. At the same time, the coral fauna justifies my previous proposition that the Tithonian of Štramberg is probably not correctly placed stratigraphically. The corals there are the same as those found in the majority of other European Lower Malmian localities. Therefore it can be assumed that the flourishing of coral fauna at Štramberg had already started in the Oxfordian and Lower Kimmeridgian periods. The question is whether or not this period of strong growth lasted longer in some places than it did here. It will be answered by the results from research work recently commenced by Czechoslovakian geologists in Štramberg.

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TABLE — PLATES

RAZLAGA K TABLAM

Vse fotografije (razen 40-kratne povečave) so negativi, to pomeni, da so mikroskopski zbruski povečani direktno na papir. Zaradi boljše primerjave so vse vrste povečane 4-krat. Le pri novih vrstah so podane še 8-kratne povečave skeletnih elementov in 40-kratne povečave mikrostrukture. Vzorci, označeni s črko P in številko, so last Inštituta za paleontologijo SAZU, vzorci z večmestnimi terenskimi številkami pa so last Geološkega zavoda v Ljubljani. Črke a, b, c pomenijo označbe posameznih zbruskov. Vsi primerki koral so iz skladov zgornjega oksfordija in spodnjega kimmeridgija.

Vse fotografije je izdelala Carmen Narobe.

EXPLANATION OF PLATES

All the photos (except those enlarged 40 times) are negatives, that means, the microscopical thin sections are enlarged directly on the paper. Owing to the better comparison of the species they all are enlarged 4 times. Only the new species have been enlarged 8 times showing some parts of skeletal elements, and 40 times showing microstructure. The specimens marked with the letter P are kept in the Institute of Palaeontology of the Slovene Academy of Arts and Sciences, other specimens with field numbers are the property of the Geological Survey of Ljubljana. The letters a, b, c, denote thin sections. All the specimens of corals are of Upper Oxfordian and Lower Kimmeridgian age.

All the photos were made by Carmen Narobe.

TABLA 1

Actinastraea regularis n. sp.

Najdišče: Plave, 3733/1, holotip

Sl. 1. Prečni in deloma podolžni preseki koralitov, $\times 4$

Sl. 2. Prečni presek koralita s sl. 1, $\times 8$

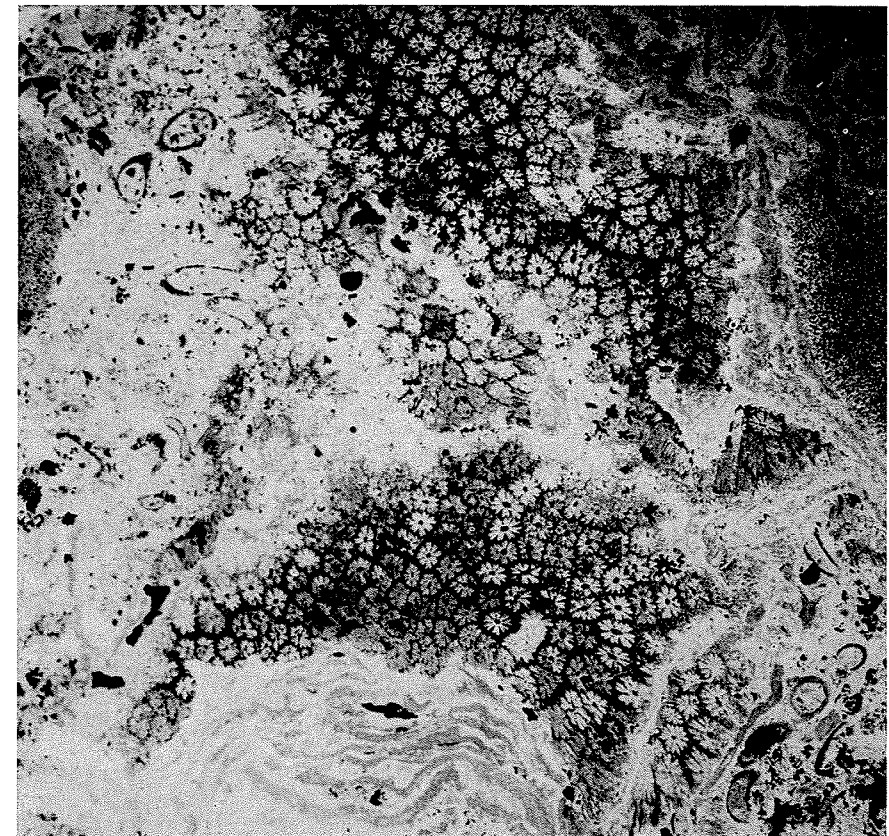
PLATE 1

Actinastraea regularis n. sp.

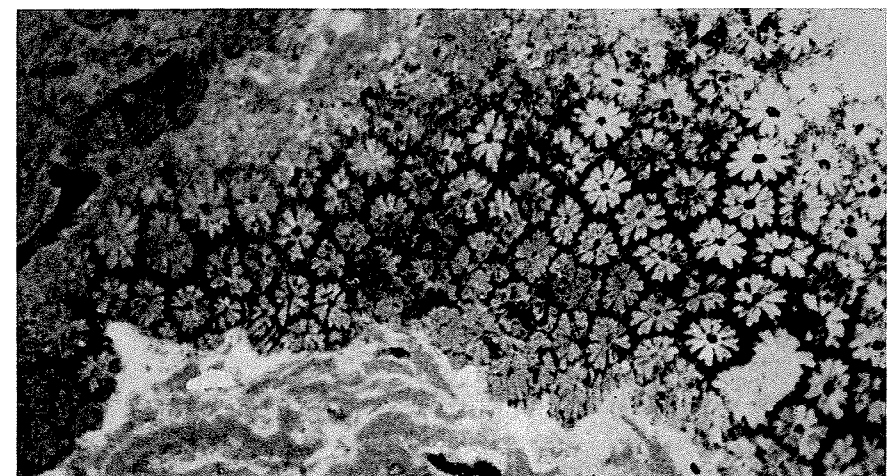
Locality: Plave, 3733/1, holotypus

Fig. 1. Transverse and partly longitudinal section of coralites, $\times 4$

Fig. 2. Transverse section of single corallite from the fig. 1, $\times 8$



1



2

TABLA 2

Actinastraea regularis n. sp.

Nahajališče: Plave, 3733/1, holotip

Sl. 1. Mikrostruktura prečnega preseka, v steni so temne lise, ki lahko predstavljajo kalcifikacijske centre, vendar je vse prekrystalizirano, $\times 40$ Sl. 2. Mikrostruktura podolžnega preseka sept, prekrystalizirano. $\times 40$ *Etallonia minima* (ÉTALLON)

Nahajališče: Otlica, P-264

Sl. 3. Prečni presek kolonije, P-264 c, $\times 4$ Sl. 4. Podolžni presek kolonije, P-264 a, $\times 4$

PLATE 2

Actinastraea regularis n. sp.

Locality: Plave, 3733/1, holotypus

Fig. 1. Microstructure of transverse section. Some dark spots in the wall can represent the centres of calcification, but much recrystalized, $\times 40$ Fig. 2. Microstructure of longitudinal section of septa, recrystalized, $\times 40$ *Etallonia minima* (ÉTALLON)

Locality: Otlica, P-264

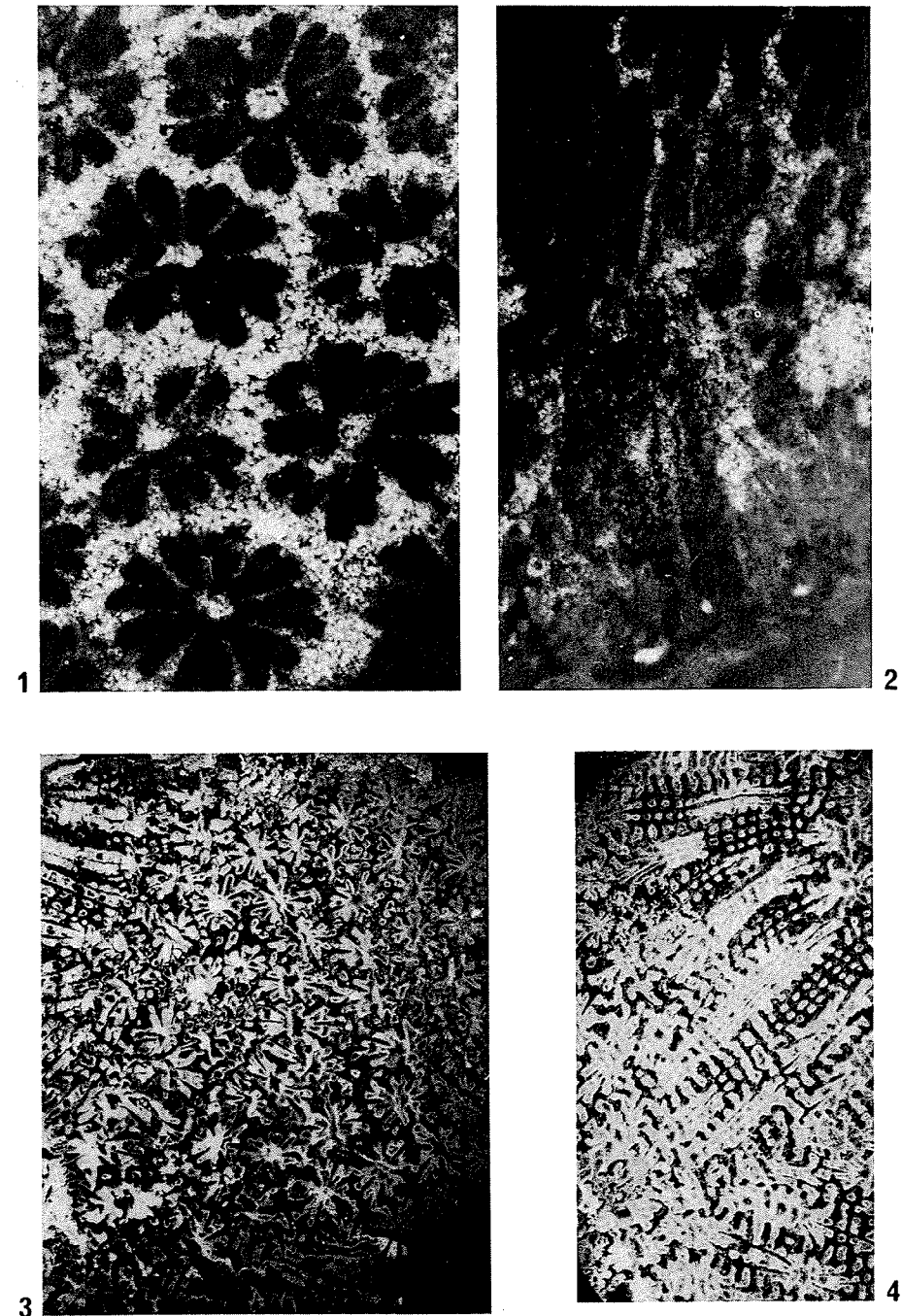
Fig. 3. Transverse section of colony, P-264 c, $\times 4$ Fig. 4. Longitudinal section of colony, P-264 a, $\times 4$ 

TABLA 3

Pseudocoenia hexaphyllia (D'ORBIGNY)

Nahajališče: Mrzovec, P-458, P-462

Sl. 1. Prečni presek, v nekaterih koralitih so vidna dolga kostatna septa, P-458 a, $\times 4$ Sl. 2. Podolžni presek z močno tabulatno endoteko. P-458 b, $\times 4$ Sl. 5. Prečni presek kolonije, P-462 a, $\times 4$ *Pseudocoenia radisensis* (D'ORBIGNY)

Nahajališče: Mali vrh pri Ajdovcu, P-405

Sl. 3. Prečni presek koralitov, P-405 c, $\times 4$ Sl. 4. Podolžni presek kolonije z močno tabulatno endoteko. P-405 b, $\times 4$

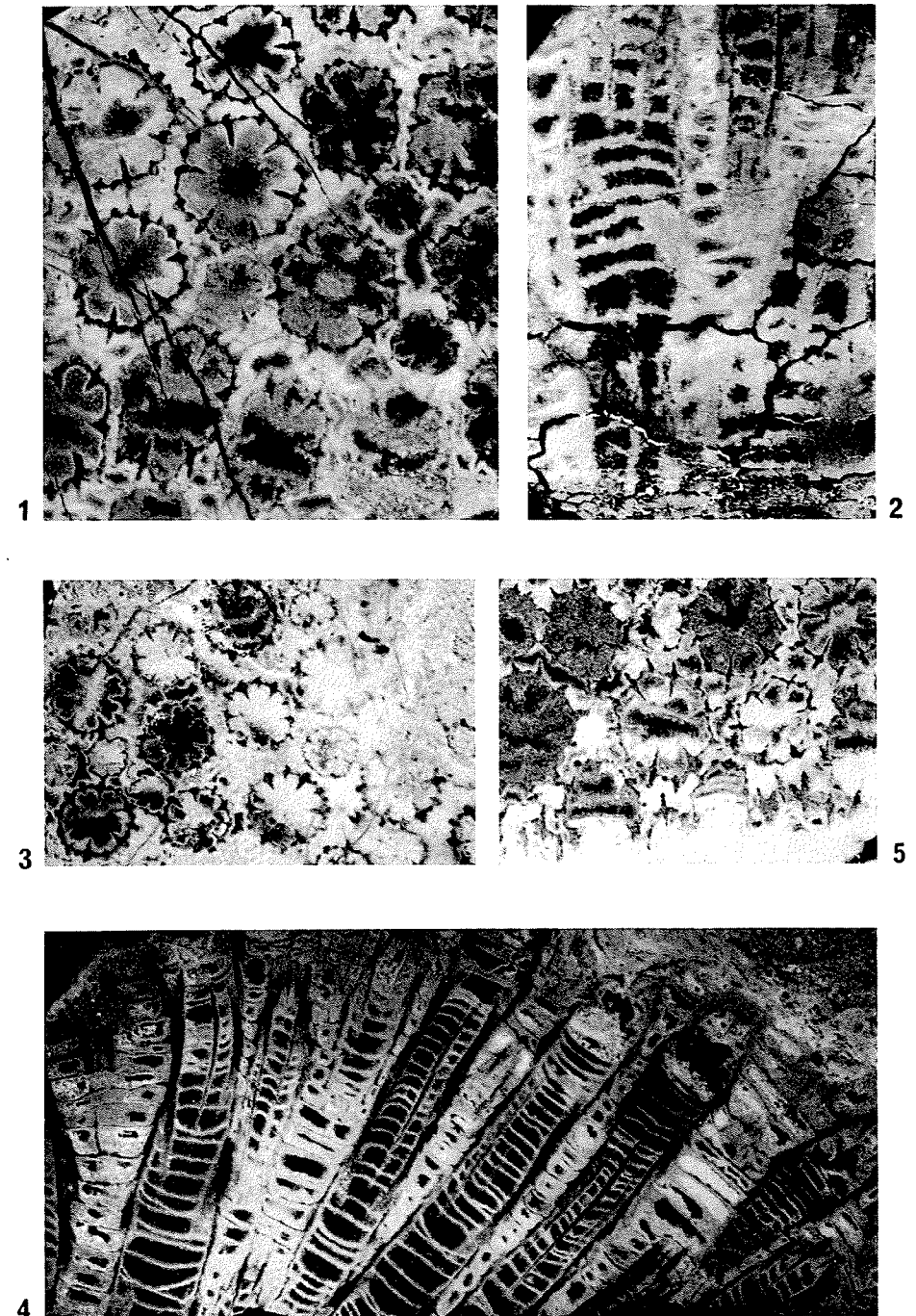
PLATE 3

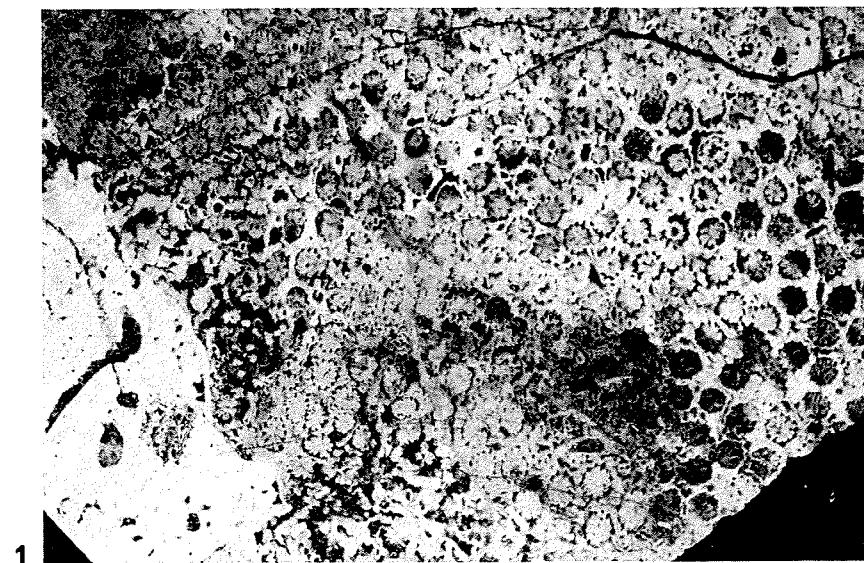
Pseudocoenia hexaphyllia (D'ORBIGNY)

Locality: Mrzovec, P-458, P-462

Fig. 1. Transverse section, in some corallites long costate septa can be seen, P-458 a, $\times 4$ Fig. 2. Longitudinal section with strong tabular endotheca, P-458 b, $\times 4$ Fig. 5. Transverse section of colony, P-462 a, $\times 4$ *Pseudocoenia radisensis* (D'ORBIGNY)

Locality: Mali vrh near Ajdovec, P-405

Fig. 3. Transverse section of corallites, P-405 c, $\times 4$ Fig. 4. Longitudinal section of colony with strongly tabular endotheca, P-405 b, $\times 4$ 



1



2

TABLA 4

Pseudocoenia slovenica n. sp.

Nahajališče: Col, P-304, holotip

Sl. 1. Prečni presek, v nekaterih koralitih so ohranjena dolga septa, P-304 b, $\times 4$ Sl. 2. Podolžni presek, vidne so popolne in nepopolne tabule, P-304 a, $\times 4$

PLATE 4

Pseudocoenia slovenica n. sp.

Locality: Col, P-304, holotypus

Fig. 1. Transverse section, in some corallites long septa are preserved, P-304 b, $\times 4$ Fig. 2. Longitudinal section, showing complete and incomplete tabulae, P-304 a, $\times 4$

TABLA 5

Pseudocoenia slovenica n. sp.

Nahajališče: Col, P-304, holotip

- Sl. 1. Prečni presek koralitov, P-304 b, $\times 8$
 Sl. 2. Podolžni presek kolonije, P-304 a, $\times 8$
 Sl. 3. Mikrostruktura v prečnem preseku, prekristalizirano, P-304 b, $\times 40$
 Sl. 4. Mikrostruktura stene in sept v podolžnem preseku, prekristalizirano, P-304 a, $\times 40$

PLATE 5

Pseudocoenia slovenica n. sp.

