Bulletin

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The California Lichen Society seeks to promote the appreciation, conservation, and study of the lichens. The interests of the Society include the entire western part of the continent, although the principal focus is on California. Dues are $18 per year ($20 for foreign subscribers) payable to The California Lichen Society, 362 Scenic Ave., Santa Rosa, CA, 95407. Members receive the *Bulletin* and notices of meetings, field trips, and workshops.

The Bulletin of the California Lichen Society (ISSN 1093-9148) is edited by Isabelle Tavares, Shirley Tucker, William Sanders, Richard Moe, and Darrell Wright and is produced by Richard Moe. The *Bulletin* welcomes manuscripts on technical topics in lichenology relating to western North America and on conservation of the lichens, as well as news of lichenologists and their activities. Manuscripts may be submitted to Richard Moe, Bulletin of the California Lichen Society, University Herbarium, 1001 Valley Life Sciences Bldg. #2465, University of California, Berkeley, CA 94720-2465. The best way to submit manuscripts apart from short articles and announcements is by E-mail or on diskette in WordPerfect or Microsoft Word format; ASCII format is a very good alternative. Manuscripts should be double-spaced. Figures are the usual line drawings and sharp black and white glossy photos, unmounted, and must be sent by surface mail. A review process is followed. Nomenclature follows Esslinger and Egan's Sixth Checklist (The Bryologist 98: 467–549, 1995), and subsequent on-line updates: http://www.ndsu.nodak.edu/instruct/esslinge/chcklst/chcklst7.htm. The editors may substitute abbreviations of author's names, as appropriate, from R.K. Brummitt and C.E. Powell, *Authors of Plant Names*, Royal Botanic Gardens, Kew, 1992. Style follows this issue. Reprints will be provided for a nominal charge. The *Bulletin* has a World Wide Web site at the URL http://ucjeps.herb.berkeley.edu/rlmoe/cals.html.

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Front Cover: *Dimelaena radiata* (Tuck.) Müll. Arg. (gray) and *Pleopsidium chlorophanum* (Wahlenb.) Zopf (yellow) on rock at Rodeo Beach, Golden Gate National Recreation Area, Marin County, California. Photography by Sylvia Sharnoff.

Back Cover: Figures accompanying "Fruticose Growth of *Dirina catalinariae* f. *sorediata* on Santa Cruz Island, Northern Channel Islands, California" by W.B. Sanders on p. 2.
1–6. *Dirina catalinariae* f. *sorediata*.
1. Thallus in which some areoles are forming curved projections. X 8
2. Crustose areole; cortex (above) with fungal hyphae perpendicular to surface and in places interwoven; outer medulla with large, rounded algal cells stained blue. X 500
3. Cortical layer (above) of bilateral fruticose portion with fungal hyphae mostly perpendicular to surface; algal cells of outer medulla stained blue. X 650
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SYLVIA DURAN SHARNOFF
1944–1998

Thoughts at her memorial service, 9 January 1999

Every now and then, you meet a person or a couple that immediately "clicks" with your very being. A friendship is instantly created and, in the course of time, becomes permanently established. That's the way it was between the Sharnoffs and us: my wife, Fenja, and me. We first met in Montreal and Ottawa in 1985 when the Canadian Museum of Nature opened Sylvia and Steve's Oakland Museum exhibit of lichen photographs. We discovered that the Sharnoffs and Brodos had much in common, and it seemed that only a perverse trick of geography and timing had kept us from having become friends earlier. Our interest in natural history, especially lichens, was an obvious connection, but we both had two children of about the same age, elderly parents requiring our care, interests in popularizing science, liberal political views, and even a Jewish background. All these factors, however, were secondary to their sincere and unpretentious warmth, which sealed our friendship forever.

I believe the first time I heard about Sylvia Duran Sharnoff was when someone showed me her article on lichens published in the Smithsonian Magazine in 1984. I had learned to grit my teeth and brace myself before reading popularized treatments of lichens because such articles are so often...virtually always...filled with errors, oversimplifications, and outdated myths. But I could find none in Sylvia's article. It was superbly written in a clear, precise, yet lively style, and as up-to-date as any active, professional lichenologist could have made it. And the photographs! They were amazing! I was really impressed. Later, when I took up the task of writing the text for our own book, I acknowledged Sylvia's skill with a pen in that article and subsequent ones by happily...well, perhaps not always happily...accepting her suggestions for changes, suggestions that always resulted in improvements.

Sylvia always down-played, even denied, her knowledge of lichens despite the depth of her understanding of the field and her fabulous memory of taxa. I always laughed at Sylvia's references to herself as a "college dropout", said in a way to make it clear she was not so much proud of leaving college as she was of the things she was able to learn and accomplish in spite of it. She (and Steve) showed that it isn't the piece of parchment that establishes your knowledge; you get that on your own if you're bright, have a lively curiosity, and are willing to work at it.

Sylvia's skill with a camera was prodigious, as anyone who gets a copy of our upcoming book will be able to see. She was an artist as well as being a naturalist, and the combination has resulted in some of the finest photographs of lichens ever made. She passed the technical know-how on to Steve, who has considerable artistic talents of his own, and the two were an unbeatable team. The book on the Lichens of North America that we have worked on so hard and for so long is now almost ready for submission. The finished volume will be a fitting tribute to Sylvia's talent and dedication.

I will profoundly miss Sylvia. I will miss her jokes, her knowledge of how to write for a popular audience, her tenacious insistence on excellence, her imagination, her silliness, her smile, and her friendship. The Jewish prayer is that her memory be for a blessing. She will live forever in our memory, and we feel truly blessed by that.

Ernie (Irwin) Brodo

Fruticose Growth of *Dirina catalinariae* f. *sorediata* on Santa Cruz Island, Northern Channel Islands, California

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Lichens with different growth forms—crustose, foliose, and fruticose— can be found growing side by side upon the same substrate. These three categories don't effectively describe all lichens, but do indicate some general differences in thallus orientation and degree of contact with the substrate. Such differences may correspond to alternative physiological strategies, particularly with respect to moisture and light interception. For example, crustose and appressed foliose thalli, with their close substrate contact, may utilize moisture retained at or within the substrate, retarding evaporation by exposing only the upper surface. Ascending foliose and fruticose lichens, with their more elaborate photosynthetic surfaces, may sustain a higher growth rate and overgrow their crustose neighbors under optimum conditions, but will lose moisture more quickly when drying conditions prevail. On the other hand, in regions where fog is an important source of moisture, these elaborate surfaces may also serve advantageously in condensing and absorbing water from the air. This may partly explain why ascending foliose and fruticose lichens are particularly well represented in fog-inundated regions such as coastal deserts and montane forests.

A few lichen species appear to be plastic in their development: they may be able to modify their growth form under certain conditions. In the normally crustose genus *Aspicilia*, certain species appear capable of taking on a fruticose form (Weber 1967), possibly in connection with specific temperature and moisture conditions (Kunkel 1980). Not much is known about how this occurs, since most lichens resist cultivation under controlled laboratory conditions. It may be difficult to determine whether a crustose form and a fruticose form represent the same or different lichens.

On the September 1997 CALS field trip to Santa Cruz Island, I collected several lichen thalli which were clearly crustose in origin but showed portions with elaborate fruticose outgrowths. Examination of the crustose portions suggests that the lichen is referrable to *Dirina catalinariae* Hasse f. *sorediata* Tehler. The grayish white thallus is divided by cracks into areoles, many of which bear soralia. But some of these areoles are raised upwards into stalk-like projections and flattened winglike flanges which twist and curve irregularly (Fig. 1 [see back cover]). These fruticose projections may also bear soralia. No apothecia are present. The cortex of both crustose areoles and fruticose portions is similar; the orientation of the fungal cells tends to be anticlinal (i.e., perpendicular to the surface), but also appears somewhat interwoven in places (Figs. 2, 3). The thalli were collected at Tinker's Cove, on the northern side of the island.

At first glance these thalli might appear to represent some aberrant or arrested stage in development of a fruticose taxon. But closer examination reveals a recognizable crustose thallus, which has distinct areoles bearing well-defined soralia. The fruticose projections are clearly secondary modifications of individual areoles which are for some reason stimulated to begin upward growth (Fig. 4).