Locality: Col, P-304, holotypus

- Fig. 1. Transverse section of corallites, P-304 b, $\times 8$
 Fig. 2. Longitudinal section of colony, P-304 a, $\times 8$
 Fig. 3. Microstructure in transverse section, recrystallized, P-304 b, $\times 40$
 Fig. 4. Microstructure in longitudinal section of wall and septa, recrystallized, P-304 a, $\times 40$

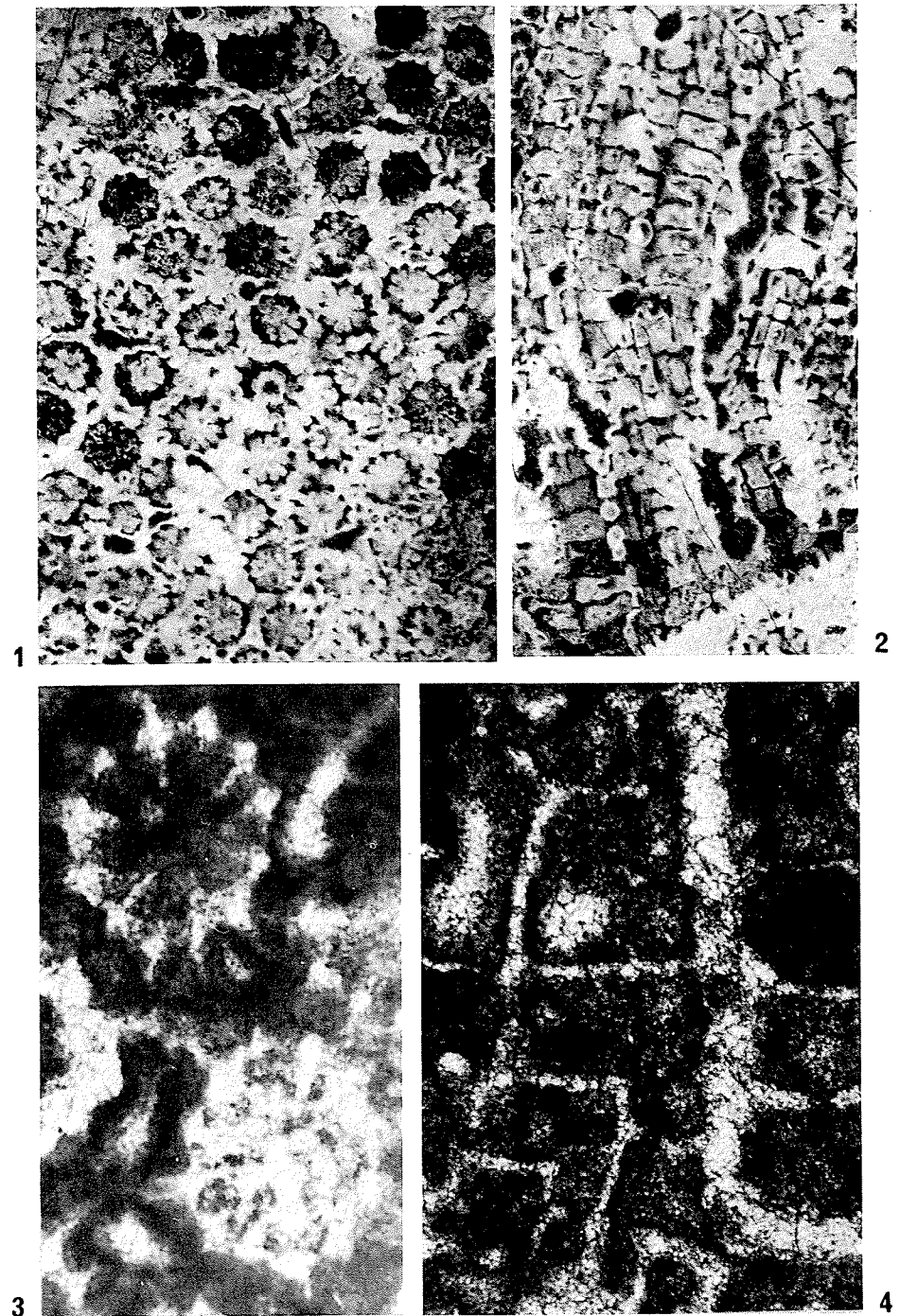


TABLA 6

Pseudocoenia baltovensis RONIEWICZ

Nahajališče: Mrzovec, P-477

Sl. 1. Prečni presek koralitov, septa so ohranjena le v nekaterih koralitih. P-477 a, $\times 4$ Sl. 2. Podolžni presek, vidna tabulatna endoteka in veliki disepimenti. P-477 b, $\times 4$ *Pseudocoenia* aff. *longiseptata* RONIEWICZ

Nahajališče: Col, P-307

Sl. 3. Prečni presek z aksialnimi podaljški sept, P-307 b, $\times 4$ Sl. 4. Podolžni presek kolonije s tabulatno endoteko in dolgimi disepimenti, P-307 a, $\times 4$

PLATE 6

Pseudocoenia baltovensis RONIEWICZ

Locality: Mrzovec, P-477

Fig. 1. Transverse section of corallites, septa preserved only in some of them, P-477 a, $\times 4$ Fig. 2. Longitudinal section with tabular endotheca and large dissepiments, P-477 b, $\times 4$ *Pseudocoenia* aff. *longiseptata* RONIEWICZ

Locality: Col, P-307

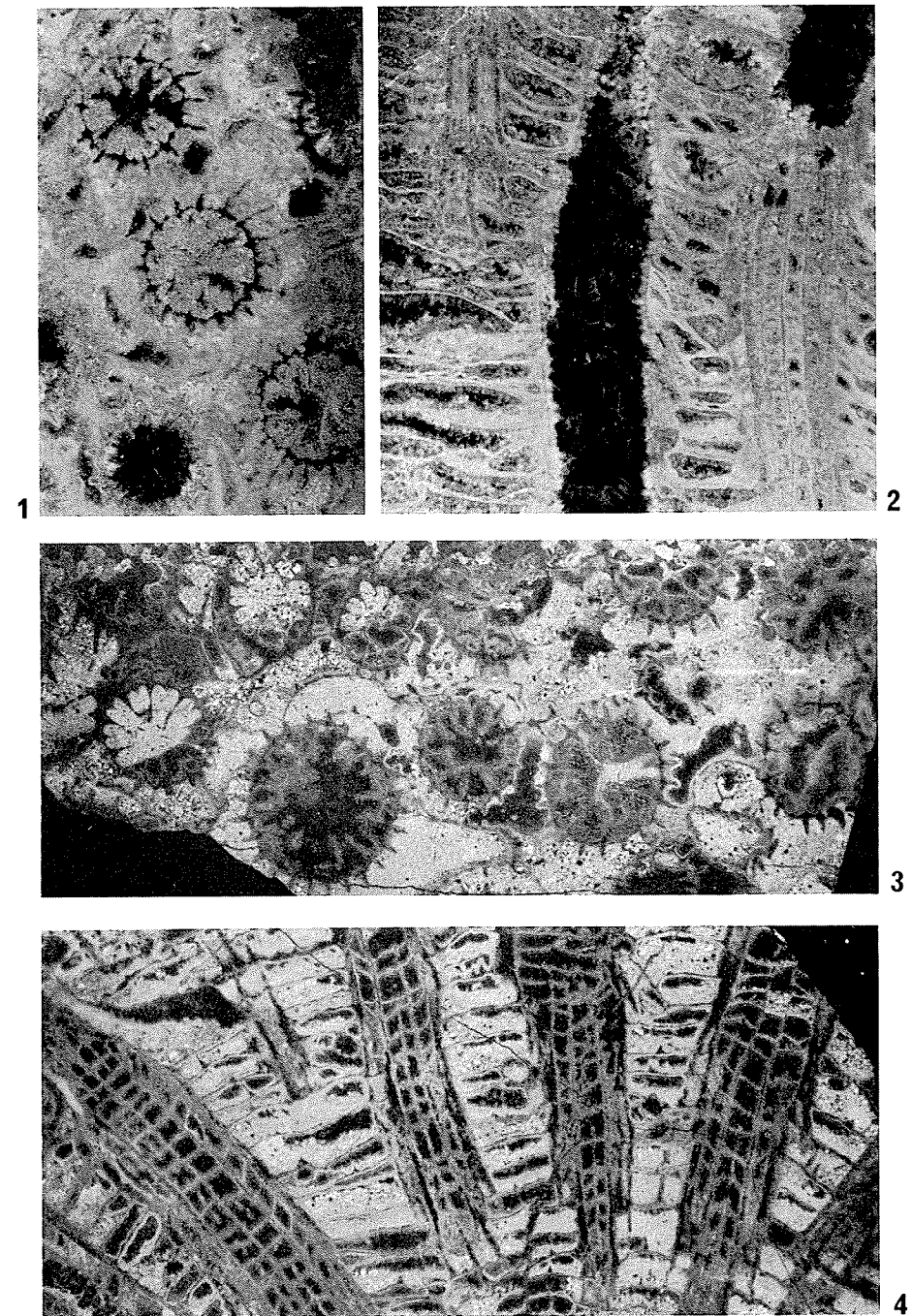
Fig. 3. Transverse section showing septal axial prolongations, P-307 b, $\times 4$ Fig. 4. Longitudinal section of colony showing tabular endotheca and long dissepiments, P-307 a, $\times 4$ 

TABLA 7

Stylina decipiens ÉTALLON

Nahajališče: Frata pri Ajdovcu, P-369; Selovec, P-485

Sl. 1. Prečni presek kolonije, kolumela je ohranjena le v nekaterih koralitih, P-369 a, $\times 4$ Sl. 2. Podolžni presek kolonije s subtabulatno in vezikularno endoteko, P-369 b, $\times 4$ Sl. 3. Prečni presek kolonije, P-485 a, $\times 4$ *Convexastraea intricata* (FROMENTEL)

Nahajališče: Mrzovec, P-249

Sl. 4. Prečni presek kolonije, P-249 a, $\times 4$ Sl. 5. Podolžni presek iste kolonije kot na sl. 4, P-249 b, $\times 4$

PLATE 7

Stylina decipiens ÉTALLON

Locality: Frata near Ajdovec, P-369; Selovec, P-485

Fig. 1. Transverse section of colony, columella preserved in some corallites only, P-369 a, $\times 4$ Fig. 2. Longitudinal section of corallites with subtabular and vesicular endotheca, P-369 b, $\times 4$ Fig. 3. Transverse section of colony, P-485 a, $\times 4$ *Convexastraea intricata* (FROMENTEL)

Locality: Mrzovec, P-249

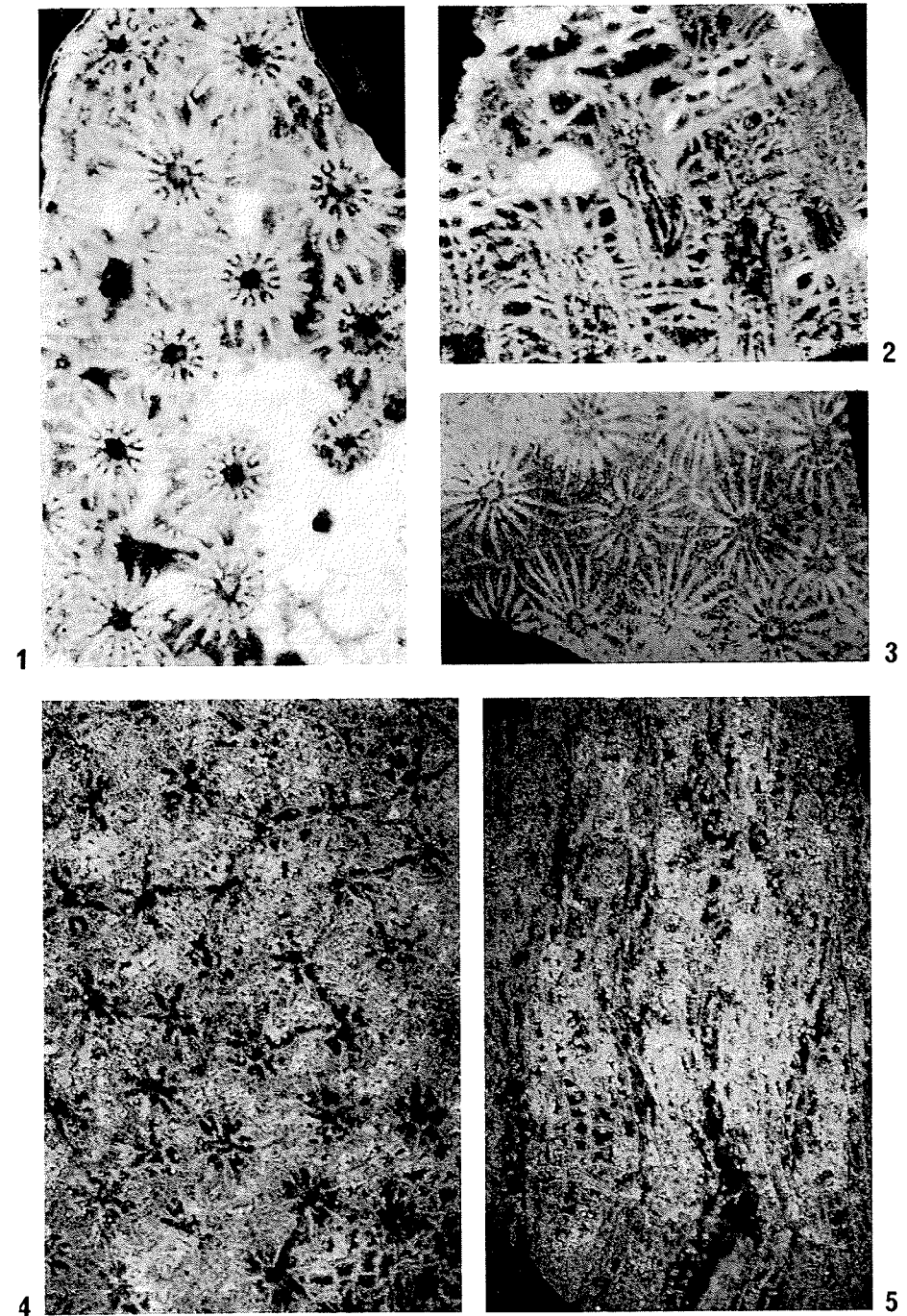
Fig. 4. Transverse section of colony, P-249 a, $\times 4$ Fig. 5. Longitudinal section of the same colony as on fig. 4, P-249 b, $\times 4$ 

TABLA 8

Heliocoenia (Hexaheliocoenia) costulata Koby

Nahajališče: Bukovje na Hrušici, P-296

Sl. 1. Prečni presek kolonije z zelo slabo ohranjeno steno med koraliti, P-296 a, $\times 4$ Sl. 2. Podolžni presek kolonije, P-296 b, $\times 4$ *Heliocoenia (Decaheliocoenia) variabilis* ÉTALLON

Nahajališče: Dobrnič, P-384

Sl. 3. Prečni presek kolonije z zelo gostimi koraliti, P-384 a, $\times 4$

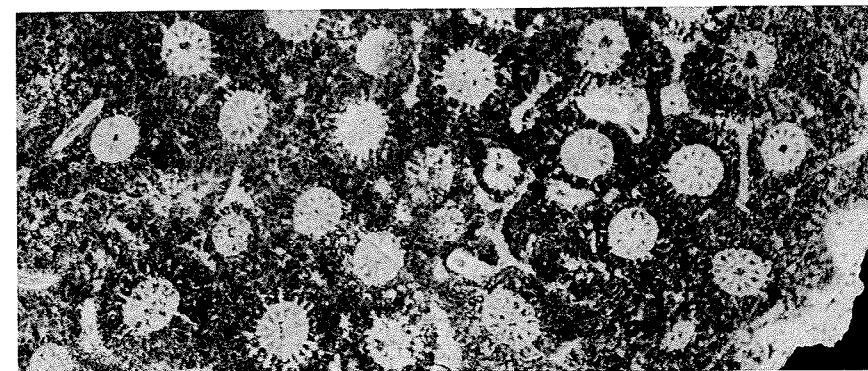
PLATE 8

Heliocoenia (Hexaheliocoenia) costulata Koby

Locality: Bukovje on Hrušica, P-296

Fig. 1. Transverse section of corallites with badly preserved wall, P-296 a, $\times 4$ Fig. 2. Longitudinal section of colony, P-296 b, $\times 4$ *Heliocoenia (Decaheliocoenia) variabilis* ÉTALLON

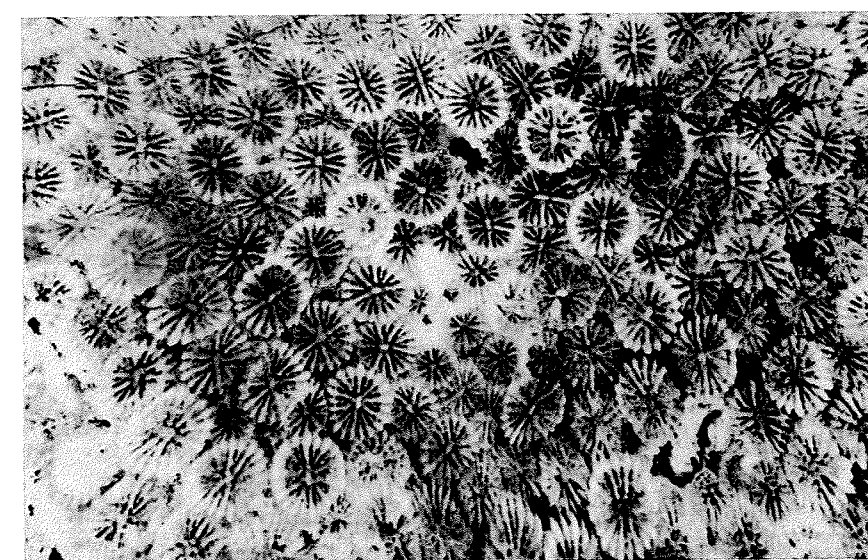
Locality: Dobrnič, P-384

Fig. 3. Transverse section of colony with very dense corallites, P-384 a, $\times 4$ 

1



2



3

TABLA 9

Heliocoenia (Decaheliocoenia) variabilis ÉTALLON

Nahajališče: Otlica, P-436, P-423, P-433

- Sl. 1. Prečni presek kolonije, P-436 a, $\times 4$
 Sl. 2. Podolžni presek kolonije, P-436 b, $\times 4$
 Sl. 3. Prečni presek kolonije z zelo gostimi koraliti, P-423 a, $\times 4$
 Sl. 4. Podolžni presek kolonije, P-423 b, $\times 4$
 Sl. 5. Prečni presek kolonije, koraliti so mestoma gosti, drugje redkejši, odvisno od razmnoževanja, P-433 a, $\times 4$
 Sl. 6. Podolžni presek kolonije, vidna prekinitev normalne rasti, P-433 b, $\times 4$

PLATE 9

Heliocoenia (Decaheliocoenia) variabilis ÉTALLON

Locality: Otlica, P-436, P-423, P-433

- Fig. 1. Transverse section of colony, P-436 a, $\times 4$
 Fig. 2. Longitudinal section of colony, P-436 b, $\times 4$
 Fig. 3. Transverse section of colony with very dense corallites, P-423 a, $\times 4$
 Fig. 4. Longitudinal section of colony, P-423 b, $\times 4$
 Fig. 5. Transverse section of colony, corallites are partly dense, partly rare, P-433 a, $\times 4$
 Fig. 6. Longitudinal section of colony, showing an interruption in normal growth of corallites, P-433 b, $\times 4$

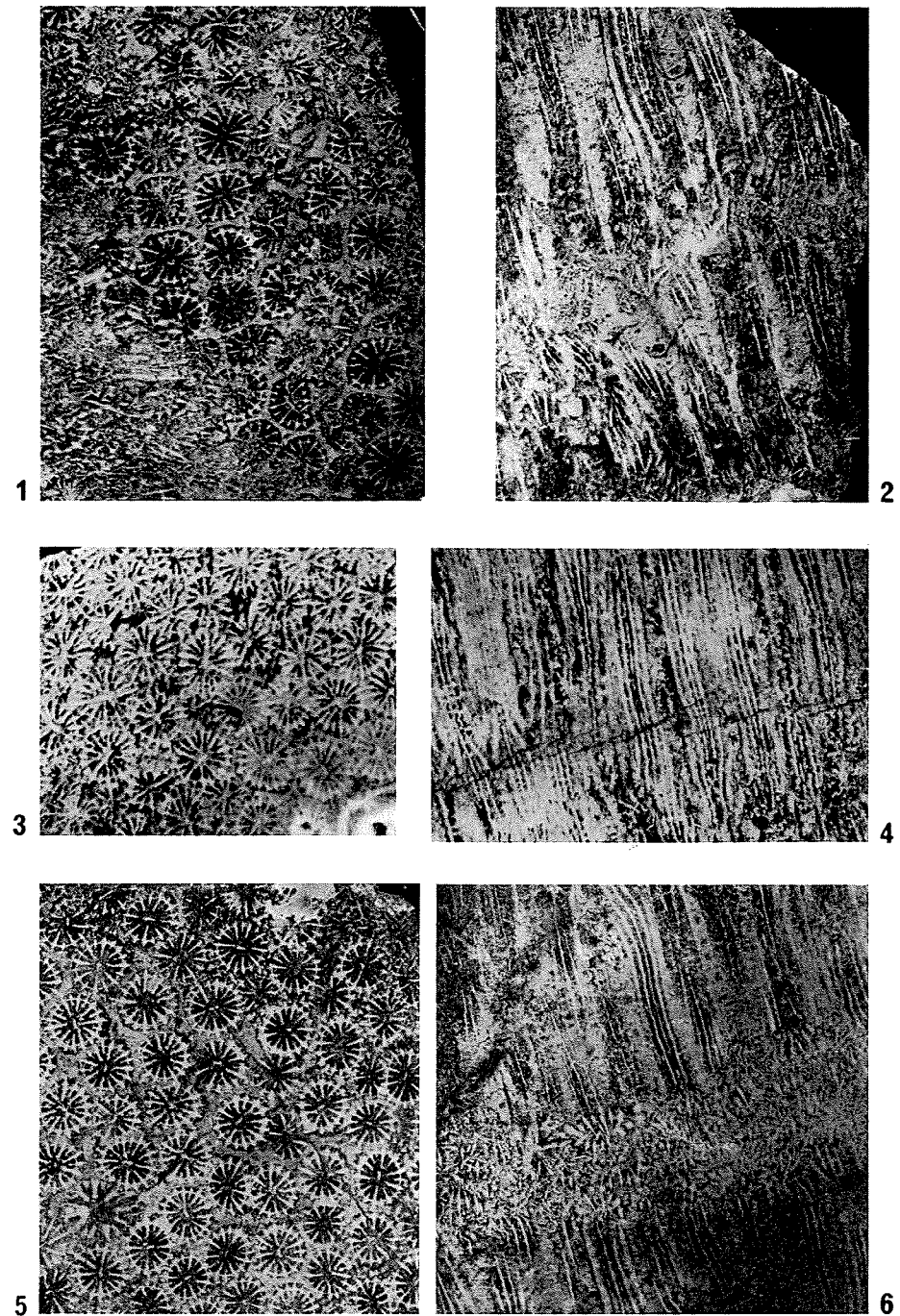


TABLA 10

Stylosmilia corallina Koby

Nahajališče: Babna gora pri Gabru, P-346

Sl. 1. Prečni presek s tipičnim lateralnim brstenjem, P-346 a, $\times 4$ Sl. 2. Podolžni presek iste kolonije kot na sl. 1, P-346 b, $\times 4$ *Stylosmilia chaputi* ALLOITEAU

Nahajališče: Mrzovec, P-454

Sl. 3. Zbrusek z različnimi preseki koralitov, P-454 a, $\times 4$

PLATE 10

Stylosmilia corallina Koby

Locality: Babna gora near Gaber, P-346

Fig. 1. Transverse section of corallites, showing lateral budding, P-346 a, $\times 4$ Fig. 2. Longitudinal section of the same colony as fig. 1, P-346 b, $\times 4$ *Stylosmilia chaputi* ALLOITEAU

Locality: Mrzovec, P-454

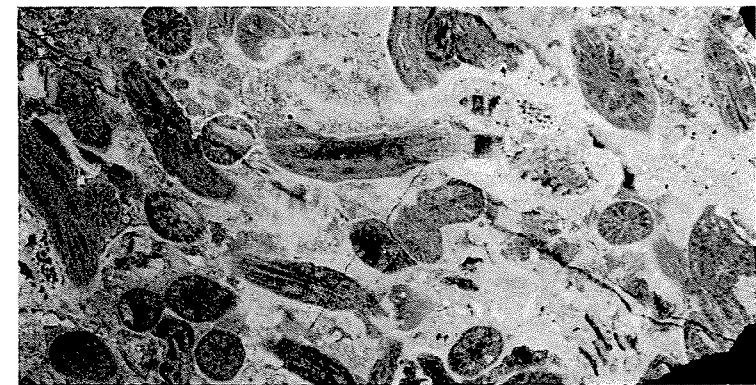
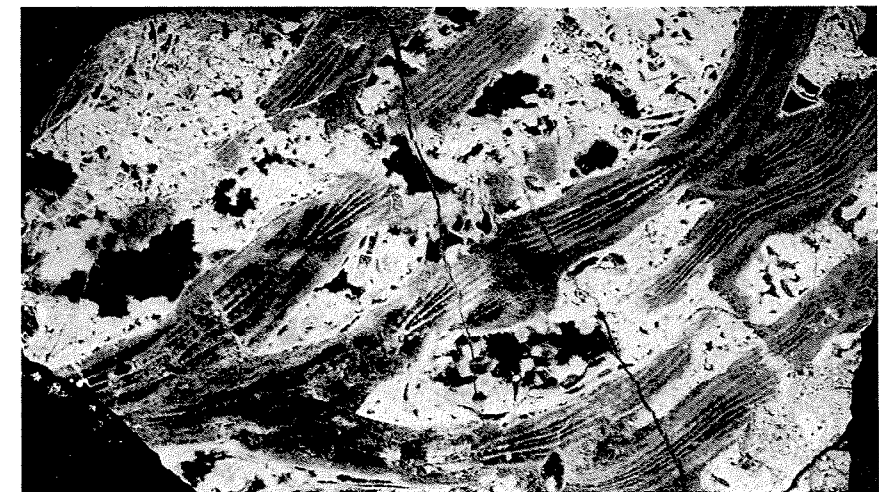
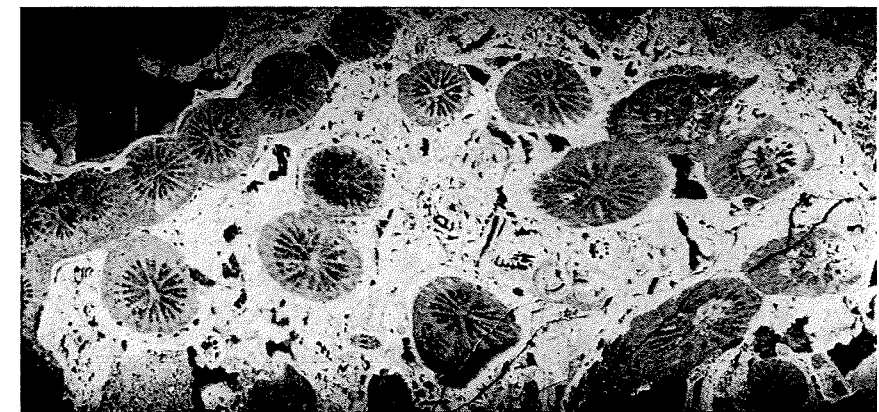
Fig. 3. Thin section with various sections of corallites, P-454 a, $\times 4$ 

TABLA 11

Goniocora pumila (QUENSTEDT)

Nahajališče: Otlica, P-437

Sl. 1. Prečni presek kolonije, P-437 a, $\times 4$ Sl. 2. Podolžni presek, P-437 b, $\times 4$ *Goniocora annulata* RONIEWICZ

Nahajališče: Frata pri Ajdovcu, P-370

Sl. 3. Prečni presek kolonije, P-370 a, $\times 4$ *Aplophyllia sexradiata* RONIEWICZ

Nahajališče: Frata pri Ajdovcu, P-361 a

Sl. 4. Prečni presek kolonije, P-361 a, $\times 4$ *Myriophyllia angustata* (D'ORBIGNY)

Nahajališče: Mrzovec, P-260

Sl. 5. Prečni presek kolonije, P-260 a, $\times 4$

PLATE 11

Goniocora pumila (QUENSTEDT)

Locality: Otlica, P-437

Fig. 1. Transverse section of colony, P-437 a, $\times 4$ Fig. 2. Longitudinal section of colony, P-437 b, $\times 4$ *Goniocora annulata* RONIEWICZ

Locality: Frata near Ajdovec, P-370

Fig. 3. Transverse section of colony, P-370 a, $\times 4$ *Aplophyllia sexradiata* RONIEWICZ

Locality: Frata near Ajdovec, P-361 a

Fig. 4. Transverse section of colony, P-361 a, $\times 4$ *Myriophyllia angustata* (D'ORBIGNY)

Locality: Mrzovec, P-260

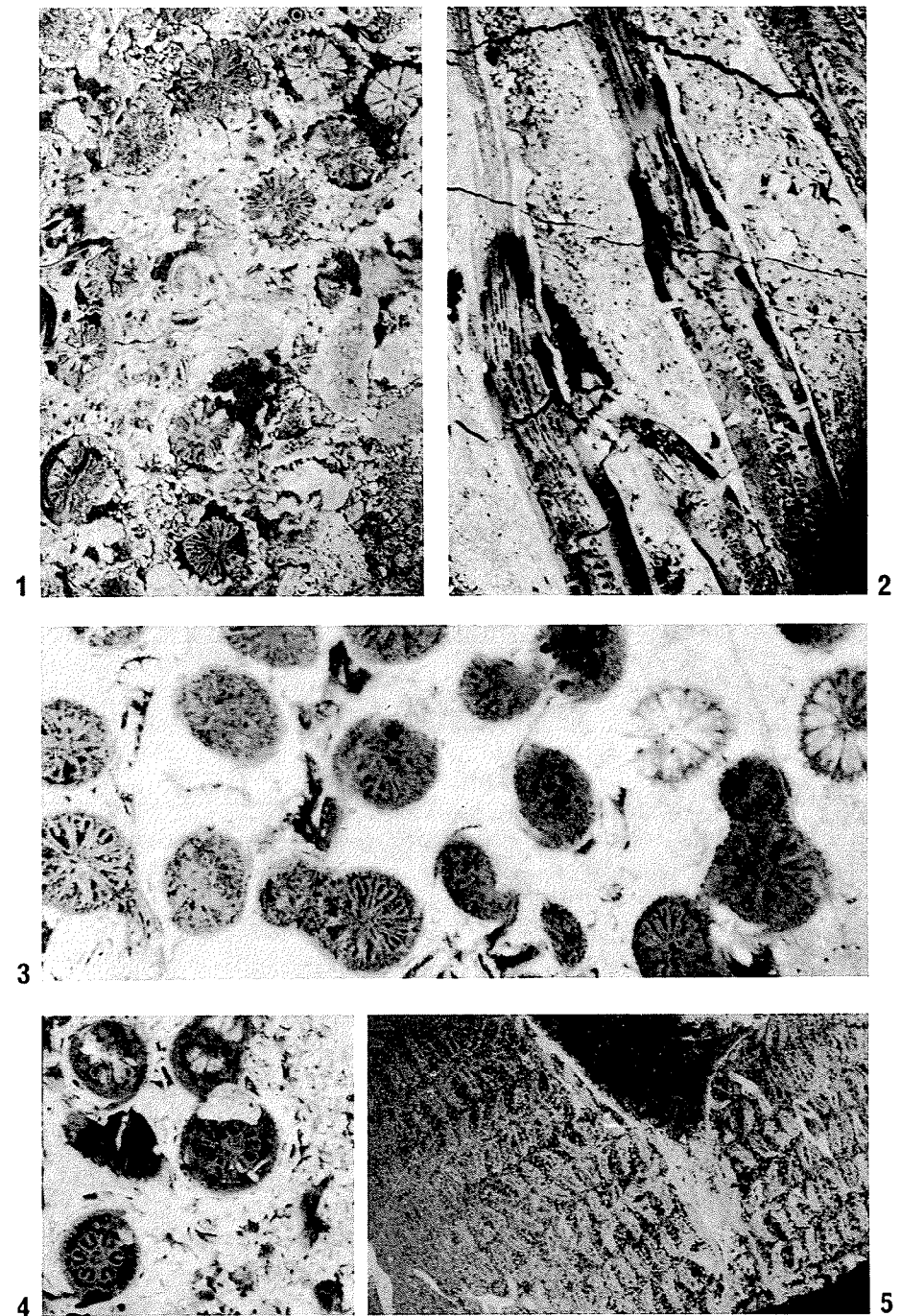
Fig. 5. Transverse section of colony, P-260 a, $\times 4$ 

TABLA 12

Montlivaltia champlittensis FROMENTEL
Nahajališče: Mali vrh pri Ajdovcu, P-407

Sl. 1. Prečni presek s podolgovato fosulo, P-407 a, $\times 4$

Montlivaltia renevieri Koby
Nahajališče: Brezova reber pri Ajdovcu, P-396

Sl. 2. Prečni presek korale, P-396 a, $\times 4$

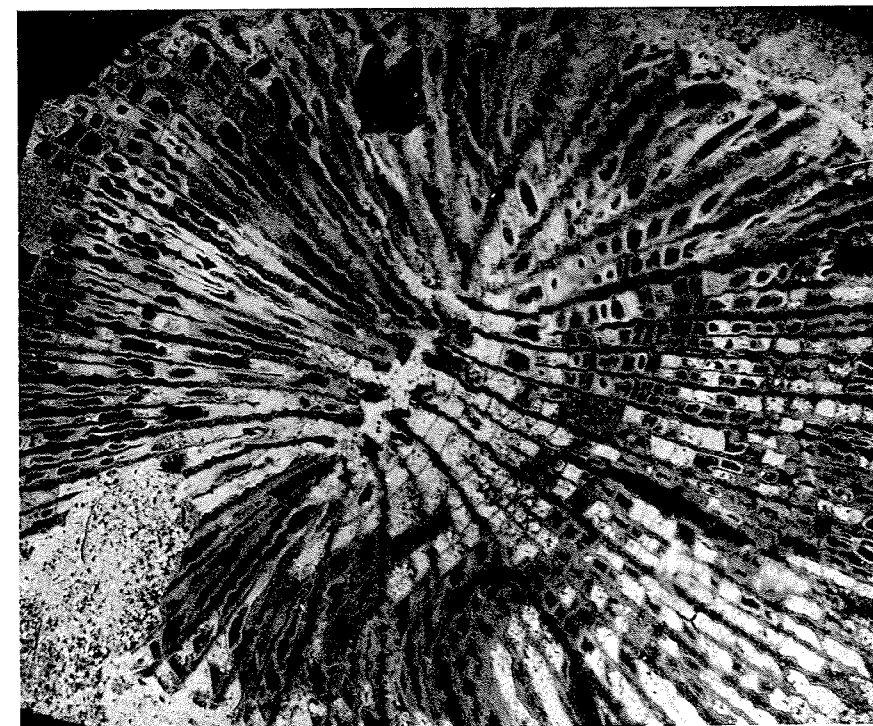
PLATE 12

Montlivaltia champlittensis FROMENTEL
Locality: Mali vrh near Ajdovec, P-407

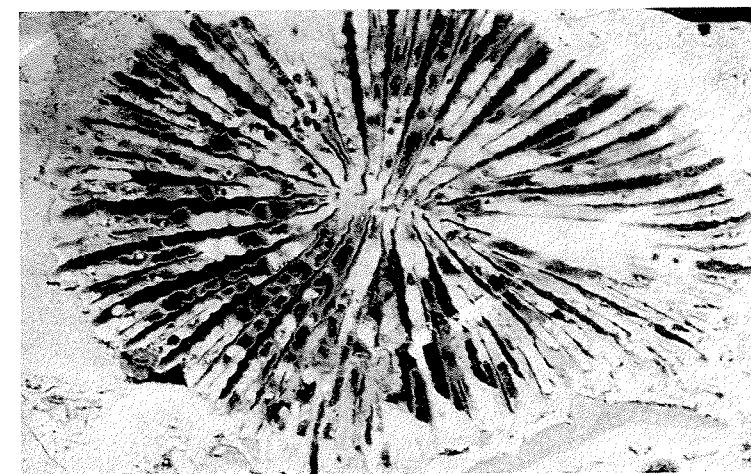
Fig. 1. Transverse section of corallum with prolonged fossula, P-407 a, $\times 4$

Montlivaltia renevieri Koby
Locality: Brezova reber near Ajdovec, P-396

Fig. 2. Transverse section of corallum, P-396 a, $\times 4$



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TABLA 13

Thecosmilia minuta Koby

Nahajališče: Mali vrh pri Ajdovcu, P-410, P-404

Sl. 1. Prečni presek koralitov, vidna okrogla fosula, P-410 a, $\times 4$ Sl. 2. Podolžni presek enega koralita, P-404 b, $\times 4$ *Thecosmilia dichotoma* Koby

Nahajališče: Frata pri Ajdovcu, P-358

Sl. 3. Podolžni presek koralita s konveksnimi in konkavnimi disepimenti, P-358 c, $\times 4$ Sl. 4. Prečni presek istega koralita, P-358 a, $\times 4$

PLATE 13

Thecosmilia minuta Koby

Locality: Mali vrh near Ajdovec, P-410, P-404

Fig. 1. Transverse section of corallites, showing round fossulae, P-410 a, $\times 4$ Fig. 2. Longitudinal section of one corallite, P-404 b, $\times 4$ *Thecosmilia dichotoma* Koby

Locality: Frata near Ajdovec, P-358

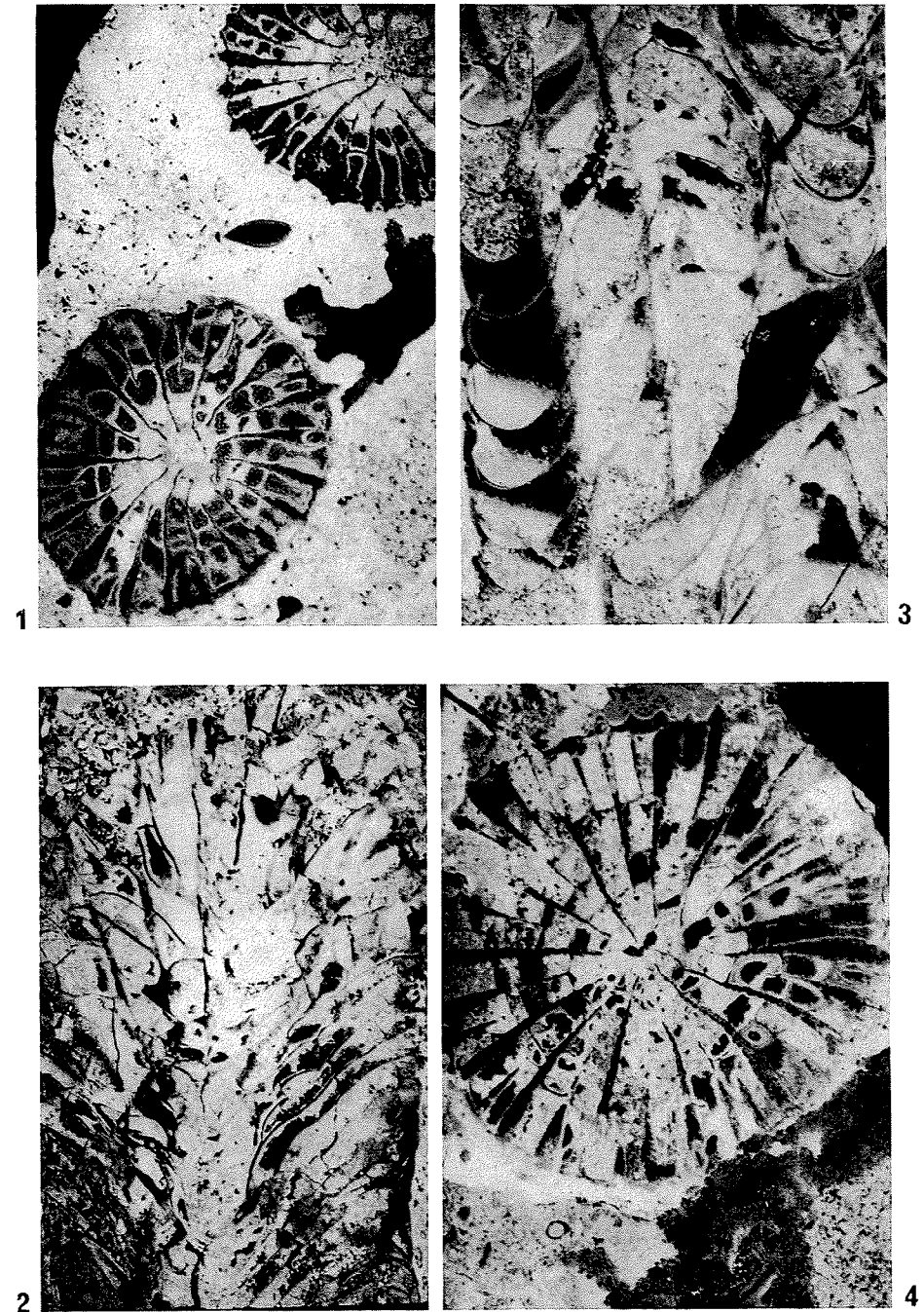
Fig. 3. Longitudinal section of corallite showing faviid dissepiments, P-358 c, $\times 4$ Fig. 4. Transverse section of the same corallite, P-358 a, $\times 4$ 

TABLA 14

Thecosmilia trichotoma (GOLDFUSS)