The Dirinas are crustose members of the family Roccellaceae, which is perhaps better known for its fruticose genera such as *Roccella*, *Dendrographa*, *Schizopelte*, and *Hubbsia* (formerly *Reinkella*). These include the conspicuous white, grayish or tawny fruticose lichens which, with *Niebla* and its relatives, are particularly well-developed near the shores of the Channel Islands and Baja California. The algal symbiont for all members of the Roccellaceae is *Trentepohlia*, which forms orange tufts on rocks and trees where it occurs free of the lichen fungus.

Perhaps it isn't so startling to find some thalli of *Dirina* expressing growth forms more characteristic of its sibling genera. Although species of *Dirina* are thought to be strictly crustose, this habit is regarded as secondarily derived from fruticose predecessors by reduction and simplification (Tehler 1983). According to Tehler (1983), the genus *Dirina* is derived from within *Roccella*. In other words, the ancestor of *Dirina* would be considered a *Roccella* if it were around for us to find and examine. If this view is correct, the thalli found at Tinker's Cove might be expressing otherwise suppressed tendencies inherited from their fruticose ancestors.

The thalli visibly demonstrate their ability to degrade the rock substrate. A number of thallus areoles show fragments of the substrate embedded in their surface (Fig. 5). On some of the fruticose outgrowths, these fragments have been raised up by the expanding thallus tissue beneath (Fig. 6). Although fairly hard, the rock is heterogeneous, containing different crystals and granules

embedded in a matrix. Hyphae can force their way into minute fissures between these heterogeneities and gradually pry them apart. This process can be observed in lichens that penetrate rock surfaces with mycobiont structures such as rhizomorphs (Sanders et al. 1994). In the case of this *Dirina*, substantial parts of the thallus seem to be organized in the spaces beneath the rock fragments as they are separated from the substratum. Diffuse, upward expansion of the thallus areoles then elevates the fragments. These embedded substrate fragments are further indication that the fruticose thallus portions originate and develop from a fundamentally crustose thallus.

Literature cited

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Report on Von Reis Lichens from the Herbarium of California Polytechnic University, San Luis Obispo

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In the course of updating the list of lichens reported from California published by Tucker and Jordan (1979), I have attempted to verify records that are new for the state, or records that represent noteworthy extensions of range. This verification process, although time-consuming, becomes more important as records (particularly those that are not part of the published literature) influence public policy, for example, in lists of endangered or rare lichens.

The lichens collected by Jennifer von Reis and others (von Reis, 1991) in the vicinity of San Luis Obispo, California, including the Hearst San Simeon estate, are interesting and include quite a few unusual taxa not often reported in publications for California. These collections are housed in the Robert F. Hoover Herbarium (OBI), Biological Sciences Department, California Polytechnic State University, San Luis Obispo, California, 93407 (Director: Dr. David Keil). The von Reis thesis will be cited as one source for unusual species in the revision of the checklist of lichens of California (Tucker and Jordan 1979) being prepared by the author and Bruce Ryan. The specimens treated in the present paper were borrowed, and the identifications verified or the specimens redetermined.

In the first list, names without quotation marks are corrected or verified determinations; names used by von Reis are placed in quotation marks if they are considered by me to be misapplied.

In the second list, the names used by von Reis are cross-referenced to the redetermined names.

Collecting locations are all in San Luis Obispo County, California, and collections are by von Reis unless otherwise indicated. Von Reis's numbers start with a letter (C, H, L), but the letter is used for several locations in most cases, so I have added a number (keyed in the list below) to indicate the location of each collection. Many collections are by Dr. Shirley Sparling, von Reis's advisor. Some of Sparling's collection numbers are prefixed with "SS"; for the sake of consistency, "SS" has been added to all of her collection numbers in this list. A few collections by Braden Oliver (listed with a 5-digit OBI number) and other students (given von Reis numbers) are included.

Collecting locations (indicated in the list by numbers in parentheses after the collection numbers):

1.—Los Padres National Forest, American Canyon
2.—San Luis Obispo, gully west of Bishop Peak School
3.—Cerro Alto Campground, off State Highway 41, W of Atascadero
4.—Between Cayucos and Morro Bay

5.—San Luis Obispo, California Polytechnic campus (including Biological Science Preserve)
6.—California Polytechnic ranchland east of railroad tracks, beyond Poly Canyon
7.—Diablo Canyon (DC): Diablo Cove, Pt. Buchon, Pacific Gas and Electric facility
8.—Rock cliffs N of Diablo Canyon opposite Lion Rock
9.—California Polytechnic University, East Escuela Ranch
10.—San Simeon, Hearst Castle (H), off State Highway 1 along Pacific coast
11.—San Luis Obispo, east slope of Bishop Peak
12.—El Chorro Regional Park and environs
13.—Lopez Lake
14.—Los Osos, Los Osos Valley Road
15.—Los Osos, Elfin Forest
16.—Los Osos, chaparral on hill S of Cabrillo Estates
17.—Los Osos, Los Osos Valley Oaks State Park
18.—Little Pico Creek, NW of Cambria
19.—San Luis Obispo, Stenner Creek, 1/4 mi W of Dairy Unit, California Polytechnic campus
20.—Morro Bay, Morro strand, Morro Bay salt marsh
21.—Morro Bay, cliffs below the Morro Bay State Park Museum, +2–3 ft tide level
22.—Montaña de Oro State Park
23.—Ontario Road, S of San Luis Obispo, 3/4 mi W of Higuera Street exit on U.S. Highway 101
24.—Pennington Creek Biological Reserve
25.—Prefumo Canyon Road, W of San Luis Obispo, about 5 mi from Los Osos Valley Road
26.—near N border of Montaña de Oro State Park, 1/4 mi E of Pecho Valley Road
27.—4 mi E of Paso Robles, on *Quercus*; B. Oliver colls.
28.—Shell Beach, end of Pier Street, on rocks at +4 ft tide level
29.—San Luis Mountain, W of San Luis Obispo, lower east slope
30.—San Luis Obispo, 1/4 mi NW of end of Highland Drive
31.—Beaches 3.5 and 4 mi N of San Simeon, at +3–4 ft tide level
32.—Los Osos, Turri Creek, E of South Bay Blvd.

Lichens identified:

***Arthopyrenia lyrata* R.C. Harris in Tucker and Harris**— *SS-L127* (11); *SS-L87* (14); all as *"Anisomeridium biforme"*. The perithecia contain 1-3-septate hyaline spores which are "lyre"-shaped, with a slight indentation around the center of each cell parallel to the cross-wall. The spores of *A. biforme* are 1-septate with one cell usually larger than the other. The two genera are difficult to distinguish, but the unequal cells in the spores of *Anisomeridium* (giving rise to the generic name) are one distinguishing character.

***Caloplaca chrysophthalma* Degel.**— *B. Oliver 49067* (27); *SS-L93* (19); *SS-L307* (19), *C713* (19); the last three as *"C. citrina"*. Both species are sorediate, golden crusts on bark, but *C. citrina* is completely granular-sorediate, while *C. chrysophthalma* has a smooth thallus with ± circular soralia containing more powdery soredia.

***Caloplaca citrina* (Hoffm.) Th. Fr.**— *H7* (10); *H67* (10), verified. This yellow crust is covered with sorediate or isidiate granules.

***Caloplaca luteominia* (Tuck.) Zahlbr. var. *bolanderi* (Tuck.) Arup**— *C597* (4) on coastal rocks; as *"C. fraudans"*. *C. luteominia* var. *bolanderi* is typically on coastal rocks (but see Arup 1993), and has a scant pale gray to buff thallus and red apothecia; *C. fraudans* occurs along the northeast coast of North America, and is apparently not in the western United States (Arup, 1994, 1995). The spores are larger in *C. luteominia* var. *bolanderi*.

***Caloplaca* sp.**— *C79* (5); *C100* (5); *C226* (8); *SS-L77* (5), all as *"C. fraudans"* or *"C. laeta"*. These specimens have rose-pink apothecia, unusual for a *Caloplaca* (the spores are polarilocular). The specimens are tiny, consisting only of apothecia, and are so scant that they are probably not identifiable. It is always a question whether to keep a collection of something possibly unusual or that may be a range extension, but if it is so incomplete that it does not show the necessary characteristics, it will not be a useful comparative specimen, although it may indicate where a better specimen can be searched for.