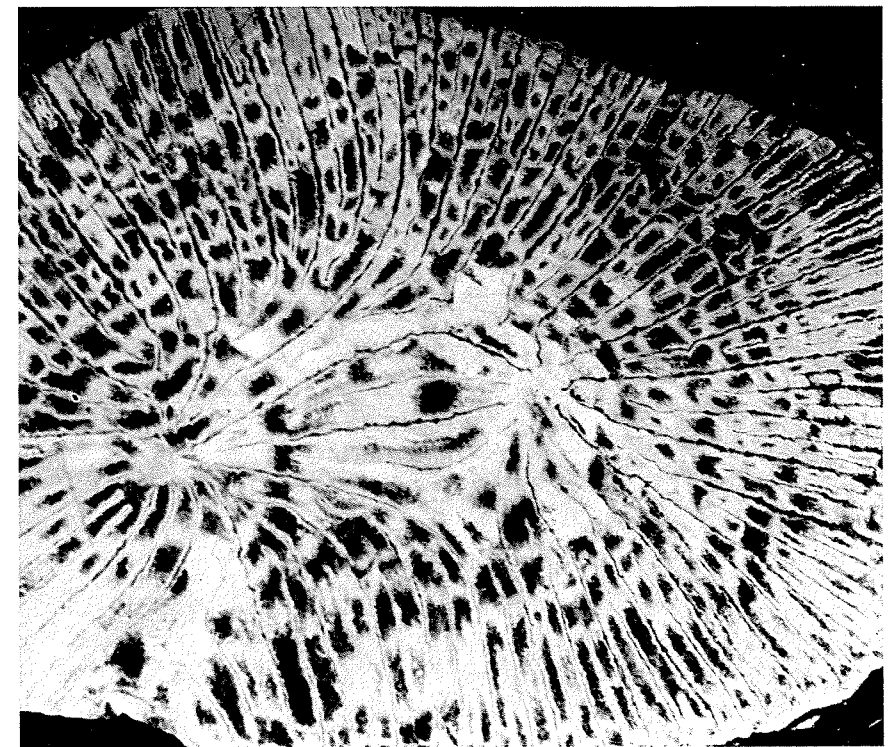
Nahajališče: Mrzovec, P-463

Sl. 1. Prečni presek koralita, ki pravkar brsti, fosula okrogla, P-463 a, $\times 4$ Sl. 2. Podolžni presek istega koralita, P-463 b, $\times 4$

PLATE 14

Thecosmilia trichotoma (GOLDFUSS)

Locality: Mrzovec, P-463

Fig. 1. Transverse section of corallite, just budding, axial opening round, P-463 a, $\times 4$ Fig. 2. Longitudinal section of the same corallite, P-463 b, $\times 4$ 

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TABLA 15

Thecosmilia suevica (QUENSTEDT)

Nahajališče: Ojstrovca, P-450

Sl. 1. Prečni presek dvojnega koralita z okroglo fosulo, P-450 a, $\times 4$ Sl. 2. Podolžni presek istega koralita kot na sl. 1, P-450 b, $\times 4$ *Thecosmilia trichotoma* (GOLDFUSS)

Nahajališče: Mrzovec, P-463

Sl. 3. Del podolžnega koralita s tabulatno endoteko, P-463 c, $\times 4$

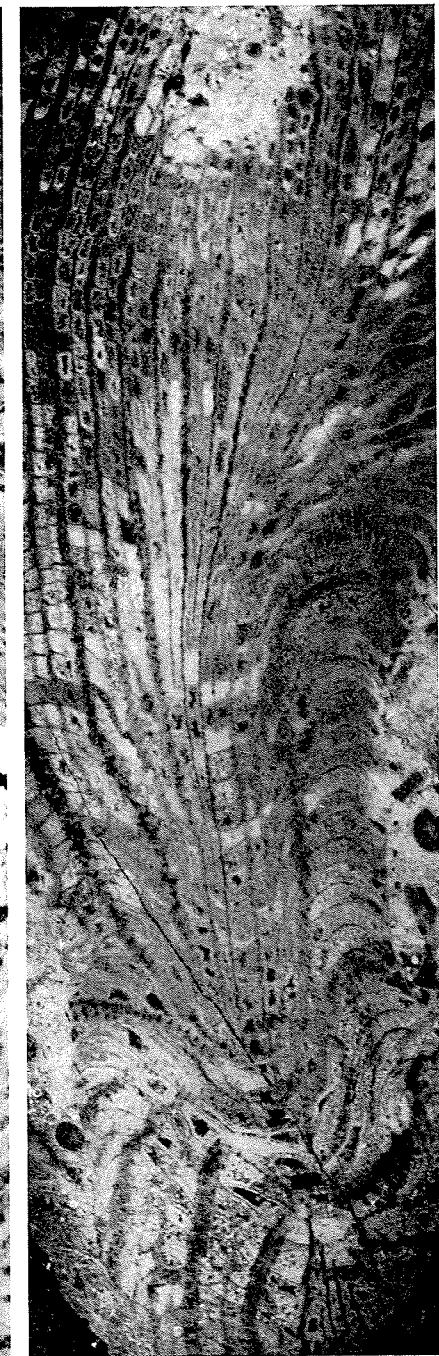
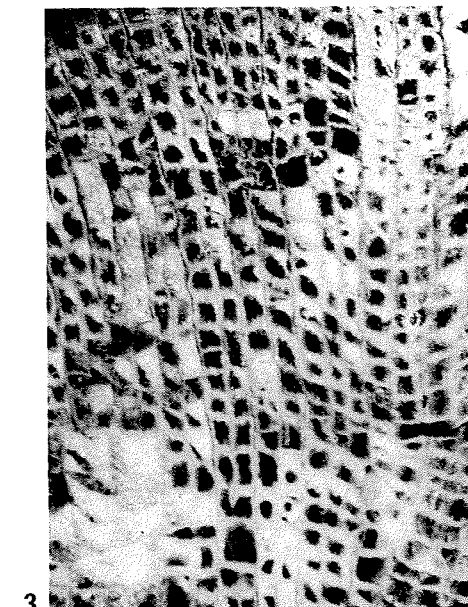
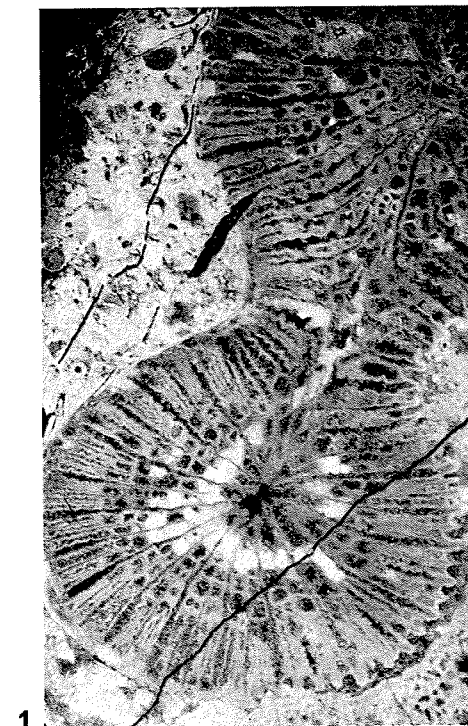
PLATE 15

Thecosmilia suevica (QUENSTEDT)

Locality: Ojstrovca, P-450

Fig. 1. Transverse section of dicentric corallite, fossula round, P-450 a, $\times 4$ Fig. 2. Longitudinal section of the same corallite, P-450 b, $\times 4$ *Thecosmilia trichotoma* (GOLDFUSS)

Locality: Mrzovec, P-463

Fig. 3. Part of the longitudinal section of corallite, showing tabular endotheca, P-463 c, $\times 4$ 

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TABLA 16

Ceratothecia carniolica n. gen. n. sp.

Nahajališče: Frata pri Ajdovcu, P-357, P-352 (holotyp)

- Sl. 1. Podolžni presek korale, vidni zonarni disepimenti, P-357 a, $\times 4$
 Sl. 2. Podolžni presek korale, P-357 a, $\times 4$
 Sl. 3. Prečni presek spodnjega dela korale, P-357 b, $\times 4$
 Sl. 4. Poševni presek korale, P-357 b, $\times 4$
 Sl. 5. Prečni presek korale, P-357 b, $\times 4$
 Sl. 6. Prečni presek zgornjega dela koraluma, s kratkimi septi, P-352 b, $\times 4$
 Sl. 7. Podolžni presek korale z zonarno endoteko, P-352 a, $\times 4$
 Sl. 8. Prečni presek korale, P-352 b, $\times 4$

PLATE 16

Ceratothecia carniolica n. gen. n. sp.

Locality: Frata near Ajdovec, P-357, P-352 (holotypus)

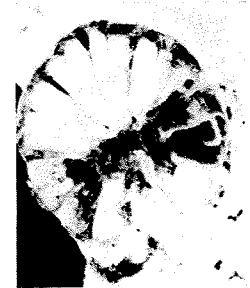
- Fig. 1. Longitudinal section of coral, showing zoned dissepiments, P-357 a, $\times 4$
 Fig. 2. Longitudinal section of coral, P-357 a, $\times 4$
 Fig. 3. Transverse section of lower part of corallum, P-357 b, $\times 4$
 Fig. 4. Oblique section of coral, P-357 b, $\times 4$
 Fig. 5. Transverse section of coral, P-357 b, $\times 4$
 Fig. 6. Transverse section of upper part of corallum, showing short septa, P-352 b, $\times 4$
 Fig. 7. Oblique section of corallum with zoned endotheca, P-352 a, $\times 4$
 Fig. 8. Transverse section of coral, P-352 b, $\times 4$



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TABLA 17

Ceratothecia carniolica n. gen. n. sp.

Nahajališče: Frata pri Ajdovcu, P-352 (holotyp), P-357

- Sl. 1. Prečni presek korale, P-352 b, $\times 8$
 Sl. 2. Podolžni presek korale, P-357 a, $\times 8$
 Sl. 3. Mikrostruktura septa in dela stene v prečnem preseku, P-352 b, $\times 40$
 Sl. 4. Mikrostruktura v podolžnem preseku korale, mestoma vidne enostavne trabekule s temno linijo v sredi, P-357 a, $\times 40$

PLATE 17

Ceratothecia carniolica n. gen. n. sp.

Locality: Frata near Ajdovec, P-352 (holotypus), P-357

- Fig. 1. Transverse section of coral, P-352 b, holotypus, $\times 8$
 Fig. 2. Longitudinal section of coral, P-357 a, $\times 8$
 Fig. 3. Microstructure of septum and of the part of wall in transverse section, P-352 b, $\times 40$
 Fig. 4. Microstructure in longitudinal section of corallum, showing simple trabeculae with dark central line in some places, P-357 a, $\times 40$

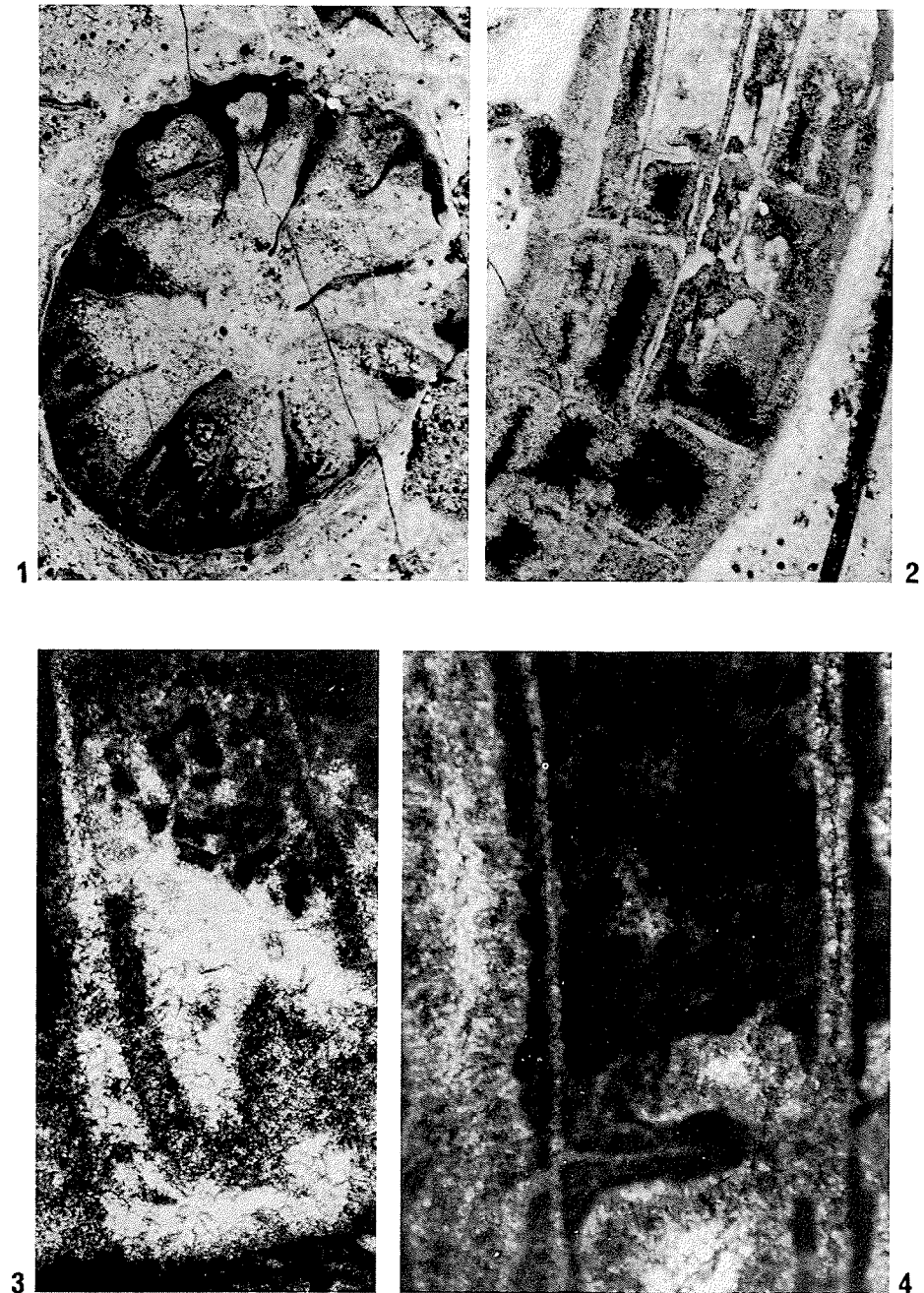


TABLA 18

Complexastraea lobata GEYER

Nahajališče: Kal na Banjški planoti, 1902/7

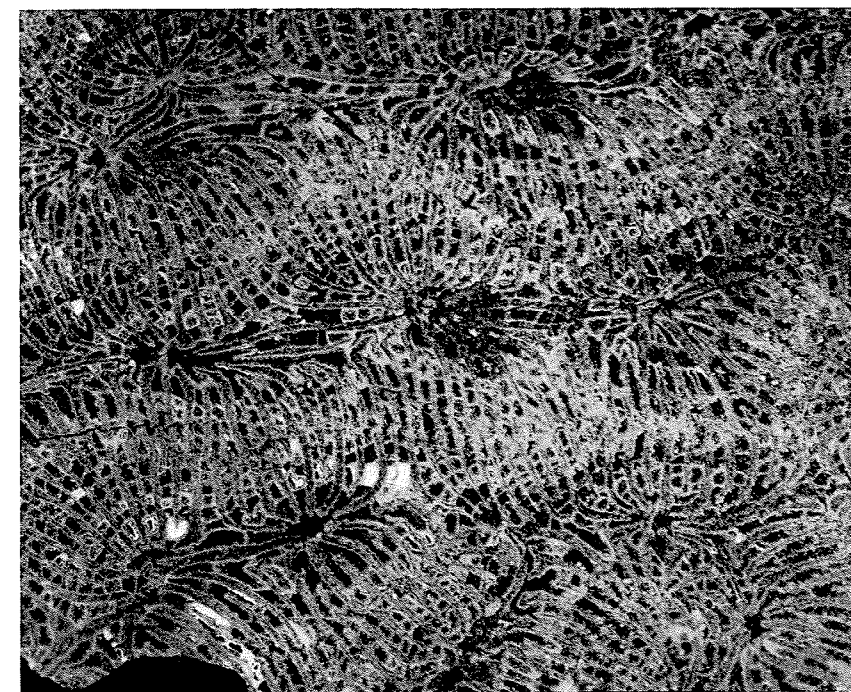
- Sl. 1. Prečni presek s serijami koralitov in subkonfluentnimi septi, 1902/7 a, $\times 4$
 Sl. 2. Vertikalni in poševni presek z značilno endoteko, 1902/7 b, $\times 4$

PLATE 18

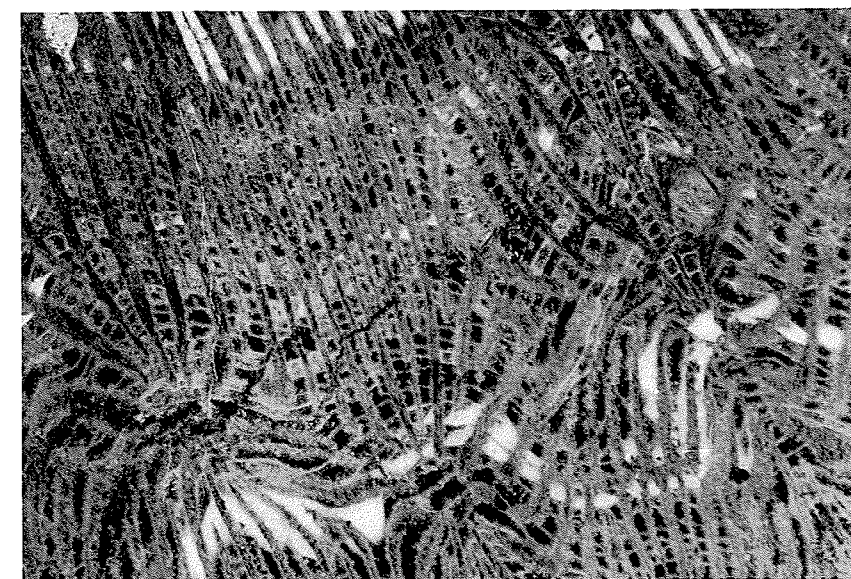
Complexastraea lobata GEYER

Locality: Kal on Banjška planota, 1902/7

- Fig. 1. Transverse section with series of corallites, and subconfluent septa, 1902/7 a, $\times 4$
 Fig. 2. Longitudinal and oblique section with typical endotheca, 1902/7 b, $\times 4$



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TABLA 19

Complexastraea seriata n. sp.

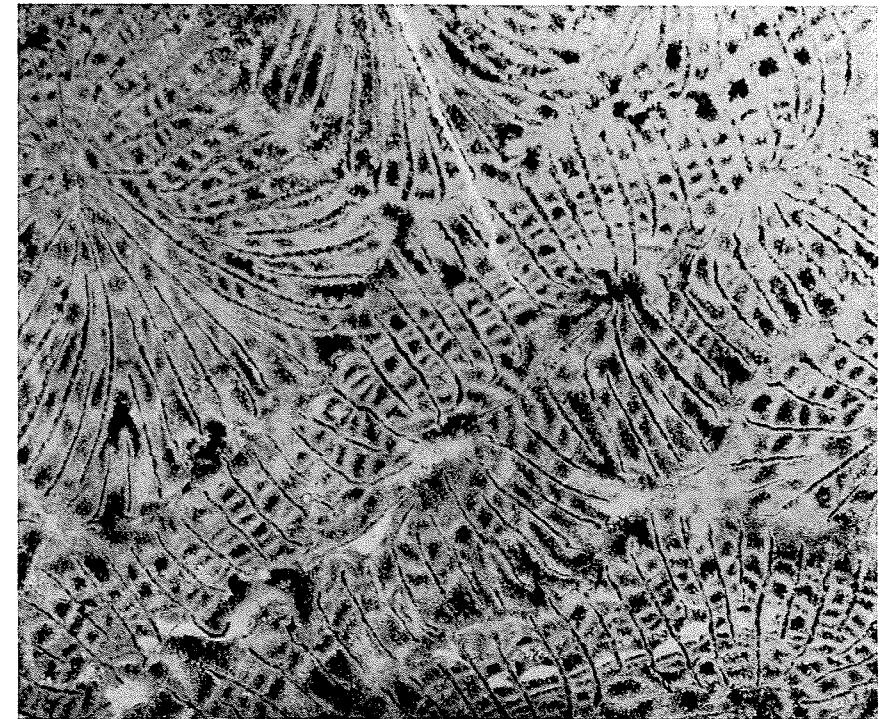
Nahajališče: Mrzovec, P-245, holotip

Sl. 1. Prečni presek kolonije, koraliti so v serijah, septa so nekonfluentna, P-245 d, $\times 4$ Sl. 2. Podolžni presek s tabulatnimi in dolgimi disepimenti, P-245 c, $\times 4$

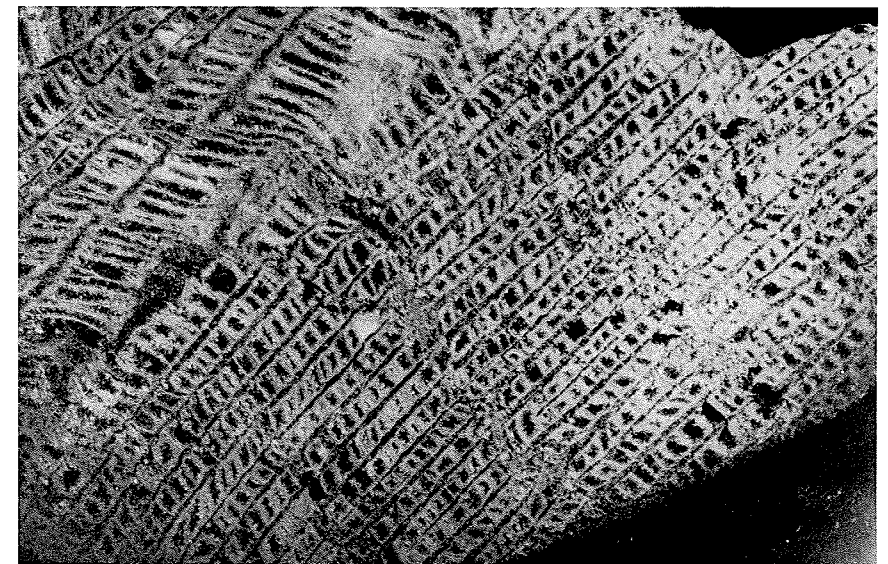
PLATE 19

Complexastraea seriata n. sp.