***Dendrographa leucophaea* (Tuck.) Darbish. f. *minor* Sundin & Tehler**— *C219* (7); *DC-18* (7); *SS-L30* (8), all as *"Roccella babingtonii"*. In *Dendrographa* cortical hyphae are longitudinally aligned while in *Roccella* they are transversely aligned. *D. leucophaea* has flattened branches that are further ramified. The forma *minor* has lateral ecorticate branchlets and lacks apothecia, according to Sundin and Tehler (1996). Wright (1996) provides additional information about the species and forms of *Dendrographa*.

***Dimelaena radiata* (Tuck.) Müll. Arg.**— *C496* (12), as *"Lecanora pinguis"*; has a lobate margin not found in *L. pinguis*. The yellow-green color and the remarkable thickness of *Lecanora pinguis* also serve to separate the two species decisively.

***Diploschistes actinostomus* (Ach.) Zahlbr.**— *SS-L194* (19), labelled *Verrucaria viridula*, but no *Verrucaria* found.

***Diploschistes scruposus* (Schreber) Norman**— *C600* (20), labelled *"Arthopyrenia herrei"*.

***Flavoparmelia caperata* (L.) Hale**— *C516* (5), as *"Parmotrema stuppeum"*. The color of the thallus, yellow-green in *Flavoparmelia*, blue-gray in *Parmotrema*, distinguishes these two species.

***Heterodermia namaquana* Brusse**— *SS-L82* (14), *SS-L45E* (8); as *"Heterodermia leucomelos"*. *H. namaquana* has tiny rosettes with narrow, flat, sorediate

branches. *H. erinacea*, found in the San Francisco Bay Area and elsewhere in California, also has rosettes, but is esorediate and often has large apothecia; both apothecia and branches have ciliate margins. *H. leucomelos* (=*H. leucomelaena* [L.] Poelt) has long narrow lobes with long cilia on the margins and is white and sorediate below. All these species lack a lower cortex (see Moberg and Nash 1999).

Lecanographa hypothallina **(Zahlbr.) Egea & Torrente**— (syn.: *Lecanactis nashii* Egea & Torrente) *DC7* (7); *DC12* (7); *DC19* (7), coll. Fayella Chapman; *C258* (18), coll. Linda Seek; *C700* (7), as *"Llimonaea occulta"*, which has not been reported for the United States; *C67* (5), as *"Acarospora peltastica"*. *Lecanographa* is closely related to *Opegrapha*, but the apothecia of *Lecanographa* often have sinuous margins so the disk resembles a cross, rather than an elongate lirella as in *Opegrapha*.

Lichinella nigritella **(Lettau) Moreno & Egea**— *C109* (5); *C212* (5); *C572* (5); all as *"Collema* sp." This species is evident as a collection of tiny, black, shrubby tufts on rock or soil. The blades are narrow, flat and often vertical. No fruiting structures were seen. It is useful to determine the photobiont: *Lichinella* has a globose single-celled bluegreen alga (cyanobacterium) in the family Chroococcaceae, while *Collema* always has the bluegreen alga *Nostoc*, with chainlike strands of cells suspended in a jelly-like non-cellular matrix.

Opegrapha brattiae **Egea & Torrente ined.**— *DC15* (7), as *"Lecanactis zahlbruckneri"*. Two species of *Opegrapha* are known on rock in California: *O. rupestris* Pers. (syn.: *O. saxicola* Ach.), which is C-, and this unpublished taxon, which is C+ red.

Parmotrema chinense **(Osbeck) Hale & Ahti**— *SS-L83* (14); *C407* (16); *C169* (17); *C181* (15); *C192* (15); all as *"P. stuppeum"*, which see.

Parmotrema hypoleucinum **(Steiner) Hale**— *C193* (15), coll. Kathryn Day, as *"P. stuppeum"*, which see.

Parmotrema stuppeum **(Taylor) Hale**— *SS-L151* (29), verified. *Parmotrema stuppeum* is a relatively rare lichen in California. It gives a K+ yellow changing to orange-red medullary reaction (salazinic acid), thereby differing from *P. chinense* (very common) which is K+ persistent yellow (stictic acid) and from *P. arnoldii* (Du Rietz) Hale (uncommon) which is K- (alectoronic acid) (Hale and Cole 1988). A UV+ white medulla also helps to identify *P. arnoldii*.

Peltula euploca **(Ach.) Poelt**— *SS-L118* (11); verified. Gray to brown, tiny, umbilicate squamules with sorediate margins, on rock.

Pertusaria lecanina **Tuck.**— *C103* (13); *C243* (5); *SS-L107* (30); verified. This is a pale green crust on bark having apothecia buried in warts and two large, thickwalled, unicellular, colorless spores per ascus.

Phaeophyscia hirsuta **(Mereschk.) Essl.**— *H76* (10); *SS-L91* (19); verified. *P. hirsuta* has lobes bearing labriform (hooded or lip-shaped) terminal soralia and fine colorless hairs.

Physcia biziana **(A. Massal.) Zahlbr.**— *B. Oliver 49066* (27), as *"P. alba"*, which is not known for California. Differences among species of *Physcia* can be found in Hale (1979) or Hale and Cole (1988).

Physcia dubia **(Hoffm.) Lettau**— *SS-L76* (19), as *"Phaeophyscia orbicularis"*; *C66* (5), as *"Physcia millegrana"*; *H41* (10); *H62* (10); *H92* (10), as *"Phaeophyscia hirsuta"*.

Physcia phaea **(Tuck.) J.W. Thomson**— *C414* (20); *C501* (12), both as *"P. dubia"*.

Physcia tribacia **(Ach.) Nyl.**— on rock *C454* (6); *C540* (5), both as *"P. callosa"*; but see Moberg (1997) about the correct name; *SS-L140* (19); *C679* (5), both as *"P. dubia"*; *C482* (5); *C561* (24), both as *"P. millegrana"*. *P. millegrana* is finely divided, on bark, and is rare in California.

Physconia americana **Essl.**— *C166* (1), as *"P. distorta"*; *C87* (5), as *"P. detersa"*; *B. Oliver 49072* (27), as *"P. distorta* or *P. venusta"*. *Physconia americana* has abundant apothecia but no soredia. California material assigned to *P. detersa* may be referrable to *P. enteroxantha*, *P. isidiigera*, or other species. A complicating factor is that *Physconia* collections often include mixtures of more than one species.

Physconia enteroxantha **(Nyl.) Poelt**— *C167a* (1); *C530* (9); *B. Oliver 49074* (27); *SS-L89* (19) in part; all as *"P. detersa"*; *P. enteroxantha* has marginal soralia and often has a yellow medulla.

Physconia isidiigera **(Zahlbr.) Essl.**— *SS-L89* (19) in part, as *"P. detersa"*; *SS-L240* (30); *B. Oliver 49073* (27); *P. isidiigera* has elongate marginal soralia and white medulla, with the lower side pale at the edge, but dark centrally.

Physconia perisidiosa **(Erichsen) Moberg**— *SS-L89* (19) in part, as *"P. detersa"*; *P. perisidiosa* has labriform (hooded) soralia, the lower side pale throughout, and a white medulla.

Punctelia subrudecta **(Nyl.) Krog**— *C167-b* (1) (as *"Physconia detersa"*). This species is gray, broad-lobed and foliose, white maculate above, pale brown below, and C+.

Pyrenopsis phaeococca **Tuck.**— *SS-L173* (23), as *"Verrucaria viridula"* but no *Verrucaria* found in sample. Excellent find. *Pyrenopsis* species have a black thallus, black apothecia with a lecanorine margin and algae in the exciple visible in section.

Roccellina franciscana **(Zahlbr. *ex* Herre) Follmann**— (syn.: *Dirina franciscana* Zahlbr. *ex* Herre) *DC13* (7); *SS-L33* (7); *SS-L34* (7), verified. This is a rather thick, maritime rock crust with large, pruinose, substipitate apothecia. The disk is black with concolorous margin. The species has a bitunicate ascus, *Trentepohlia* as photobiont, and is K- C-. *Dirina catalinariae* Hasse is a related, rather similar maritime rock crust, which has been collected in the same area, but is K+ yellow and C+ pinkish red.