Locality: Mrzovec, P-245, holotypus

Fig. 1. Transverse section of colony, showing series of corallites and nonconfluent septa, P-245 d, $\times 4$ Fig. 2. Longitudinal section of colony, showing tabular and long dissepiments, P-245 c, $\times 4$ 

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TABLA 20

Complexastraea seriata n. sp.

Nahajališče: Mrzovec, P-245, holotip

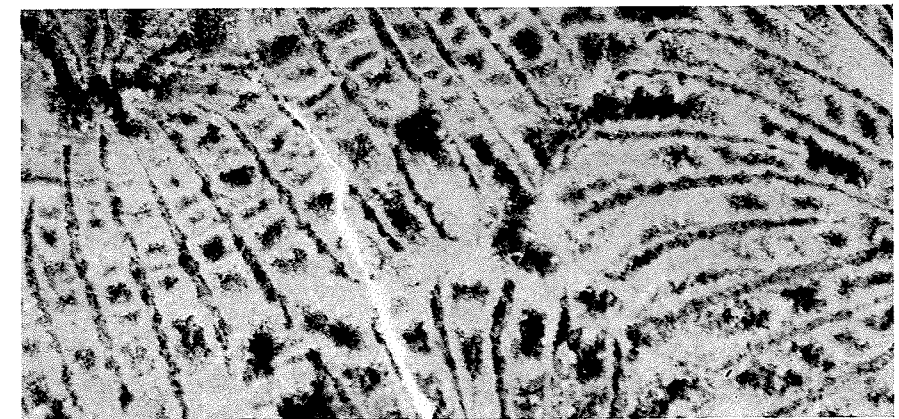
- Sl. 1. Prečni presek, P-245 d, $\times 8$
 Sl. 2. Podolžni presek, P-245 c, $\times 8$
 Sl. 3. Mikrostruktura sept v prečnem preseku, vidimo divergentne trabekule z lateralnimi odebelitvami, P-245 d, $\times 40$
 Sl. 4. Mikrostruktura v podolžnem preseku, slabo ohranjena, P-245 c, $\times 40$

PLATE 20

Complexastraea seriata n. sp.

Locality: Mrzovec, P-245, holotypus

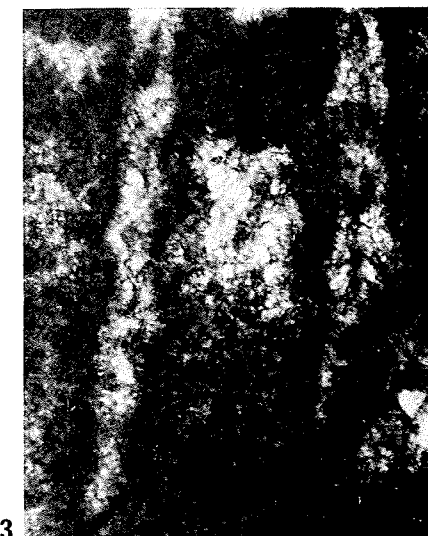
- Fig. 1. Transverse section, P-245 d, $\times 8$
 Fig. 2. Longitudinal section, P-245 c, $\times 8$
 Fig. 3. Microstructure of septa in transverse section, showing divergence of trabeculae, with lateral thickenings, P-245 d, $\times 40$
 Fig. 4. Microstructure in longitudinal section of colony, badly preserved, P-245 c, $\times 40$



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TABLA 21

Isastraea helianthoides (GOLDFUSS)

Nahajališče: Bukovje na Hrušici, P-292

Sl. 1. Prečni presek kolonije, septoparatekalna stena le mestoma ohranjena, P-292 a, $\times 4$ Sl. 2. Podolžni presek enega koralita, P-292 b, $\times 4$ *Axosmilia marcou* (ÉTALLON)

Nahajališče: Mrzovec, P-460

Sl. 3. Prečni presek korale, kolumela je lamelarna, P-460 a, $\times 4$

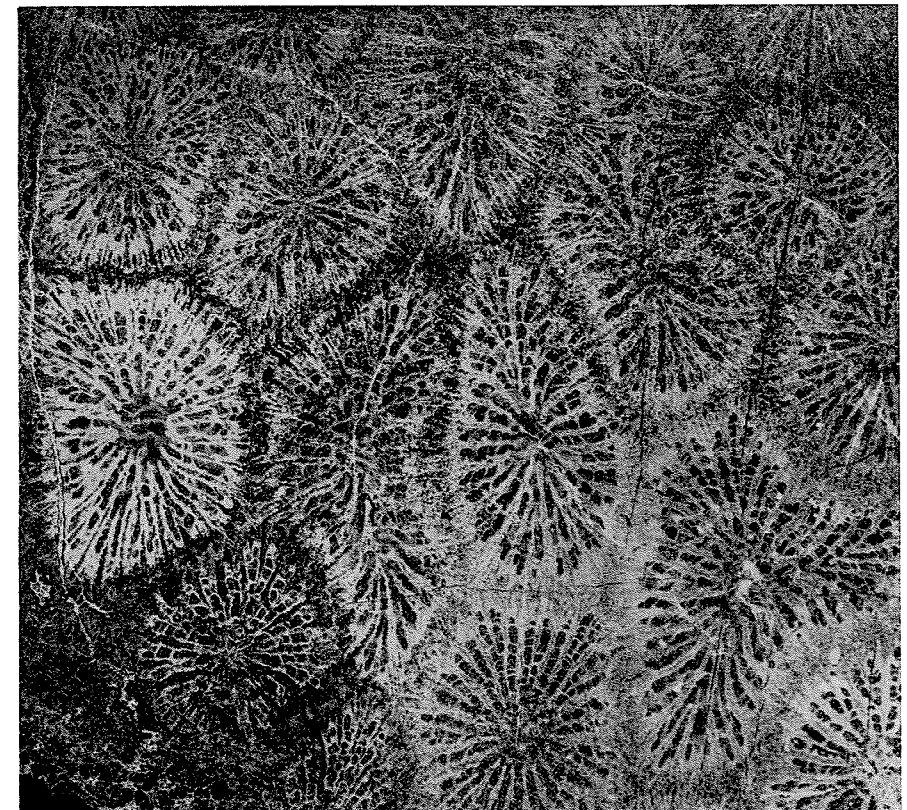
PLATE 21

Isastraea helianthoides (GOLDFUSS)

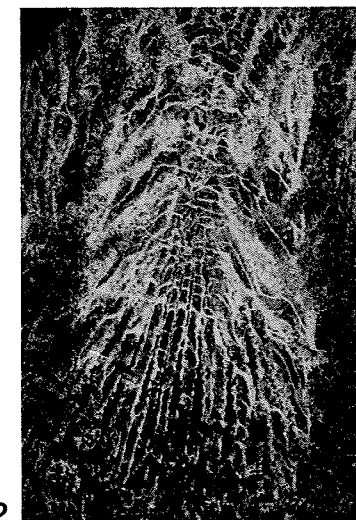
Locality: Bukovje on Hrušica, P-292

Fig. 1. Transverse section of colony, septoparatheca preserved in some places only, P-292a, $\times 4$ Fig. 2. Longitudinal section of one corallite, P-292 b, $\times 4$ *Axosmilia marcou* (ÉTALLON)

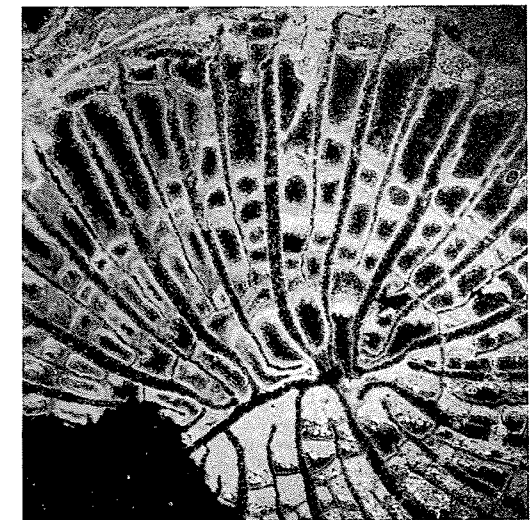
Locality: Mrzovec, P-460

Fig. 3. Transverse section, showing lamellar columella, P-460 a, $\times 4$ 

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TABLA 22

Columnocoenia jurassica n. sp.

Nahajališče: Selovec, P-484, holotip

Sl. 1. Prečni presek kolonije, P-484 b, $\times 4$ Sl. 2. Podolžni presek, lepo vidna aksialna struktura koralitov in faviidna endoteka, P-484 a, $\times 4$

PLATE 22

Columnocoenia jurassica n. sp.

Locality: Selovec, P-484, holotypus

Fig. 1. Transverse section of colony, P-484 b, $\times 4$ Fig. 2. Longitudinal section showing axial structure in corallites and faviid endotheca, P-484 a, $\times 4$ 

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TABLA 23

Columnocoenia jurassica n. sp.

Nahajališče: Selovec, P-484, holotip

- Sl. 1. Prečni presek kolonije, P-484 b, $\times 8$
 Sl. 2. Podolžni presek kolonije, P-484 a, $\times 8$
 Sl. 3. Mikrostruktura v prečnem preseku, prekrystalizirana, P-484 b, $\times 40$
 Sl. 4. Mikrostruktura v podolžnem preseku, ? mestoma divergentne trabekule, P-484 a, $\times 40$

PLATE 23

Columnocoenia jurassica n. sp.

Locality: Selovec, P-484, holotypus

- Fig. 1. Transverse section of colony, P-484 b, $\times 8$
 Fig. 2. Longitudinal section of colony, P-484 a, $\times 8$
 Fig. 3. Microstructure in transverse section of skeletal elements, recrystalized, P-484 b, $\times 40$
 Fig. 4. Microstructure in longitudinal section of skeletal elements, with ? divergente trabeculae, P-484 a, $\times 40$

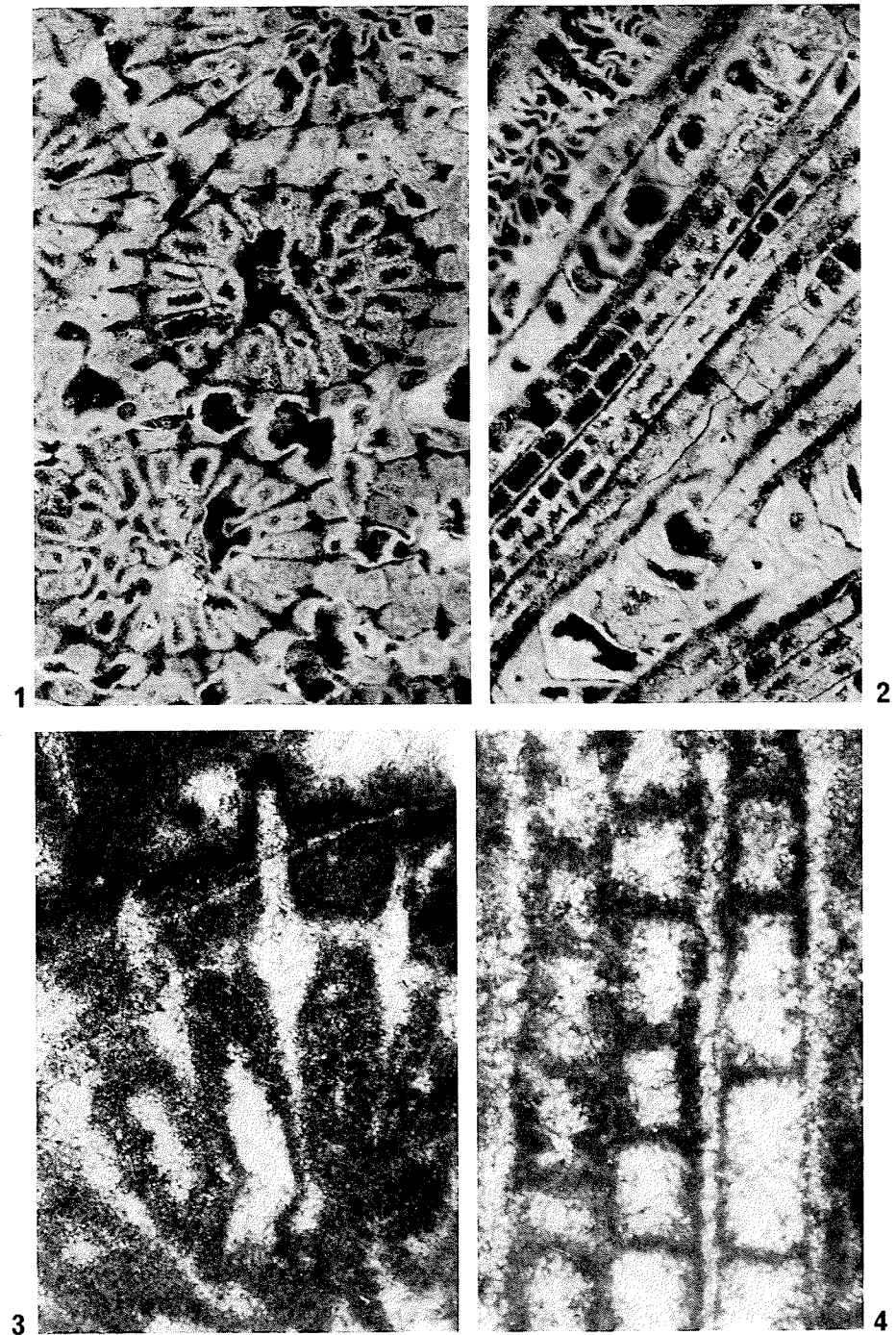


TABLA 24

Placophyllia rugosa BECKER

Nahajališče: Sela pri Gabru, P-338, Mrzovec, P-478

Sl. 1. Prečni presek koralitov, obrobno brstenje, v nekaterih koralitih močna aksialna struktura, P-338 a, $\times 4$ Sl. 2. Podolžni presek s tabulatnimi in upognjenimi dissepimenti, P-478 b, $\times 4$ *Amphistraea basaltiformis* ÉTALLON

Nahajališče: Karteljevo, P-277

Sl. 3. Prečni presek poligonalnih koralitov z dvojno in enojno steno, P-277 a, $\times 4$ Sl. 4. Podolžni presek iste kolonije, P-277 b, $\times 4$

PLATE 24

Placophyllia rugosa BECKER

Locality: Sela near Gaber, P-338; Mrzovec, P-478

Fig. 1. Transverse section of corallites showing parietal budding, and strong axial structures in some corallites, P-338 a, $\times 4$ Fig. 2. Longitudinal section of colony with tabular and bent dissepiments, P-478 b, $\times 4$ *Amphistraea basaltiformis* ÉTALLON

Locality: Karteljevo, P-277

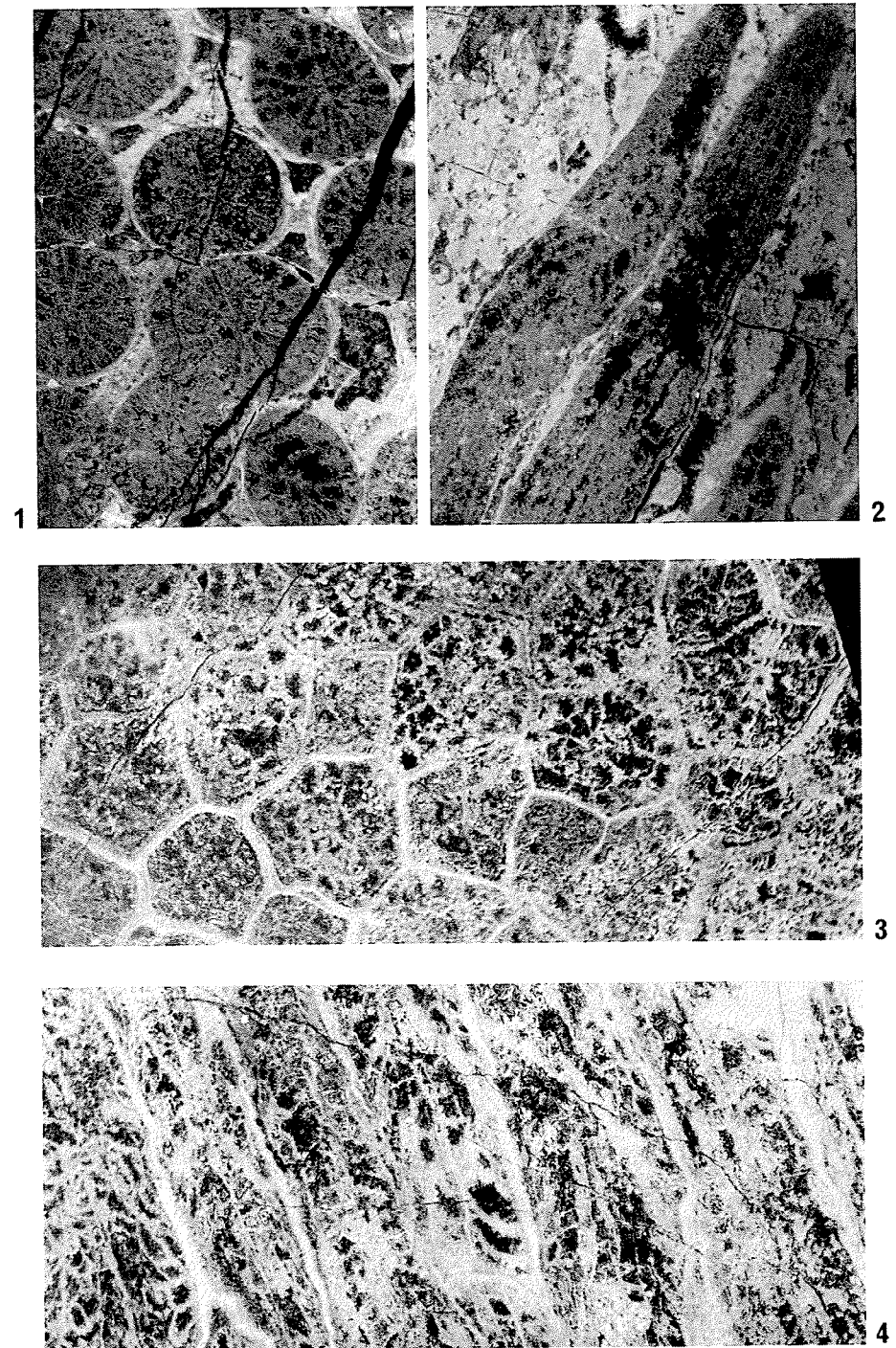
Fig. 3. Transverse section of polygonal corallites with simple and double costate wall, P-277 a, $\times 4$ Fig. 4. Longitudinal section of the same colony, P-277 b, $\times 4$ 

TABLA 25

Amphistraea piriformis GREGORY
Nahajališče: Ivanja vas, P-309

- Sl. 1. Prečni presek zelo nepravilnih koralitov, P-309 a, $\times 4$
Sl. 2. Podolžni presek iste kolonije, P-309 b, $\times 4$

Schizosmilia rollieri Koby

Nahajališče: Šumberk pri Gabru, P-339; Mrzovec, P-475

- Sl. 3. Prečni presek, vidimo razmnoževanje z delitvijo, P-339 a, $\times 4$
Sl. 4. Podolžni presek, P-475 b, $\times 4$

Mitrodendron ogilvie GEYER

Nahajališče: Ivanja vas, P-311

- Sl. 5. Prečni presek, v glavnem enocentrični koraliti z žepastimi zajedki, P-311 b, $\times 4$