Spilonema revertens **Nyl.**— *SS-L278* (30), verified. *Spilonema* forms tiny, black tufts on rock. The photobiont, which has multiseriate, branching filaments, is the bluegreen alga (cyanobacterium) *Stigonema*.

Thelidium microbolum **(Tuck.) Hasse**— *SS-L213* (12), as *"Anisomeridium finkii"*; good find. *Thelidium* is a perithecia rock crust with a green algal symbiont (*Trebouxia*), 3-septate hyaline spores, and evanescent paraphyses.

Trichothelium chloroticum **(Ach.) R.C. Harris**— (syn. *Porina chlorotica* [Ach.] Müll. Arg., *Pseudosagedia chlorotica* [Ach.] Hafellner & Kalb; see Harris 1995). *SS-L45D* (7), as *"Porina chlorotica"*, excellent find!. This species was found on rock (can also be on bark). It has tiny, black perithecia and 3-septate colorless spores.

Tuckermannopsis platyphylla **(Tuck.) Hale**— *C694* (22), verified.

Verrucaria calciseda **DC.**— *SS-L258* (2), as *"V. margacea"*. *V. calciseda* has a whitish, thin thallus and perithecia sunken in pits in calcareous rock. *V. margacea* has a dark brown thallus and perithecia that are sessile, not sunken in pits. Species of *Verrucaria* are difficult to identify, mainly because of inadequate keys and undescribed taxa. One can identify the genus rather easily: it comprises perithecia rock crusts mostly with grass-green algal symbionts, with 8 unicellular, colorless or brownish spores per ascus with granular contents, with paraphyses gelatinous or lacking, and without intrahymenial algae. The perithecia may be emergent and black, or sunken in pits in the rock. The identifications here are tentative, and depend mostly on size of perithecia and spores, color of the thallus, and habitat.

Verrucaria **cf.** ***glaucovirens*** **Grummann**— (syn. *V. virens* Nyl.) *C541* (5); *C672* (5), both as *"V. nigrescens"*. An areolate white crust on dry rock, not coastal.

Verrucaria halizoa **Leighton**— *DC5* (7) 2 packets, *SS-2752* (21); verified, based on the description in Purvis et al. (1992). This is a new report for California; good find! A maritime crust, black when dry, differing from *V. maura* (the most common black coastal *Verrucaria*) in having smaller spores and a non-areolate thallus.

Verrucaria nigrescens **Pers.**— *C217* (7); *SS-L50* (8); *DC10* (7), verified. This is a black or dark brown crust on dry rock, not coastal.

Verrucaria tavaresiae **R. Moe**— *DC6* (7); *SS-L57* (28); *SS-L58* (28); *SS-1274* (31); *SS-2172* (S31). This species, named recently by Richard Moe (1997) from material in the San Francisco Bay Area, has *Petroderma*, a brown alga, as photobiont; excellent find! The crust is smooth, black or brown, and rather translucent in appearance. These collections, by Shirley Sparling and Jennifer von Reis, are from the +3 or +4 ft tide levels at four different locations along the coast: Field's Cove at Point Buchon, Shell Beach, and beaches 3.5 mi and 4 mi N of San Simeon.

Xanthoparmelia **aff.** ***coloradoënsis*** **(Gyelnik) Hale**— *SS-L152* (29), as *"X. hypopsila"*, a name often misapplied to *X. angustiphylla* (Gyelnik) Hale, scraps only. Unlikely to be *X. angustiphylla* (out of range) but rather *X. coloradoënsis* (in range). This lichen also is not closely adherent to the subsurface, as *X. angustiphylla* would be.

Xanthoparmelia, probably ***X. plittii*** **(Gyelnik) Hale**— *SS-L269* (5); *C574* (5), both as *"X. kurokawae"*.

Von Reis names requiring correction:

Acarospora peltastica **Zahlbr.**— *C67* (5): see *Lecanographa hypothallina*; *H94* (10): scraps, not determinable.

Anisomeridium biforme **(Borrer) R.C. Harris**— SS127 (11), *SS-L87* (14): see *Arthopyrenia lyrata*.

Anisomeridium finkii **(R.C. Harris) R.C. Harris**— *SS-L213* (12): see *Thelidium* cf. *microbolum*. This binomial was unpublished at the time of the von Reis thesis.

Arthopyrenia herrei, **unpublished**— (see Harris 1975) *C600* (20): specimen an unidentifiable, pycnidiate crust growing with *Diploschistes scruposus*.

Caloplaca citrina **(Hoffm.) Th. Fr.**— *SS-L93* (19), *SS-L307* (19), *C713* (19): see *C. chrysophthalma*.

Caloplaca fraudans **(Th. Fr.) H. Olivier**— *C226* (8): *C. fraudans* is not known from western North America (Arup 1994); see *Caloplaca sp. C597* (4): see *C. luteominia* var. *bolanderi*.

Caloplaca laeta **H. Magn.**— *C79* (5), *C100* (5), *SS-L77* (5): scant specimens lacking thallus, not positively identifiable, but not *C. laeta* (=*C. luteominia* var. *luteominia*, according to Esslinger and Egan 1995; see Arup 1993, 1995).

Collema **sp.**— *C109* (5), *C212* (5), *C572* (5): see *Lichinella nigritella*.

Graphina **sp.**— *C202* (5), *C390* (32). These both have lirelline ascocarps, but lack the thallus necessary to qualify as a lichen. They represent ascocarps of a fungus in the order Hysteriales.

Heterodermia leucomelos **(L.) Poelt**— *SS-L82* (14), *SS-L45E* (8): see *H. namaquana*.

Lecanactis zahlbruckneri **Herre**— *DC15* (7): see *Opegrapha brattiae*.

Lecanora pinguis **Tuck.**— *C473* (22), *C520* (5), *C692* (5), *SS-L162* (11): all scraps, not identifiable; *C496* (12): see *Dimelaena radiata*.

Llimonaea occulta **Egea & Torrente**— *DC7* (7), *DC12* (7), *DC19* (7), *C258* (18), *C700* (7): see *Lecanographa hypothallina*.

Parmotrema stuppeum **(Taylor) Hale**— *C516* (5): see *Flavoparmelia caperata*; *C193* (15), see *Parmotrema hypoleucinum*; *SS-L83* (14), *C407* (16), *C169* (17),

C181 (15), *C192* (15): see *Parmotrema chinense*; *C398* (26) contains only scraps and is not identifiable.

Peltigera praetextata **(Flörke *ex* Sommerf.) Zopf**— *SS-L205*: sterile, not identifiable to species.

Phaeophyscia hirsuta **(Mereschk.) Essl.**— *H41* (10), *H62* (10), *H92* (10): see *Physcia dubia*.

Phaeophyscia orbicularis **(Necker) Moberg**— *SS-L78* (3): consists only of scraps and is not identifiable; *SS-L76* (19): see *Physcia dubia*.

Physcia alba **(Fée) Müll. Arg.**— *B. Oliver 48066* (27): see *P. biziana*.

Physcia dubia **(Hoffm.) Lettau**— *SS-L140* (19), *C679* (5): see *Physcia tribacia*; *C414* (20), *C501* (12): see *P. phaea*; *C368* (25) consists of unidentifiable scraps.

Physcia millegrana **Degel.**— *C482* (5), *C561* (24): see *P. tribacia*.

Physconia detersa **(Nyl.) Poelt**— *C87* (5): see *Physconia americana*; *C167-a* (1), *C530* (9), *B. Oliver 49074* (27): see *Physconia enteroxantha*; *C167-b* (1) has scant *Physconia* but good *Punctelia subrudecta*; *SS-L240* (30), *B. Oliver 49073* (27), *SS-L89* (19) in part: see *Physconia isidiigera*; *SS-L89* (19) also includes *P. perisidiosa* and *P. enteroxantha*; *SS-L102* (30) is indeterminable; *C238* (19) is not determinable because of snail damage.

Physconia distorta **(With.) J.R. Laundon**— *C166* (1), *B. Oliver 49072* (27): see *Physconia americana*.

Physconia venusta **(Ach.) Poelt**— *C166* (1), *B. Oliver 49072* (27): see *Physconia americana*.

Physconia **sp.**— *C167* (1), is indeterminable but has identifiable *Punctelia subrudecta*.

Psorula rufonigra **(Tuck.) Gotth. Schneider**— *C494* (12), consists of indeterminable scraps.