PLATE 25

Amphistraea piriformis GREGORY
Locality: Ivanja vas, P-309

- Fig. 1. Transverse section with very irregular corallites, P-309 a, $\times 4$
Fig. 2. Longitudinal section of the same colony, P-309 b, $\times 4$

Schizosmilia rollieri Koby

Locality: Šumberk near Gaber, P-339; Mrzovec, P-475

- Fig. 3. Transverse section, showing the division of corallites along the cardinal septum, P-339 a, $\times 4$
Fig. 4. Longitudinal section of colony, P-475 b, $\times 4$

Mitrodendron ogilvie GEYER

Locality: Ivanja vas, P-311

- Fig. 5. Transverse section, showing monocentric corallites with vesicular pockets ("Taschenknospungen"), P-311 b, $\times 4$

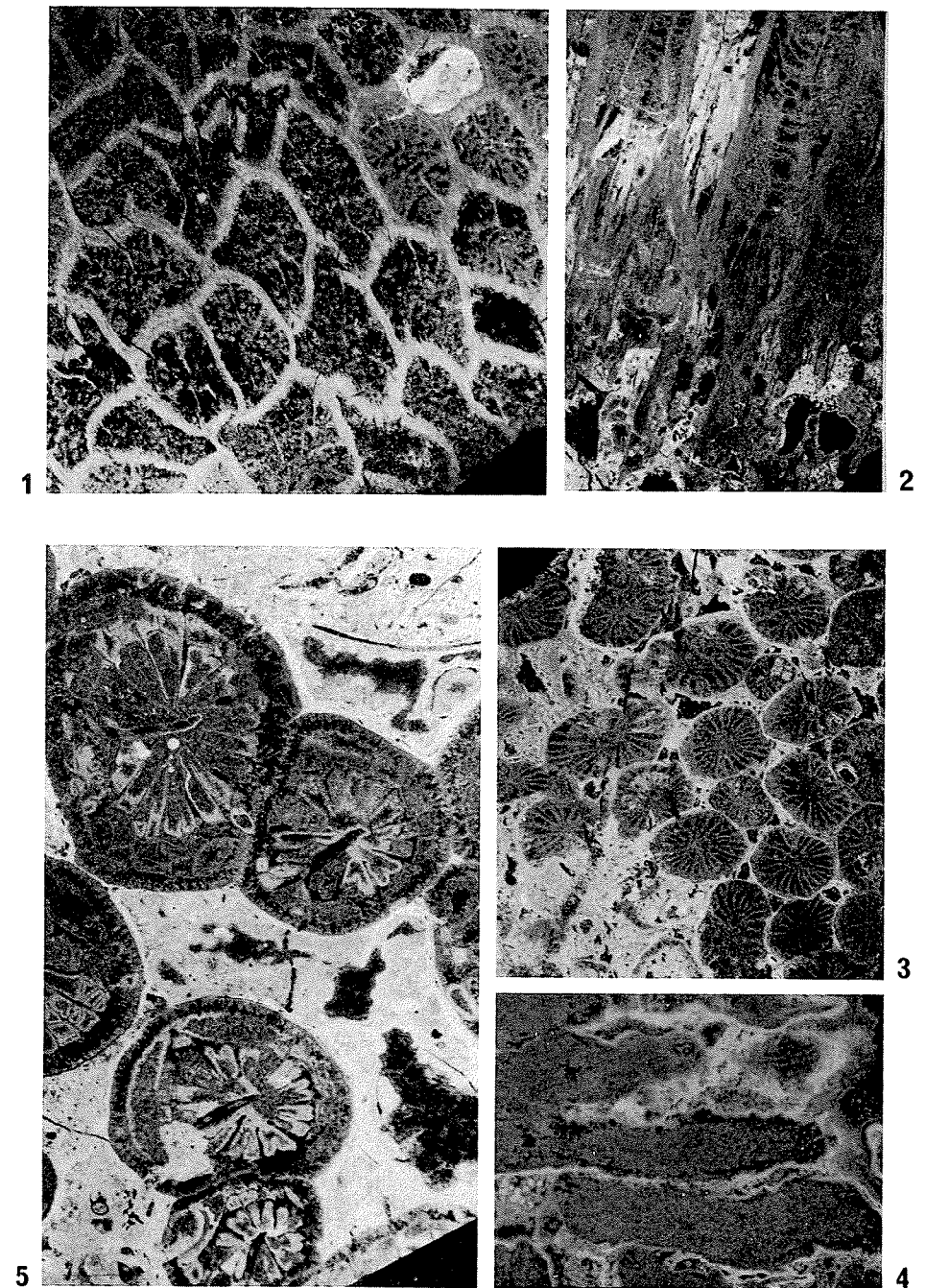


TABLA 26

Mitrodendron ogilvie GEYER

Nahajališča: Sela pri Gabru, P-340; Ivanja vas, P-311, P-320

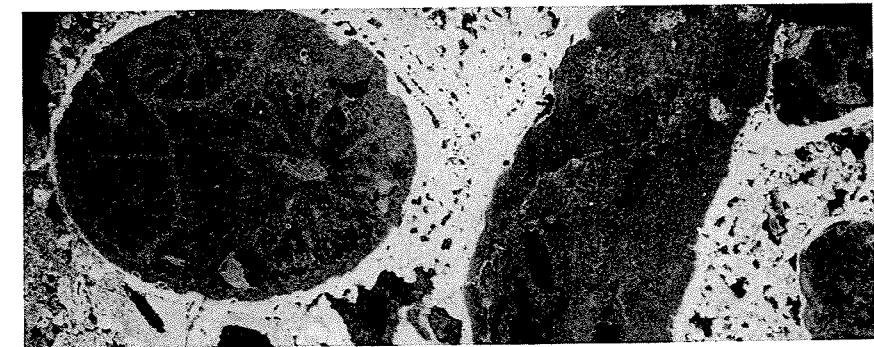
- Sl. 1. Prečni presek z večcentričnimi koraliti in del podolžnega preseka, P-340 a, $\times 4$
 Sl. 2. Prečni presek z mono in policentričnimi koraliti, eden se pravkar loči od matičnega koralita, P-311 c, $\times 4$
 Sl. 3. Podolžni presek koralitov z različno ohranjenimi septi in endoteko, P-320 a, $\times 4$

PLATE 26

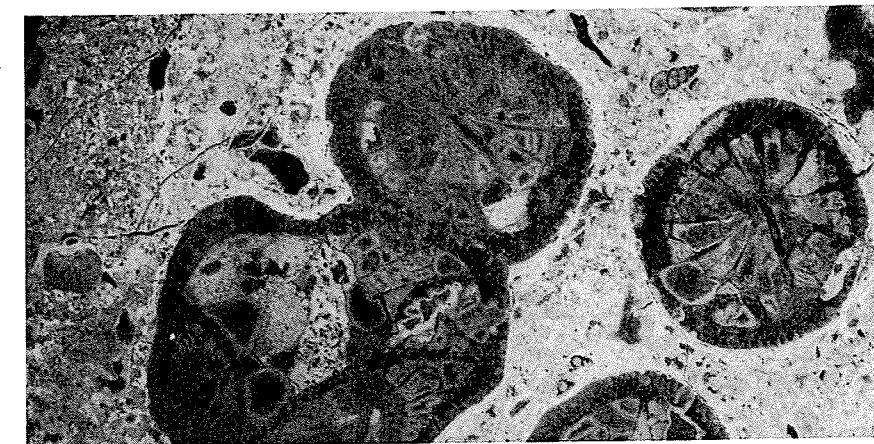
Mitrodendron ogilvie GEYER

Localities: Sela near Gaber, P-340; Ivanja vas, P-311, P-320

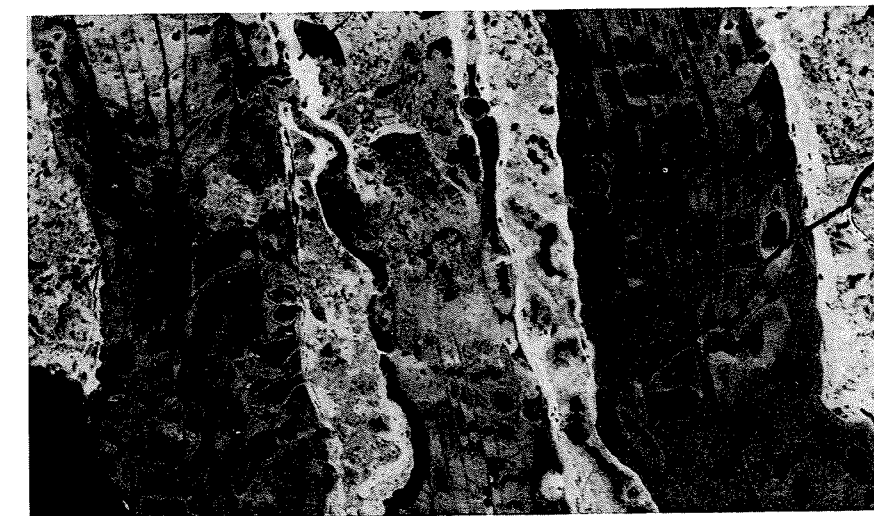
- Fig. 1. Transverse section of polycentric corallites, and longitudinal section of one corallite, P-340 a, $\times 4$
 Fig. 2. Transverse section with mono- and polycentric corallites, one of them just coming free, P-311 c, $\times 4$
 Fig. 3. Longitudinal section, showing various preserved septa and endotheca, P-320 a, $\times 4$



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TABLA 27

Donacosmilia corallina FROMENTEL
Nahajališče: Kal na Banjški planoti, 1902/8

Sl. 1. Prečni presek kolonije, 1902/8 a, $\times 4$

Donacosmilia etalloni (Koby)
Nahajališče: Selovec, P-481

Sl. 2. Prečni presek koralitov z žepastimi zajedki, P-481 a, $\times 4$

Sl. 3. Podolžni presek dveh koralitov z izredno bogato endoteko, P-481 b, $\times 4$

PLATE 27

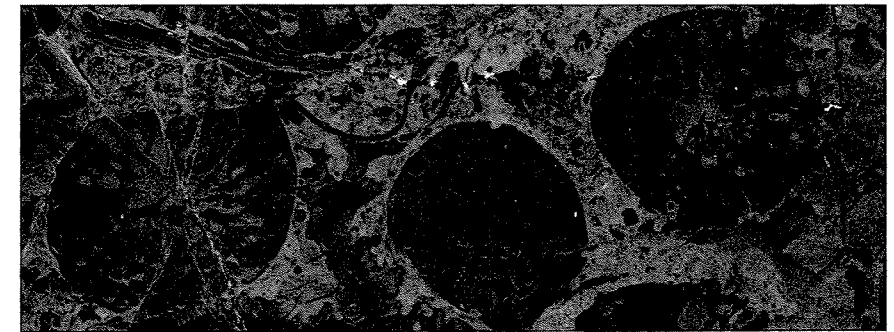
Donacosmilia corallina FROMENTEL
Locality: Kal on Banjška planota, 1902/8

Fig. 1. Transverse section of colony, 1902/8 a, $\times 4$

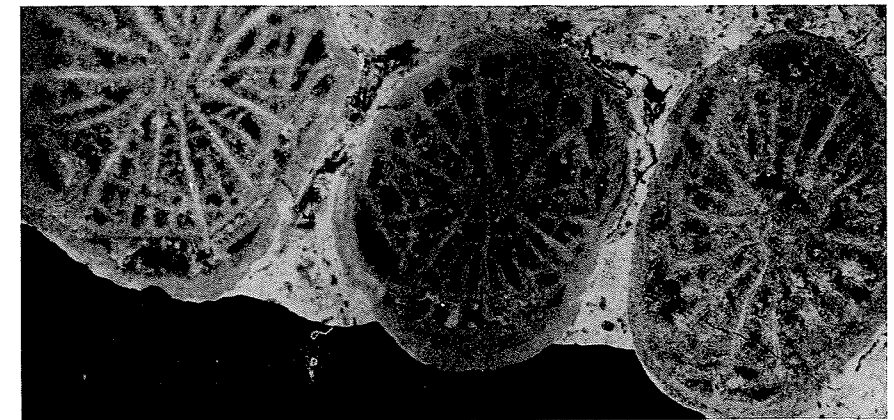
Donacosmilia etalloni (Koby)
Locality: Selovec, P-481

Fig. 2. Transverse section of corallites with vesicular pockets and buds („Taschenknospung”), P-481 a, $\times 4$

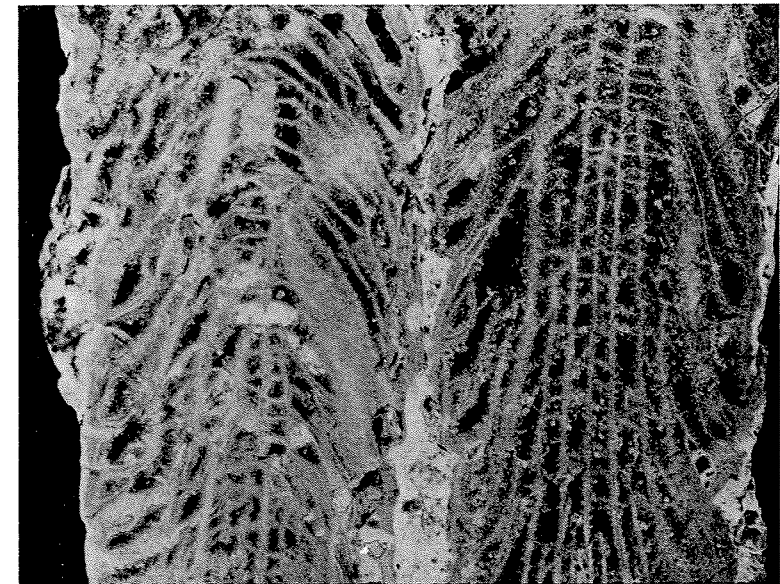
Fig. 3. Longitudinal section of two corallites with very rich endotheca, P-481 b, $\times 4$



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TABLA 28

Microsolena agariciformis ÉTALLON
Nahajališče: Luče, P-375

Sl. 1. Prečni in deloma podolžni presek kolonije, P-375 a, $\times 4$

Microsolena thurmanni Koby
Nahajališče: Frata pri Ajdovcu, P-354

Sl. 2. Prečni presek kolonije, P-354 a, $\times 4$

Microsolena ornata Koby
Nahajališče: Ojstrovca, P-449

Sl. 3. Prečni presek kolonije, P-449 a, $\times 4$

Sl. 4. Podolžni presek kolonije, P-449 b, $\times 4$

PLATE 28

Microsolena agariciformis ÉTALLON
Locality: Luče, P-375

Fig. 1. Transverse, and partly longitudinal section of colony, P-375 a, $\times 4$

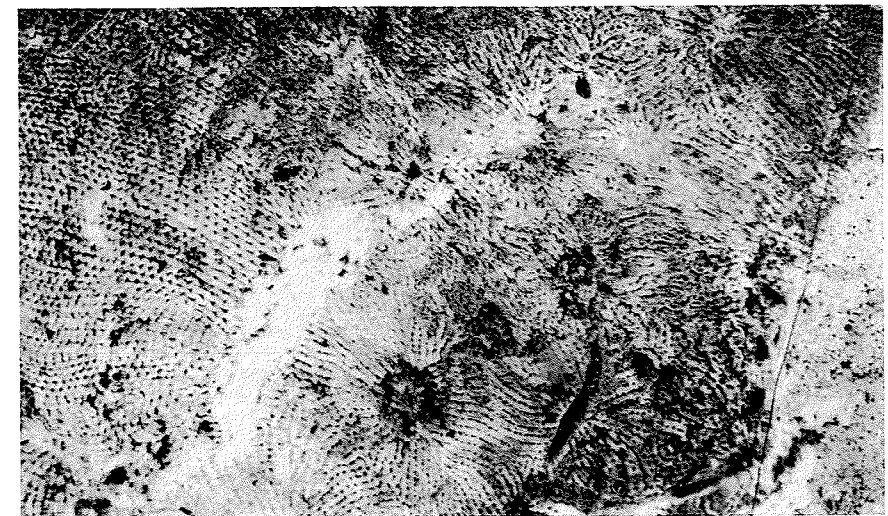
Microsolena thurmanni Koby
Locality: Frata near Ajdovec, P-354

Fig. 2. Transverse section of colony, P-354 a, $\times 4$

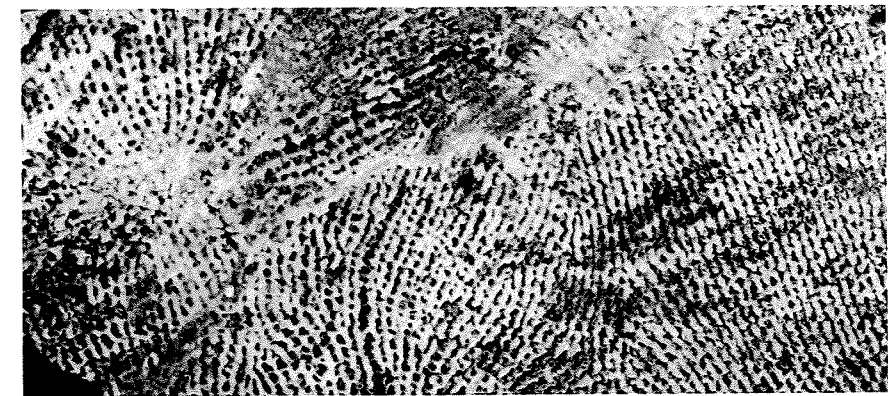
Microsolena ornata Koby
Locality: Ojstrovca, P-449

Fig. 3. Transverse section of colony, P-449 a, $\times 4$

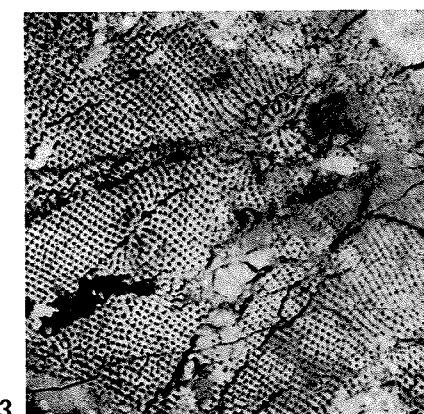
Fig. 4. Longitudinal section of colony, P-449 b, $\times 4$



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TABLA 29

Comoseris minima BEAUVAIS

Nahajališče: Col, P-287

Sl. 1. Prečni presek s kratkimi nizi in vijugastimi grebeni, P-287 a, $\times 4$ Sl. 2. Podolžni presek kolonije, P-287 c, $\times 4$ *Comoseris baltovensis* RONIEWICZ

Nahajališče: Otlica, P-302

Sl. 3. Prečni presek kolonije z dolgimi nizi in grebeni, P-302 a, $\times 4$ *Comoseris jumarensis* GREGORY

Nahajališče: Frata pri Ajdovcu, P-402

Sl. 4. Presek z radialno razvrščenimi nizi koralitov, P-402 a, $\times 4$

PLATE 29

Comoseris minima BEAUVAIS

Locality: Col, P-287

Fig. 1. Transverse section with short series of corallites, and curved collinae, P-287 a, $\times 4$ Fig. 2. Longitudinal section, P-287 c, $\times 4$ *Comoseris baltovensis* RONIEWICZ

Locality: Otlica, P-302

Fig. 3. Transverse section with long series of corallites and long collinae, P-302 a, $\times 4$ *Comoseris jumarensis* GREGORY