Roccella babingtonii **Mont.**— *SS-L30* (8), *DC18* (7), *C219* (7): see *Dendrographa leucophaea*.

Verrucaria margacea **(Wahlenb.) Wahlenb.**— *SS-L258* (2): see *V. calciseda*.

Verrucaria viridula **(Schrader) Ach.**— *SS-L173* (23): see *Pyrenopsis phaeococca*; *SS-L194* (19), has no *Verrucaria*, only *Diploschistes actinostomus*.

Xanthoparmelia hypopsila **(Müll. Arg.) Hale**— A misidentification for North America. The name is often erroneously applied to *X. angustiphylla*. *SS-L152* (29): see *Xanthoparmelia* aff. *coloradoënsis*.

Xanthoparmelia kurokawae **(Hale) Hale**— *SS-L269* (5), *C574* (5): these are probably *X. plittii*.

Acknowledgements

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Lichens of the Sweeney Granite Mountains Desert Research Center and Environs

California Lichen Society Exploratory Field Trip, October 9–12, 1998

Early October was certainly an ideal time to visit the Granite Mountains in the eastern Mojave Desert, as we found during the CALS field trip to that area in October of 1998. At 1300 meters elevation, the weather was warm, not hot; winds were light or non-existent; and the 10 centimeters of rain which had fallen a month earlier had brought enough moisture for the *Salazaria mexicana* Torrey (Bladder Sage), *Gutierrezia microcephala* (DC.) A. Gray (Sticky Snakeweed) and other flowering plants to bloom and for the vascular plants in general to look green and fresh.

The Sweeney Granite Mountains Desert Research Center, referred to here as the Reserve, is part of the University of California Natural Reserve System. Located in San Bernardino County 128 km (80 mi) east of Barstow, it encompasses 3,626 ha (14 sq mi) of the East Mojave Desert. The Granite Mountains themselves cover 22,000 ha (85 square mi) and range in elevation from 670 to 2,061 m (2,200 to 6786 ft). Annual precipitation is a scant 15–20 cm/yr (6–8 in/yr), and temperatures range from a high of 40.2°C (105°F) to a low of -12.2°C (10°F).

The topography of the Reserve varies from gently sloping alluvial fans to areas of rough terrain strewn with large granitic boulders, and also includes steep pinnacled mountains.

As with other UC Reserves visited by CALS, hostel-type accommodations were spacious and well equipped and the cost negligible. These UC Reserves are an excellent resource for any kind of study of the natural history of the state, and groups such as CALS are urged to study their flora and fauna.

Eleven CALS members visited this exceptionally beautiful Reserve to familiarize themselves with the lichens there: Sara Fultz, Bill Hill, Judy and Ron Robertson, William Sanders, Shirley and Ken Tucker, Stella Yang, Stephen Buckout, and Richard and Janet Doell.

Delicious meals were served by "Chef" Richard Doell and were much appreciated. Unfortunately the speaker for Saturday evening, Bruce Ryan, was unable to be present because his car broke down before he reached the Research Center. Other than that all went as planned, although we missed Bruce's broad knowledge of the lichens of the area.

The group visited four collecting sites and there were opportunities to investigate other areas as well. The general consensus at the end of this field trip was that the outstanding scenery and rich lichen flora in the Granite Mountains were well worth a ten-hour drive from the San Francisco Bay Area.

The California Lichen Society plans to return to the area to set up one or more transects to permit monitoring of the lichen flora at intervals in the future. The first step, however, was to begin an inventory. As a result of the first exploratory trip, the following list of species was prepared:

Key to collecting sites: (1) Granite Cove including the Sibyl Allanson Trail, 34°47'10"N, 115°38'45"W, elevation 1200 m (3900 ft), granite boulders and scattered desert plants such as *Baccharis sergiloides* A. Gray (Desert Baccharis) and *Castilleja linariifolia* Benth. (Indian Paintbrush). (2) Norris Camp area and Al A. Allanson trail, 34°48'00"N, 115°38'45"W, elevation 1200 m (3900 ft), granite boulders and scattered desert plants including *Tetradymia stenolepis* E. Greene (Mojave Horsebrush) and *Yucca schidigera* K.E. Ortgies (Mojave Yucca). (3) Cove Springs, 34°47'25"N, 115°38'45"W, elevation 1200 m (3900 ft), a wall of large granite boulders, with pine and scattered shrubs such as *Acacia greggii* A. Gray (Catclaw) and *Prunus fasciculata* (Torrey) A. Gray (Desert Almond). (4) A wall of lava rocks at the west end of Cinder Cones Lava Beds, on Kelbaker Road outside the Reserve, 35°14'N, 115°50'W, elevation 900 m (3000 ft).

Nomenclature follows Esslinger & Egan (1995) or subsequent on-line revisions (Esslinger 1998).

Key to collectors: Shirley and Ken Tucker—ST, Judy and Ron Robertson—JRR, William Sanders—WS. The letters (TJ), referring to the Catalog of California Lichens (Tucker and Jordan 1979), indicate species included in that catalog. Part of the collections will eventually be stored at the Bratt/Tucker Herbarium at the Santa Barbara Botanic Garden, Santa Barbara, California, with selected duplicates at the Reserve.

***Acarospora* sp.**— (4), lava, *JRR 1978*. Squamules light brown and flattened, areolate; apothecia 2–8 per areole, thalline rim, to 0.5 mm; thallus C-.

***Acarospora californica* Zahlbr.**— (4), lava, *ST 36287* and (2), rock, *JRR 1905*. Pale brown warty areoles 0.8–1.0 mm across, C-, K-; apothecia hardly visible, disk sunken, 0.5–0.6 mm (TJ).

***Acarospora fuscata* (Schrader) Arnold**— (4), lava, *ST*

36288 and (2), rock, *JRR 1903*. Medium brown squamules 0.5–1.0 mm across, dark below, C+ red; apothecia red-brown to brown, 0.2–0.9 mm diam., 1–3 per areole (TJ).

***Acarospora* cf. *heppii* (Nägeli *ex* Hepp) Nägeli *ex* Körber**— (2), granite, *ST 36239*. Brown crust of tiny round warts, C-, K-; apothecia 0.1–0.2 mm, immersed, red-brown disk with prominent raised rim (TJ).

***Acarospora peltastica* Zahlbr.**— (1), granite, *WS 98011.1*, *JRR 2089*; (4), lava, *WS 98011.15*. Thallus bluish white, pruinose, of raised areolate, deeply furrowed squamules, K-, C-; apothecia immersed, disk black, 0.5–0.8 mm (TJ).

***Amandinea punctata* (Hoffm.) Coppins & Scheid.**— (2), granite, *ST 36270*. Thallus ashy, K+ or K-; apothecia black, adnate, to 0.5 mm, becoming convex (TJ as *Buellia*).

***Aspicilia* sp. 1**— (1) and (2), granite, *JRR 1908*, *WS 980010.4*. Thallus areolate, grayish to brownish, areoles convex, rounded, irregular, K-; numerous, sunken, black, pruinose apothecia with white-pruinose rim (see Hale and Cole 1988; Sigal 1989; Ryan and Nash 1991; Thomson 1997).

***Aspicilia* sp. 2**— (2), granite, *JRR 1907*. Thallus angular-areolate, areoles very irregular, 0.5–1.0 mm, greenish brown, K-; apothecia filling the areoles, black, lightly pruinose; disk plane, rim white-pruinose.

***Buellia* cf. *aethalea* (Ach.) Th. Fr.**— (4), lava, *ST 36317*. Thallus ash-gray or brownish, areolate, areoles contiguous, plane, K+ red; apothecia immersed (TJ; Thomson 1997).

***Caloplaca arenaria* (Pers.) Müll. Arg.**— (1),(2),(3), granite, *JRR 1915*, *ST 36222*. Endolithic; thallus nearly lacking; apothecia rust-red, convex, thalline rim concolorous, sometimes disappearing (Ryan and Nash 1991; syn. *C. lamprocheila* [DC.] Flagey; see also Nimis 1993).

***Caloplaca decipiens* (Arnold) Blomb. & Forss.**— (2), *JRR 2103*. Orange thallus, lobate margins, labriform soredia on lobe tips (TJ).

***Caloplaca pellodella* (Nyl.) Hasse**— (4), lava, *ST 36291*. Thallus dark gray to black, non-lobate; apothecia yellow, orange, or red-brown, exciple black (TJ; Wetmore 1996).

***Caloplaca saxicola* (Hoffm.) Nordin**— (4), lava, *ST 36290*; (1), rock, *JRR 2109*. Dull red-orange, lobate thallus, lobes <0.5 mm wide, not broad and flat at tips; surface smooth, often ± pruinose (Hale and Cole 1988; Bowler and Riefner 1990; Bratt 1993; Thomson 1997; Wetmore and Kärnefelt 1998).

***Caloplaca trachyphylla* (Tuck.) Zahlbr.**— (2), granite, *ST 36247*, *JRR 1916*. Thallus lobate, red-orange to yellow (often on same thallus); upper surface rough; colony often >10 cm diam., lobes 0.7–1.3 mm wide, broad and flat at tips (TJ; Hale and Cole 1988; Wetmore and Kärnefelt 1998).

***Caloplaca* sp. 1**— (2), rock, *JRR 1914*. Thallus endolithic; apothecia orange; disk plane to convex, 0.5–1.2 mm, roughened; thalline rim concolorous, slightly raised.

Caloplaca sp. 2— (1), rock, *JRR 2104*. Thallus predominantly endolithic, apothecia 1–1.2 mm, orange, plane to convex; rim concolorous with disk.

***Candelariella rosulans* (Müll. Arg.) Zahlbr.**— (1),(2),(3), granite, and (4), lava, *ST 36223*, *JRR 1917*, *WS 98010.19A*. Lemon yellow to gold rosettes; few apothecia seen (TJ; Wetmore 1983; Hale and Cole 1988).

***Collema crispum* (Hudson) F.H. Wigg.**— (1), granite, *JRR 2121*, *WS 98011.12* (immature; species questioned). Thallus to 1 cm; lobes 2–3 mm; margins wavy; lobulate isidia in center of thallus (TJ).

***Dermatocarpon* cf. *americanum* Vainio**— (1), rock, *JRR 2125* (in part), (4), in cracks in lava, *ST 36299*, *WS 98011.8A*. Gray to brown-gray squamules, ca. 5 mm–15 mm across, attached centrally, smooth below; perithecia immersed; thallus thin, lower cortex thick with some large cells; described from Mexico; this species has apparently not been reported in the literature for the United States or Canada. The anatomical differences separating this species from *D. miniatum* (L.) W. Mann are not clear (see Vainio 1926).

***Dermatocarpon reticulatum* H. Magn.**— (1), rock, *JRR 2125* (in part), (3), *WS 98010.13*. Lower side is granular or finely papillate (papillae 10–20 μm high X 25–30 μm wide), whereas that of *D. miniatum* (L.) W. Mann is smooth or has bumps 0.2–1.0 mm wide (TJ; Rosentreter and McCune 1992).

***Dimelaena thysanota* (Tuck.) Hale & Culb.**— (2), granite, *ST 36240*, *WS 98010.7*. Crustose brown thallus, with closely attached, radiate-lobate margin; K- P-; apothecia 0.5–0.9 mm, with flat, dark brown to black disk, the rim concolorous with the thallus; spores 2-celled, brown, thin-walled (TJ).

***Diploschistes scruposus* (Schreber) Norman**— (1), rock, *JRR 2209*. Small, pale gray to white, thick areolate to smooth, crustose thallus; apothecia black, to 2.0 mm, the disk somewhat sunken; spores brown, muriform; medulla C+ red (TJ).

***Endocarpon pusillum* Hedwig**— (1), soil and moss, *JRR 2217*; (3), *WS 98010.14A*; (4), lava, *JRR 1976c*. Tiny, light brown or gray squamules with margins appressed or only slightly raised; perithecia punctiform, containing algae, the opening black-rimmed and raised above the thallus (TJ; Bratt 1993).

***Fulgensia desertorum* (Tomin) Poelt**— (4), partly on lava, *JRR 1979*, *WS 98011.19B*. On rock or on sandy soil with moss and *Endocarpon*; tiny granular or warty-

scaly, orange-yellow thallus with rough upper surface; schizidia present (small scales breaking off upper surface as propagules); thallus K+ purple; apothecia usually lacking in California material (no previous published reports for California).

***Heppia lutosa* (Ach.) Nyl.**— (1), *JRR 2159*, (3), soil *ST 36280*, *WS 98010.12A*, (4), lava *JRR 1990*. Minute, round, olive to blackish or brown squamules, with granular-crenate margins; surface roughened; lower cortex lacking; apothecia immersed, one to several per squamule; disk red-brown; photobiont is *Scytonema*, a filamentous cyanobacterium with short cells and parallel crosswalls; 8 spores per ascus (TJ).

***Lecanactis* sp.**— (2), granite *ST 36264B*. Black lecideine apothecia 0.3–0.8 mm; scant crust on granite; photobiont is *Trentepohlia*, a green alga that is golden rather than grass-green.

***Lecanora garovaglii* (Körber) Zahlbr.**— (2),(4), rock, *ST 36252*, *WS 98010.9*. Light green, ± pruinose, crustose, with plicate (folded) lobate margin; apothecia with flat, yellow to tan to brownish disk; raised exciple concolorous with thallus (TJ).

***Lecanora muralis* (Schreber) Rabenh.**— (2),(4), *ST 36251*, *JRR 1921*, *WS 98011.20*. Light gray-green crust with lobate margins; areoles white-bordered; apothecia with yellow-brown to red-brown disk and exciple concolorous with thallus (TJ).

***Lecidea* cf. *atrobrunnea* (Ramond *ex* Lam. & DC.) Schaerer**— (1), rock, *JRR 2237*. Crust of dark brown areolae with black edges; hypothallus black; apothecia black, 0.5–1.5 mm, without contrasting margin (TJ; Hale and Cole 1988).

***Lecidea* sp.**— (2), granite, *ST 36264A*. Scant crust with flat, black apothecia to 1.0 mm; scant crust; epihymenium bluish, hypothecium pale tan.

***Lichinella nigritella* (Lettau) Moreno & Egea**— (3),(4), *ST 36278B*, *WS 98010.10*. Tiny, black tufts on rock. Apparently sterile, with upright, flattened lobes over 1.0 mm broad, with broad, crinkled surface, and on occasion bearing globose, laminal, isidia-like outgrowths (TJ).

***Lobothallia alphoplaca* (Wahlenb.) Hafellner**— (1),(2), granite, (4), lava, *ST 36227*, *WS 98011.8A*. Dull brown to yellowish gray crust with lobate margins; lobes swollen and moderately long, usually white-pruinose, loosely attached to rock; medulla K+ yellow to red; apothecia 0.8–2.5 mm with red-brown to black disk; rim concolorous with thallus, becoming flexuous (TJ, as *Lecanora*).

***Lobothallia praeradiosa* (Nyl.) Hafellner**— (4), lava, *ST 36308*. According to Ryan and Nash (unpublished Sonoran Desert keys) this species differs from *L. alphoplaca* by having less convex, longer lobes that are reddish brown to reddish gray and tightly attached; they report that it is common, widespread, and variable (there are apparently no previous published reports from California).

***Melanelia tominii* (Oksner) Essl.**— (2), rock, *WS 98010.3*. Brown, foliose thallus with pseudocyphellae on upper surface; with soralia; C+ rose or red (cited as *M. substygia* (Räsänen) Essl. by Ryan and Nash 1991).

***Neofuscelia loxodes* (Nyl.) Essl.**— (2), granite, *ST 36257*, *JRR 1924*. Brown, foliose thallus with hollow pustular isidia; medulla C-, K-, KC+ red fading to dingy orange (TJ).

***Peccania* sp.**— (1),(3), granite, (4), lava, *ST 36225*. Forming tiny black cushions on rock or on soil over rock, often in small depressions; with numerous fine branches attached at a single point; sterile; photobiont is *Gloeocapsa*, a cyanobacterium. *Peccania arizonica* (Tuck.) Herre was reported for the Santa Cruz Peninsula (Herre 1942).

***Peltula euploca* (Ach.) Poelt**— (1), rock, *JRR 2148*, (2), *JRR 1929*, (4), *ST 36303*, *WS 98010.23*. Gray to tan, peltate squamules, 3 to 10 mm, with thick, down-rolled, finely sorediate margins; fairly common; apothecia may be present as dots on surface (TJ; Hale and Cole 1988).