Locality: Frata near Ajdovec, P-402

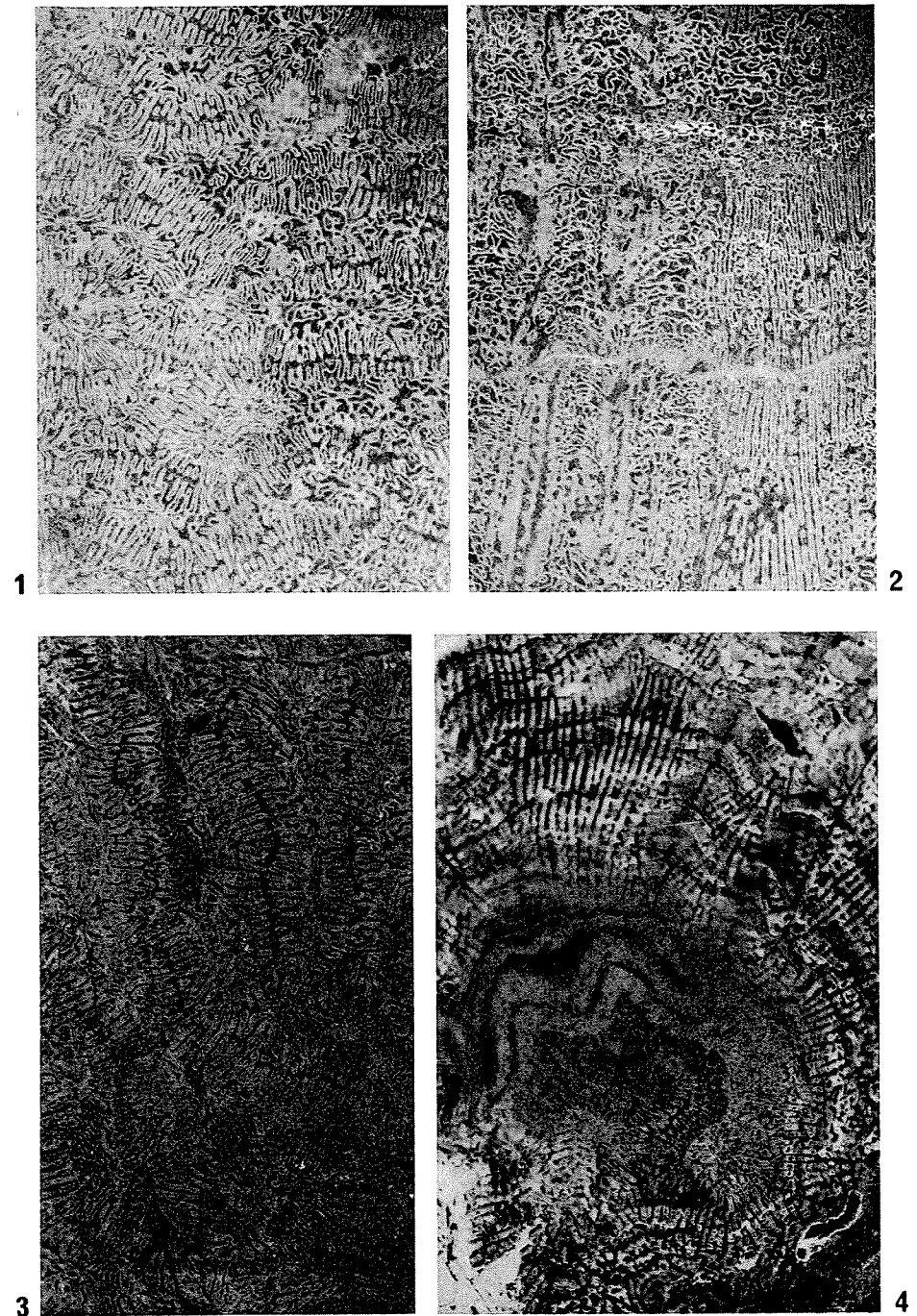
Fig. 4. Section with radial arranged series of corallites, P-402 a, $\times 4$ 

TABLA 30

Meandrophyllia edwardsi (MICHELIN)

Nahajališče: Otlica, P-421

Sl. 1. Prečni presek kolonije, P-421 a, $\times 4$ Sl. 2. Podolžni presek kolonije, P-421 b, $\times 4$ *Meandrophyllia amedei* (ÉTALLON)

Nahajališče: Otlica, P-432

Sl. 3. Prečni presek z različnimi nizi in sinaptikulotekalno steno med koraliti, P-432 a, $\times 4$ Sl. 4. Podolžni presek kaže številne disepimente, P-432 b, $\times 4$ *Latomeandra fromenteli* (KOBY)

Nahajališče: Bič pri Gabru, P-333

Sl. 5. Prečni preseki razraščajočih mono- do večcentričnih koralitov, P-333 a, $\times 4$

PLATE 30

Meandrophyllia edwardsi (MICHELIN)

Locality: Otlica, P-421

Fig. 1. Transverse section of colony, P-421 a, $\times 4$ Fig. 2. Longitudinal section of colony, P-421 b, $\times 4$ *Meandrophyllia amedei* (ÉTALLON)

Locality: Otlica, P-432

Fig. 3. Transverse section, showing different series of corallites with synapticulothecal wall, P-432 a, $\times 4$ Fig. 4. Longitudinal section, showing numerous dissepiments, P-432 b, $\times 4$ *Latomeandra fromenteli* (KOBY)

Locality: Bič near Gaber, P-333

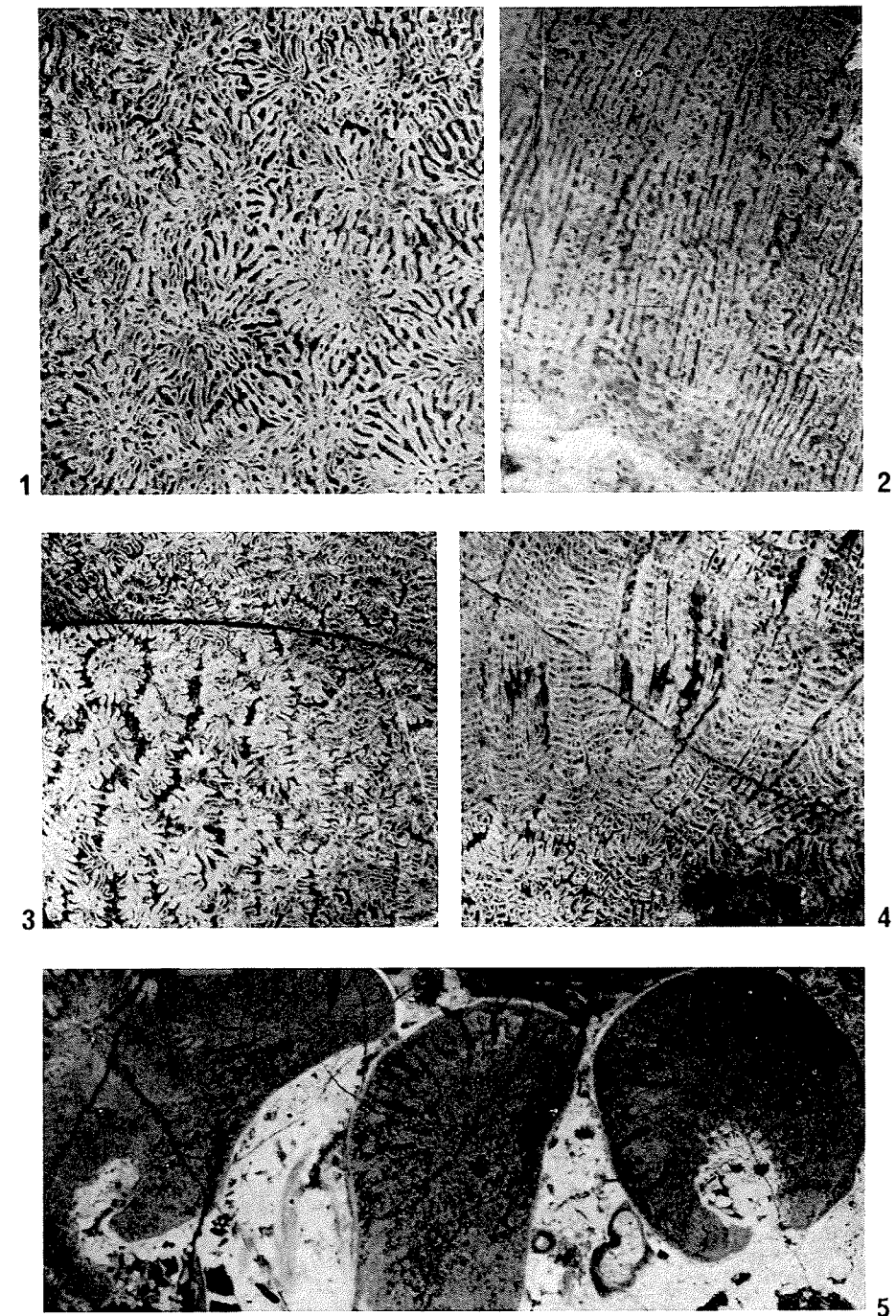
Fig. 5. Transverse section of mono- to polycentric corallites, P-333 a, $\times 4$ 

TABLA 31

Microphyllia undans ÉTALLON
Nahajališče: Mrzovec, P-256, P-265

- Sl. 1. Prečni presek z dolgimi in kratkimi nizi ter enoceličnimi koraliti, P-256 a, $\times 4$
Sl. 2. Podolžni presek, P-256 b, $\times 4$
Sl. 3. Prečni presek z daljšimi nizi koralitov, P-265 a, $\times 4$

Microphyllia bachmayeri GEYER
Nahajališče: Ivanja vas, P-320

- Sl. 4. Prečni presek z majhnimi nizi koralitov, P-320 a, $\times 4$

Ovalastraea lobata (KOBY)
Nahajališče: Bukovje na Hrušici, P-294

- Sl. 5. Prečni, ob straneh podolgovati presek kolonije, med koraliti je periteka, P-294, $\times 4$

PLATE 31

Microphyllia undans ÉTALLON
Locality: Mrzovec, P-256, P-265

- Fig. 1. Transverse section with long and shorter series, and with monocentric corallites, P-256 a, $\times 4$
Fig. 2. Longitudinal section, P-256 b, $\times 4$
Fig. 3. Transverse section with longer series of corallites, P-265 a, $\times 4$

Microphyllia bachmayeri GEYER
Locality: Ivanja vas, P-320

- Fig. 4. Transverse section with small series of corallites, P-320 a, $\times 4$

Ovalastraea lobata (KOBY)
Locality: Bukovje on Hrušica, P-294

- Fig. 5. Transverse, at sides longitudinal section of the colony, corallites separated by peritheca, P-294, $\times 4$

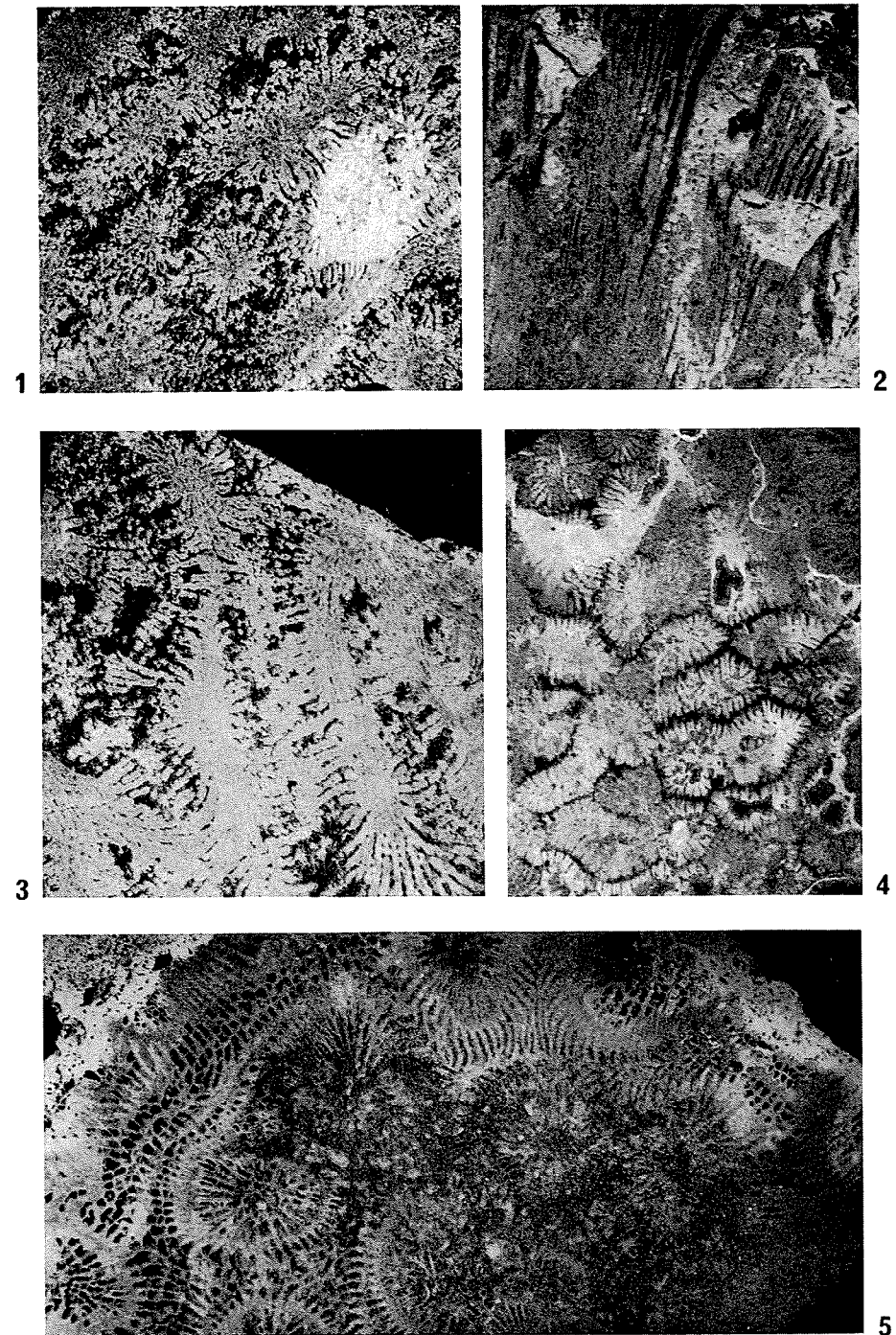


TABLA 32

Dermosmilia laxata (ÉTALLON)

Nahajališče: Frata pri Ajdovcu, P-348

Sl. 1. Prečni presek koralitov, P-348 a, $\times 4$ Sl. 2. Podolžni presek koralitov, P-348 b, $\times 4$ *Dermosmilia fiagdonensis* KRASNOV et STAROSTINA

Nahajališče: Mrzovec, P-269

Sl. 3. Prečni presek, koraliti z veliko črvasto aksialno strukturo, P-269 a, $\times 4$ Sl. 4. Podolžni presek koralitov, P-269 b, $\times 4$

PLATE 32

Dermosmilia laxata (ÉTALLON)

Locality: Frata near Ajdovec, P-348

Fig. 1. Transverse section of corallites, P-348 a, $\times 4$ Fig. 2. Longitudinal section of corallites, P-348 b, $\times 4$ *Dermosmilia fiagdonensis* KRASNOV et STAROSTINA

Locality: Mrzovec, P-269

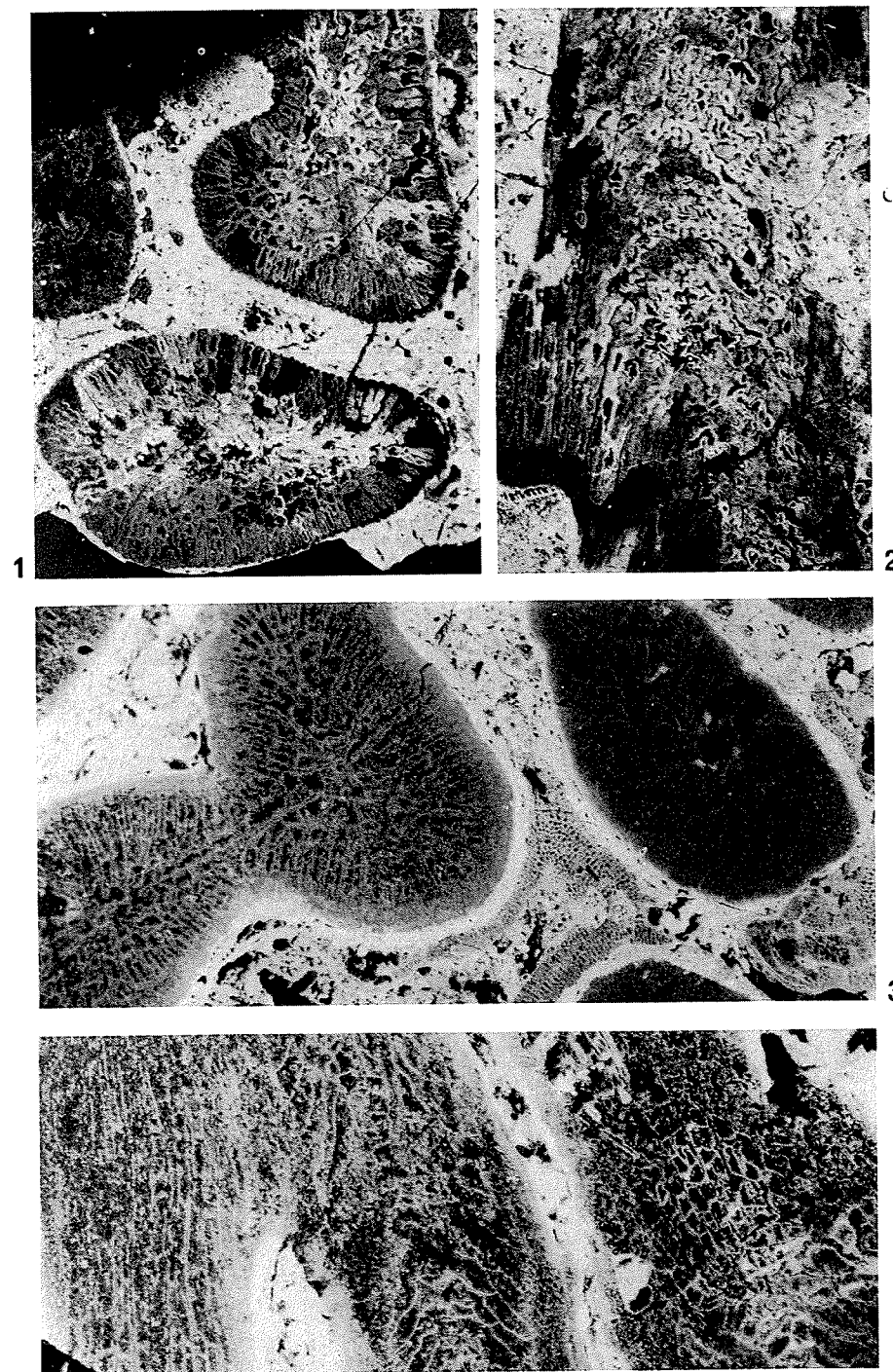
Fig. 3. Transverse section of corallites showing large vermiculate axial structure, P-269 a, $\times 4$ Fig. 4. Longitudinal section of corallites, P-269 b, $\times 4$ 

TABLA 33

Diplaraea elegans (MILASCHEWITSCH)

Nahajališče: Col, P-307

Sl. 1. Prečni presek korale, P-307 a, $\times 4$ *Epistreptophyllum tenue* MILASCHEWITSCH

Nahajališče: Bukovje na Hrušici, P-293

Sl. 2. Prečni presek koraluma, kaže septa z lateralnimi bodicami, P-293 a, $\times 4$ Sl. 3. Podolžni presek z dolgimi disepimenti, P-293 b, $\times 4$ *Epistreptophyllum bonjourii* (ÉTALLON)

Nahajališče: Col, P-289

Sl. 4. Prečni presek korale, P-289 a, $\times 4$

PLATE 33

Diplaraea elegans (MILASCHEWITSCH)

Locality: Col, P-307

Fig. 1. Transverse section of coral, P-307 a, $\times 4$ *Epistreptophyllum tenue* MILASCHEWITSCH

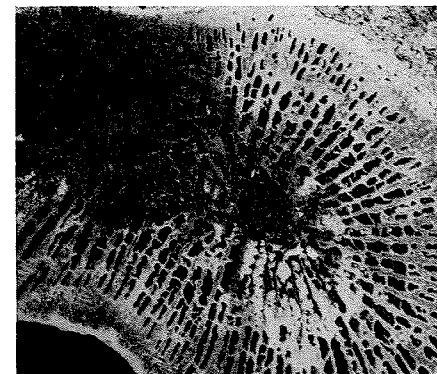
Locality: Bukovje on Hrušica, P-293

Fig. 2. Transverse section of corallum showing lateral septal teeth, P-293 a, $\times 4$ Fig. 3. Longitudinal section with long dissepiments, P-293 b, $\times 4$ *Epistreptophyllum bonjourii* (ÉTALLON)