***Peltula obscurans* (Nyl.) Gyelnik**— (1),(2),(3),(4), soil, *ST 36228*, *JRR 1983*. Squamules olive brown, to 2 mm, margins lobed and wavy; 1–3 apothecia per squamule, orange, jelly-like, without margin. In *Peltula obscurans* var. *obscurans* the hymenium is K+ red-violet, whereas in var. *hassei* (Zahlbr.) Wetmore it is K-, and the thallus is deeply lobed and dissected (TJ).

***Peltula omphaliza* (Nyl.) Wetmore**— (2), rock, *ST 36258*. Thallus brown or black, peltate; medulla loose; several immersed apothecia per squamule; disk exposed; esorediate; epithecium K+ red-violet (TJ).

***Physcia caesia* (Hoffm.) Fürnr.**— (2), granite, *ST 36260b* (TJ; Hale and Cole 1988).

***Physcia dubia* (Hoffm.) Lettau**— (1), rock, *JRR 2152* (TJ; Hale and Cole 1988).

***Physcia phaea* (Tuck.) J.W. Thomson**— (1), rock, *JRR 2154*, (2), *ST 36261*, *WS 998010.6A* (TJ; Hale and Cole 1988, Bratt 1993, Moberg 1997, Bratt 1997, Wright 1997).

***Physcia tribacia* (Ach.) Nyl.**— (2), granite, *ST 36260a*. Shiny, narrow lobes with soredia on the lower side, cortices paraplectenchymatous (as *P. callosa* Nyl. in the following references: TJ, Hale and Cole 1988, Doell and Wright 1996; see Moberg 1997).

***Placidium andicola* (Breuss) Breuss**— (3), soil, *JRR 1944*. Squamules red-brown, 1.5–3 mm, the edges black with black marginal pycnidia; lower surface dark, rhizohyphae light; rhizines lacking; perithecia lacking. A new record for California (see Breuss and McCune 1994; Breuss 1996; syn.: *Catapyrenium andicola* Breuss).

***Placidium lacinulatum* (Ach.) Breuss**— (1),(2),(3),(4), soil, *ST 36224B*, *JRR 1909*, *JRR 1913*, *JRR 1939*; (4), lava flow, *JRR 1976*. Brown squamules, to 5 mm, some blackening, not pruinose, attached below by pale rhizines and weft of hyphae; some squamules lobed, the lobes ± 1 mm across; edges mostly plane, some undulate, some appearing frosty; perithecia sunken within squamules (Breuss 1996; syn.: *Catapyrenium lacinulatum* (Ach.) Breuss).

***Placidium squamulosum* (Ach.) Breuss**— (1),(2),(3),(4), soil, *JRR 1911*, *JRR 1988*, *ST 36224A*. Brown squamules up to 6 mm, edges lobed, not pruinose, attached below by hyphal weft; rhizines not thick; squamule margins not finely divided; perithecia sunken; pycnidia on lamina of squamules. Common here, but there are apparently no previous published reports from California (Breuss 1996; syn.: *Catapyrenium squamulosum* (Ach.) Breuss).

***Pleopsidium chlorophanum* (Wahlenb.) Zopf**— (1),(2),(3),(4), *ST 36229*, *JRR 2096*, *WS 98010.20A*. Bright yellow crust, very common; margin slightly lobate; apothecia red-brown, sunken, 0.4–0.9 mm (TJ, as *Acarospora*).

***Polysporina simplex* (Davies) Vězda**— (3), *ST 36283*, *JRR 1934*. Scattered black apothecia often in rock crevices, with scant thallus; apothecia with dark, central umbo and radially cracked margin, the cracking becoming more obvious with age (TJ, as *Sarcogyne*; Bratt 1987).

***Psora decipiens* (Hedwig) Hoffm.**— (1), soil, *ST 36230*, *WS 98011.17A*. Large pink squamules; apothecia marginal, black (Timdal 1984, 1987; Hale and Cole 1988; TJ, as *Lecidea*).

***Psora globifera* (Ach.) A. Massal.**— (1), rock, *JRR 2157*, (2), rock, *JRR 1902*, (4), soil, *ST 36313*. Thallus of red-brown to dark brown, fissured, waxy squamules; medulla K-; apothecia dull red-brown, laminal (Timdal 1987; TJ, as *Lecidea*).

***Psora russellii* (Tuck.) A. Schneider**— (4), soil, *JRR 1985*. Squamules reddish brown, fissured; apothecia dark brown, convex; medulla K+ yellow turning red (Hale and Cole 1988; TJ, as *Lecidea*).

***Rhizoplaca chrysoleuca* (Sm.) Zopf**— (1), rock, *JRR 2228*, (2), *WS 98010.1*. Subfoliose, light green, attached at a single point; apothecia abundant with yellowish tan disk and concolorous flexuous exciple (Hale and Cole 1988; Ryan and Nash 1991; McCune 1987; TJ as *Lecanora*).

***Rhizoplaca melanophthalma* (DC.) Leuckert & Poelt**— (2), rock. *WS 98010.8A*. Peltate; apothecia turning blackish (TJ, as *Lecanora*).

***Rinodina confragosa* (Ach.) Körber**— (2), rock, *ST 36253*. Gray-brown, K+ yellow crust; apothecia with brown disk and thick, prominent, crenulate, lecanorine exciple (TJ).

***Spilonema revertens* Nyl.**— (1), *JRR 2099*, (2),(4), rock, *ST 36265*. Tiny black clumps, 5–15 mm wide and 6 mm high, with numerous narrow filamentous branches; rhizohyphae present; photobiont *Stigonema*, a filamentous cyanobacterium; no apothecia seen (Hebert and Meyer 1984; Weber et al. 1987; Herre 1910, as *Ephebe solida* in part; TJ).

***Toninia sedifolia* (Scop.) Timdal**— (1), moss, *ST 36232*, *JRR 2162*. Thallus swollen, folded, greenish gray, faintly pruinose; apothecia black with proper exciple, to 1 mm, slightly convex (Timdal 1991; Bratt and Wright 1995).

***Umbilicaria phaea* Tuck.**— (1),(2),(4), rock, *ST 36233*, *JRR 2233* (TJ; Hale and Cole 1988).

***Verrucaria fuscella* (Turner) Winch**— (1), rock, *ST 36218A*. Brown, areolate to squamulose crust with perithecia buried in areoles (TJ).

***Xanthoparmelia cumberlandia* (Gyelnik) Hale**— (1), rock, *JRR 2169*. Apotheciate (TJ; Hale and Cole).

***Xanthoparmelia lavicola* (Gyelnik) Hale**— (4), rock, *WS 98011.13*. K-, Py; globose to irregularly inflated isidia (McCune and Geiser 1991).

***Xanthoparmelia mexicana* (Gyelnik) Hale**— (1),(2),(4), *ST 36234*, *WS 98010.2*. Medulla K+ red, C-; isidiate; tan to brown below (TJ; Bratt 1987; Hale and Cole 1988; Bowler and Riefner 1990).

***Xanthoparmelia plittii* (Gyelnik) Hale**— (4), *ST 36316A*. Cortex and medulla K+ yellow, C-; isidiate, tan to brown below (Hale and Cole 1988; Ryan and Nash 1991; Von Reis 1991, as *X. kurokawae* [Hale] Hale).

***Xanthoria mendozae* Räsänen**— (1), *JRR 2168*, (2), *ST 36269*. Rare, in rock crevices; orange to gold; foliose, with soredia along edges on lower side (Lindblom 1997).

Acknowledgements

The California Lichen Society thanks the staff at the Sweeney Granite Mountains Desert Research Center for their help in setting up this field trip, and Jim André in particular for hosting our visit and helping with the vascular plant identifications. I also thank Shirley Tucker and Judy Robertson for their many hours spent making these determinations, William Sanders for taking the time to add to our collections just before departing for Brazil, and Isabelle Tavares for critical editing.

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NEWS AND NOTES

(compiled by Judy Robertson)

Donors and Sponsors

We would like to recognize the following members of CALS who subscribed in 1999 at the Donor or Sponsor level.