Locality: Col, P-289

Fig. 4. Transverse section of coral, P-289 a, $\times 4$ 

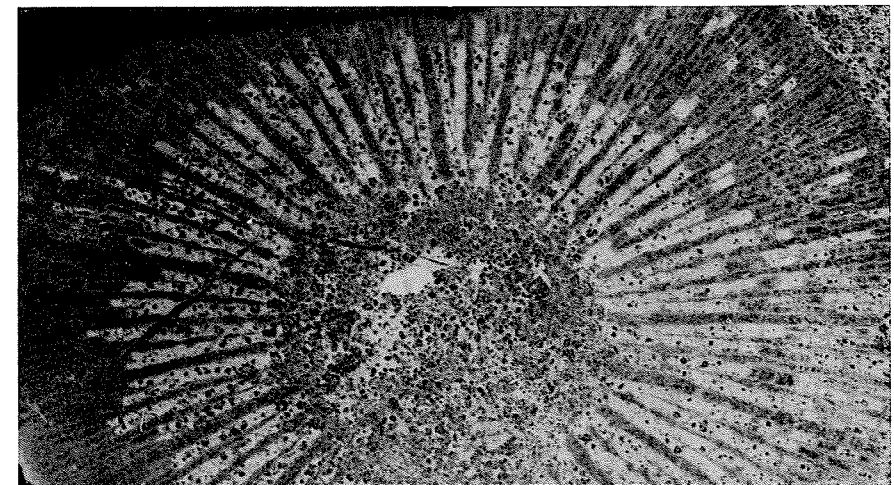
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TABLA 34

Calamophylliopsis flabellum (MICHELIN)

Nahajališče: Čušperk, P-379

Sl. 1. Prečni presek koralitov, P-379 a, $\times 4$ Sl. 2. Podolžni presek koralitov, P-379 a, $\times 4$ *Calamophylliopsis cervina* (ÉTALLON)

Nahajališče: Mačkovec, P-274

Sl. 3. Prečni presek kolonije, P-274 a, $\times 4$ *Calamophylliopsis stockesi* MILNE-EDWARDS et HAIME

Nahajališče: Mrzovec, P-451

Sl. 4. Prečni presek kolonije, P-451 a, $\times 4$

PLATE 34

Calamophylliopsis flabellum (MICHELIN)

Locality: Čušperk, P-379

Fig. 1. Transverse section of corallites, P-379 a, $\times 4$ Fig. 2. Longitudinal section of corallites, P-379 b, $\times 4$ *Calamophylliopsis cervina* (ÉTALLON)

Locality: Mačkovec, P-274

Fig. 3. Transverse section of colony, P-274 a, $\times 4$ *Calamophylliopsis stockesi* MILNE-EDWARDS et HAIME

Locality: Mrzovec, P-451

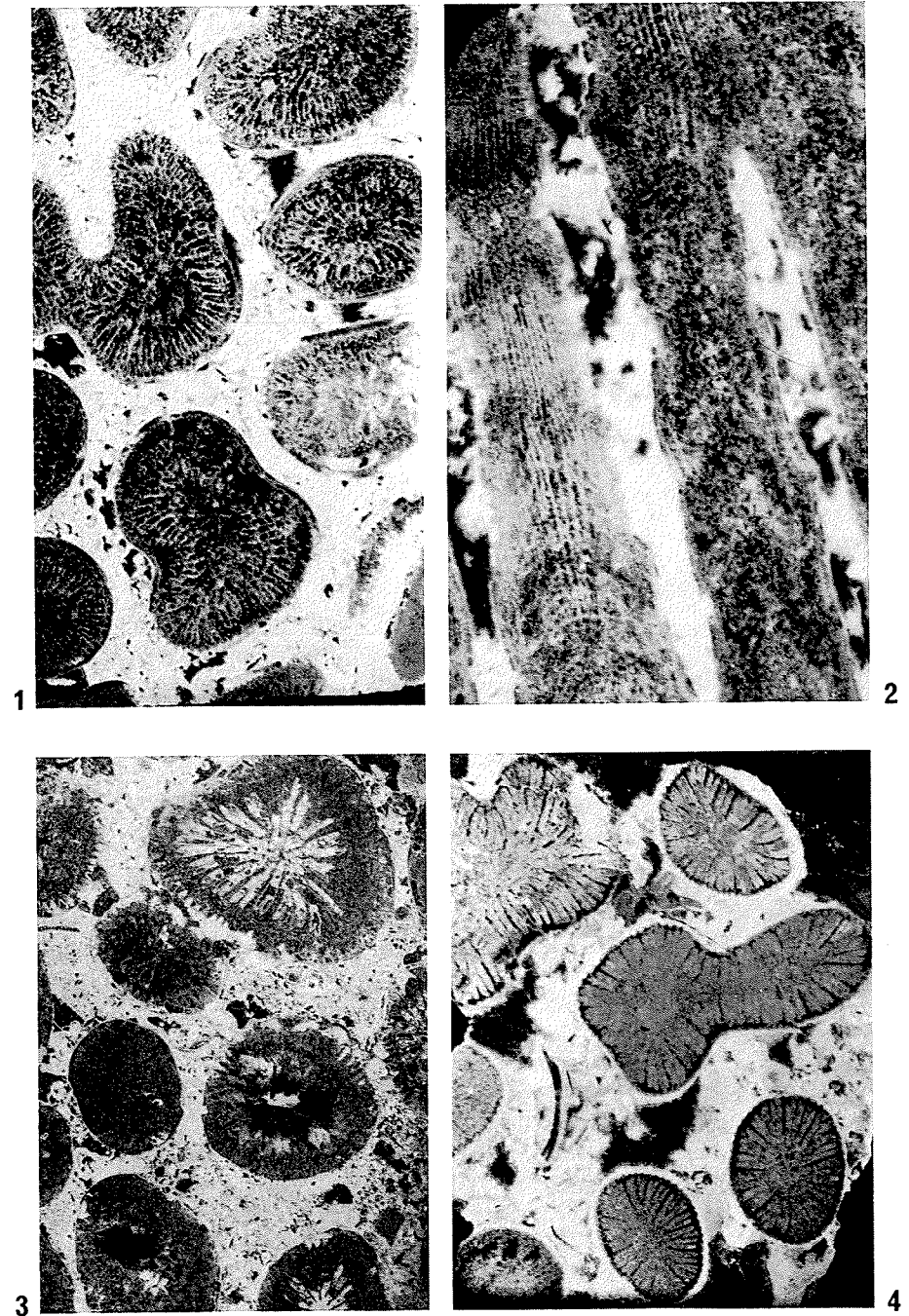
Fig. 4. Transverse section of corallites, P-451 a, $\times 4$ 

TABLA 35

Thamnasteria lobata (GOLDFUSS)

Nahajališče: Mali vrh pri Ajdovcu, P-403

Sl. 1. Prečni presek koralitov s konfluentnimi septi in stiliformno kolumelo, P-403 a, $\times 4$ Sl. 2. Podolžni presek, P-403 b, $\times 4$ *Thamnasteria moreana* (D'ORBIGNY)

Nahajališče: Otlica, P-430

Sl. 3. Prečni presek kolonije, P-430 a, $\times 4$ Sl. 4. Podolžni presek kolonije, P-430 b, $\times 4$ *Fungiastraea arachnoides* (PARKINSON)

Nahajališče: Frata pri Ajdovcu, P-360

Sl. 5. Prečni presek koralitov s spongiozno kolumelo, P-360 a, $\times 4$ Sl. 6. Podolžni presek iste prevlekaste kolonije, P-360 b, $\times 4$

PLATE 35

Thamnasteria lobata (GOLDFUSS)

Locality: Mali vrh near Ajdovec, P-403

Fig. 1. Transverse section of corallites with confluent septa and styliform columella, P-403 a, $\times 4$ Fig. 2. Longitudinal section of the same colony, P-403 b, $\times 4$ *Thamnasteria moreana* (D'ORBIGNY)

Locality: Otlica, P-430

Fig. 3. Transverse section of colony, P-430 a, $\times 4$ Fig. 4. Longitudinal section of colony, P-430 b, $\times 4$ *Fungiastraea arachnoides* (PARKINSON)

Locality: Frata near Ajdovec, P-360

Fig. 5. Transverse section of corallites with spongy columella, P-360 a

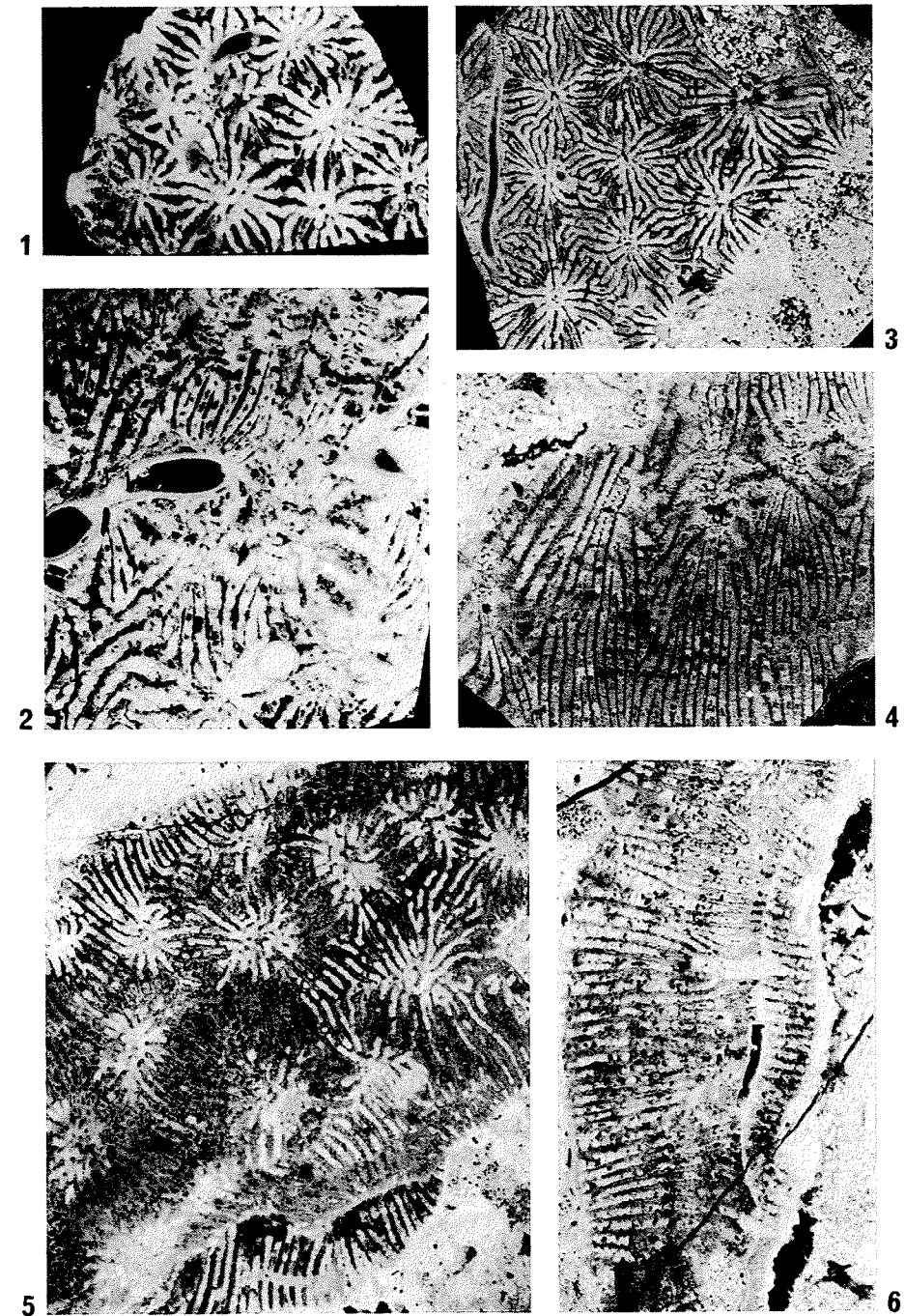
Fig. 6. Longitudinal section of the same colony, P-360 b, $\times 4$ 

TABLA 36

Synastraea subagaricites (BECKER)

Nahajališče: Otlica, P-428

Sl. 1. Prečni presek, kaže tamnasterioidne koralite s številnimi septi, P-428 a, $\times 4$ *Synastraea dubia* FROMENTEL

Nahajališče: Ojstrovca, P-447

Sl. 2. Prečni presek kolonije, P-447 a, $\times 4$ Sl. 3. Podolžni presek kolonije, P-447 b, $\times 4$ *Actinaraea granulata* (MUNSTER)

Nahajališče: Otlica, P-424

Sl. 4. Prečni presek, kaže koralite med široko periteko, P-424 a, $\times 4$ Sl. 5. Podolžni presek kolonije, P-424 b, $\times 4$

PLATE 36

Synastraea subagaricites (BECKER)

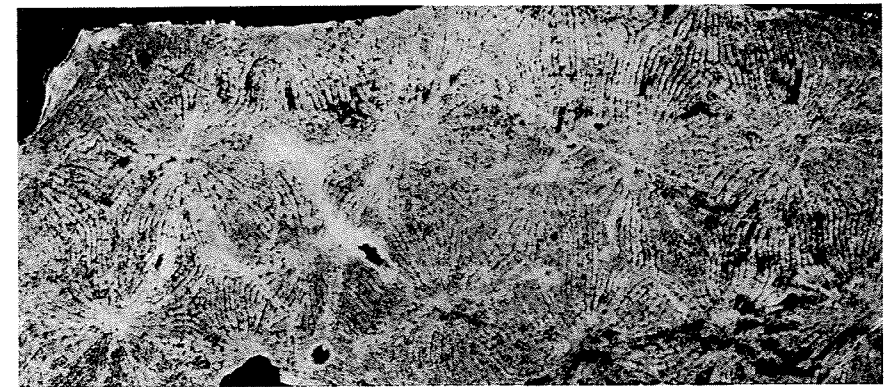
Locality: Otlica, P-428

Fig. 1. Transverse section, showing thamnasterioid corallites with numerous septa, P-428 a, $\times 4$ *Synastraea dubia* FROMENTEL

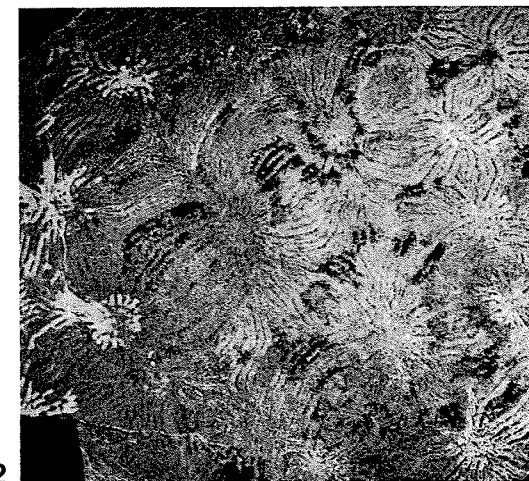
Locality: Ojstrovca, P-447

Fig. 2. Transverse section of colony, P-447 a, $\times 4$ Fig. 3. Longitudinal section of colony, P-447 b, $\times 4$ *Actinaraea granulata* (MUNSTER)

Locality: Otlica, P-424

Fig. 4. Transverse section, showing corallites in large peritheca, P-424 a, $\times 4$ Fig. 5. Longitudinal section of colony, P-424 b, $\times 4$ 

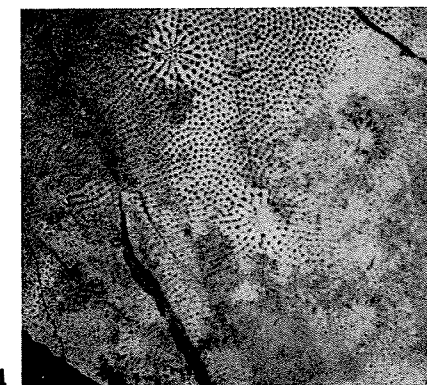
1



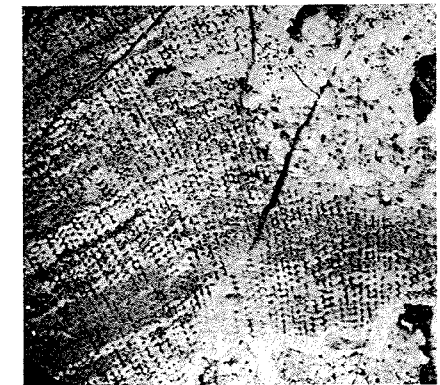
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TABLA 37

Acanthogyra columnaris OGILVIE

Nahajališče: Mrzovec, P-258

Sl. 1. Prečni presek koralitov s podolgovato kolumelo, P-258 a, $\times 4$ Sl. 2. Podolžni presek koralitov, P-258 b, $\times 4$ *Acanthogyra multiformis* OGILVIE

Nahajališče: Selovec, P-483

Sl. 3. Prečni presek, septa in stena so precej prekristalizirani, P-483 a, $\times 4$ Sl. 4. Podolžni presek kolonije, P-483 b, $\times 4$

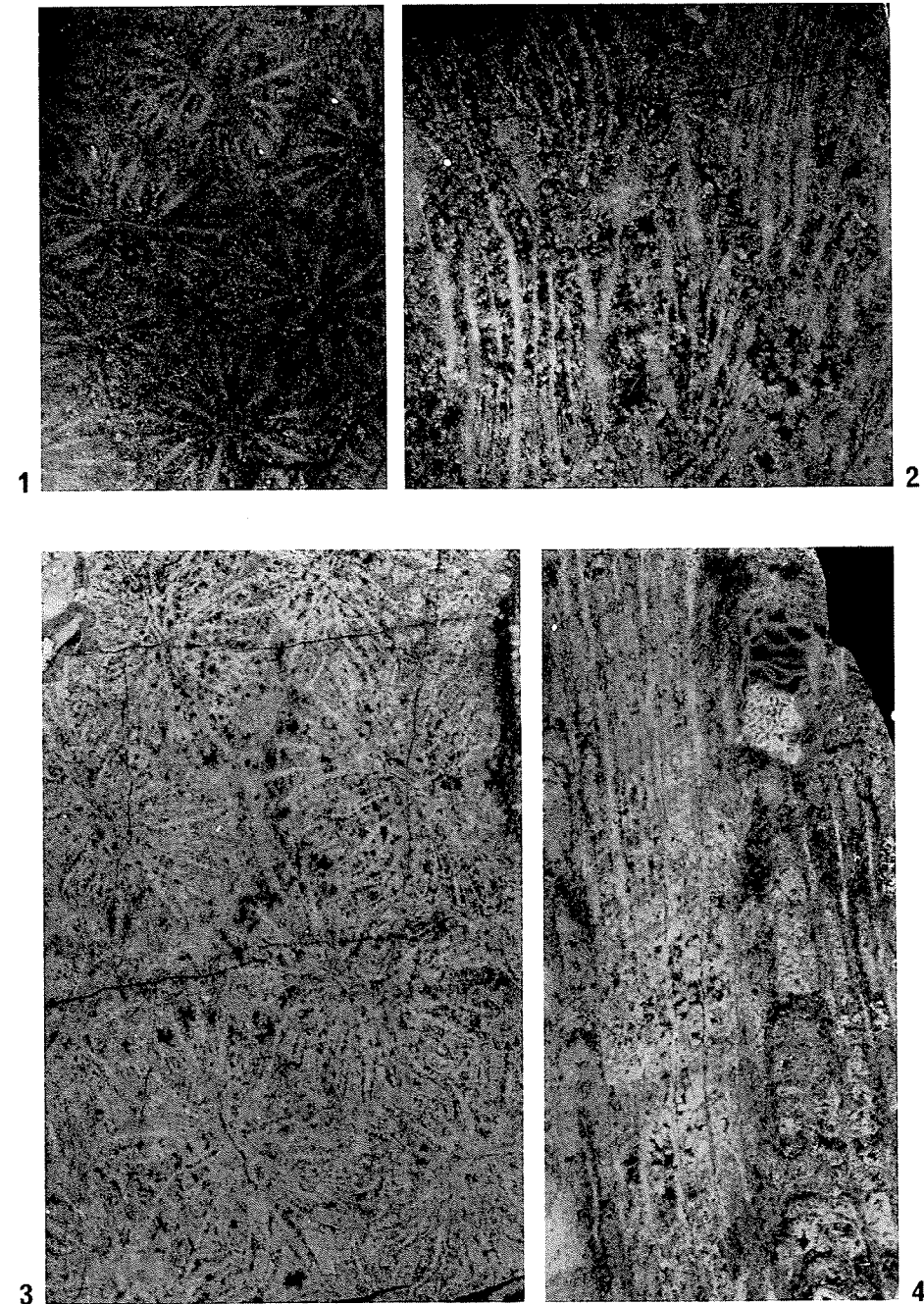
PLATE 37

Acanthogyra columnaris OGILVIE

Locality: Mrzovec, P-258

Fig. 1. Transverse section of corallites with lamellar columella, P-258 a, $\times 4$ Fig. 2. Longitudinal section of colony, P-258 b, $\times 4$ *Acanthogyra multiformis* OGILVIE

Locality: Selovec, P-483

Fig. 3. Transverse section of colony, septa and wall rather recrystallized, P-483 a, $\times 4$ Fig. 4. Longitudinal section of colony, P-483 b, $\times 4$ 

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DISSERTATIONES CLASSIS IV.
XV/6

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1973

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