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Stella Yang and Stephen Buckout

Field Trips

San Francisco Watershed, Crystal Springs Lake, January 23, 1999

Eighteen people participated in the second CALS field trip to the San Francisco Watershed in San Mateo county. Members of the Society were Doris E. Baltzo, Susan Crutchfield, Bill Hill, Barbara Lachelt, Judy and Ron Robertson, Adah Bakalinsky, and Marck Menke. Others participants connected with either the California Native Plant Society (CNPS) or the California Academy of Sciences were Helenjean Bowie, Phillip Gerrie, Tom Griggs, Daniel Jacob, Les Loeder, Greg Maffei, Mary Mitchell, Jean Ouellette and Gary Weiss. Dr. Bill Freedman of the SF Mycological Society met the group at the Cahill Gate to the quarry at the south end of Crystal Springs Lake. Investigation of lichens started at the gate's surrounding vegetation, proceeded to some old corrugated metal roofs and then to the crumbling walls of the quarry. A walk uphill then passed through a planted Monterey Cypress forest to the top of Cahill Ridge. The list of lichens collected is being prepared and will appear in a subsequent issue of the Bulletin.

Pepperwood Ranch Natural Preserve, Sonoma County, February 20, 1999

Thirteen hardy individuals met on a rainy Saturday to explore this property owned by the California Academy of Sciences of San Francisco. Pepperwood Ranch Natural Preserve (approximately 3000 acres) includes Oak woodland, Douglas Fir forest, Tan-oak–Redwood forest, serpentine chaparral, grassland, riparian woodland, marshes and rock outcrops. Located only 30 minutes away from Santa Rosa, the preserve is rich in lichens. Almost 100 foliose, fruticose and crustose species have been identified, with many more crustose species waiting for identification. In the morning we explored the serpentine chaparral by Hume Observatory finding the rare *Teloschistes exilis* with *Teloschistes chrysophthalmus* on the chaparral shrubs, the little-seen *Hypotrachyna revoluta* in good numbers, as well as *Parmeliella cyanolepra*, *Normandina pulchella*, and many other foliose and fruticose species. After a lunch in the barn, protected from the rain, a few remaining individuals explored the rock outcrops above Bechtel Cabin to find *Psora tuckermanii*, *Peltula euploca*, *Dermatocarpon intestiniforme*, *Thelomma mammosum*, and *Trapeliopsis wallrothii*, as well as many other crustose species. Attending were Dr. Rudi Becking from Arcata, Jerry Cook and a friend, members of CNPS from Ukiah, Susan Crutchfield, Debra Gillespie, Bill Hill, Dr. Chris Kjeldsen from Sonoma State with his wife, Mikki McGee, Rose Rhodes from the CNPS, Judy and Ron Robertson, and Darrell Wright from Arcata.

Marine Algae of San Francisco Bay, February 27, 1999

CALS members Cheryl Beyer, Richard and Janet Doell, Bill Hill, Barbara Lachelt, Mikki McGee, and Darrell Wright attended the California Native Plant Society's marine algae field trip to Fort Point, San Francisco. CALS member and phycologist par excellence Dr. Richard Moe of the University Herbarium, University of California, Berkeley, led the walk, and had nearly everyone following into the water. The trip was very interesting, with

fine weather. Dr. Moe brilliantly and interestingly discussed the diversity, life histories and sexuality (they are indeed "sexy") of attached algae there, including (for the CALS members) a *Verrucaria sp.*, the subaerial alga *Trentepohlia* on the fort walls, and the peculiar green alga *Blidingia minima* var. *vexata* (Setchell & Gardner) J. Norris, which is "vexed" by a fungus with small perithecia, *Turgidosculum ulvae* (Reed) Kohlmeyer & E. Kohlmeyer, that produces a blackening of the alga. The combination is sometimes regarded as a lichen, but as the algal thallus is hardly modified, it might also be considered a parasitized alga. The type locality for *Blidingia minima* var. *vexata* is Fort Point. Many California algae have the Golden Gate as type locality, because San Francisco is/was a popular stopping place for expedition ships.
— Mikki McGee

San Simeon State Park, San Luis Obispo County, April 17–18, 1999

Janet and Richard Doell, Barbara Lachelt, Bill Hill, Mikki McGee, Ron and Judy Robertson, Mona Bourell, Shirley and Ken Tucker and Deb Hilliard, unofficially of California Fish and Game, met the San Simeon staff of Greg Smith, Resource Ecologist, Regina Orr, Revegetation Monitoring Specialist, and Jackie Petrasich, Park Aide, at 9am at the San Simeon State Park campground for a day of exploring the Park to begin compilation of an inventory of the lichens present. The morning was spent collecting lichens in the southernmost indigenous colonies of Monterey pine. Deb explained the ecology of the Pine Pitch Canker that is killing many Monterey Pine stands worldwide. After lunch we headed to a rock outcrop surrounded by poison oak but host to many species of crustose lichens. In the late afternoon we were treated to a tour of the outside of Hearst Castle to look at the lichen growth on ornamental rocks, statuary, trees, and shrubs, as well as those on native rocks.

In the evening we had a pot luck of snacks, salad, Mona's delicious Exotic Rootcrop Burritos and cookies in the Park Headquarters. After the dinner, Greg presented a slide show of the wildlife resources at the Park. On Sunday morning we collected at various sites in the Park. The list of the lichens collected will appear in a subsequent bulletin.

Lincoln Park, Saturday, May 15,1999

CALS members Doris Baltzo, Bill Hill, Barbara Lachelt, Mikki McGee, and Ron and Judy Robertson examined the lichen flora in the area north of the Palace of the Legion of Honor, in Lincoln Park Golf Course. The 3rd Fairway rough was well examined, as was the paved approach alongside the 4th Green, and the Japanese Monument east of the Palace and adjacent to tee 17. Also present were John Fedorchek, Steve Hatch, an avid birder, and Lynne Skrabak, a member of the California Native Plant Society.

Trentepohlia and other subaerial algae are common and conspicuous in the area and many of the crustose species present had *Trentepohlia* phycobionts. Mikki McGee, who led the walk, talked about the interaction of fungus and subaerial algae in this very wet and windy area .

After lunch Mikki, Bill, Judy, Ron, and Lynne met at Room 104, Hensill Hall at San Francisco State University for an interesting microscope and lichen identification session. Mikki had prepared slides from the lichens collected earlier in the Lincoln Park area. Staining and excellent preparations allowed the participants to see clearly the microscopic characters of algae, fungi and combination of the two in lichens.

We are evaluating the possibility of putting together a preliminary list of the lichens here, for future reference, as Lincoln Park provides remarkable habitats close to the locations of the Fungus Fairs and is an easily accessible area for observation of interesting lichens. CALS wishes to express gratitude to the SFSU Biology Department, and to Dr. Dennis Desjardin for their long-continuing support of our group and for the use of the facilities.

Talks

Seminar by Dr. Larry St. Clair
Friday, March 5, 1999, University Herbarium, University of California, Berkeley

"Air pollution effects on lichen communities along the heavily populated Wasatch Front of north central Utah" was the topic of a seminar given by Dr. Larry St. Clair of Brigham Young University. Dr. St. Clair outlined the results of many years of research establishing baseline levels of toxins and subsequent periodic monitoring results to provide valuable information for evaluating the levels of air pollution not only along the Wasatch range but in other areas of Utah, Idaho and Arizona. This information will enable better direction for planning future industrial growth in these areas. Following the seminar, CALS hosted a reception in the Herbarium entrance area.

Seminar by Dr. David Richardson
Tuesday, March 30, 1999, University Herbarium, University of California, Berkeley

Professor David Richardson, Dean of Science at St. Mary's University in Halifax, spoke on "War in the World of Lichens". The seven points outlined by Dr. Richardson in this interesting exploration of lichen biology and

partner interaction were "Parasitism and Symbiosis", "Algal Slaves", "Exploitation of Two Kingdoms", "Alien Invaders", "Cozy Niche Seeker", "Take-Over Specialist" and "Future Prospects". Dr. Richardson is author of *The Vanishing Lichens* and *Pollution Monitoring with Lichens*. After the seminar, participants met in the herbarium lobby for a time of talk and refreshments.

We are grateful to the University Herbarium for providing facilities for this talk.

Usnea update–I

A good example has come to our attention of what may happen when one trusts one's memory and does not "look it up." The following corrections should be made in Bulletin of the California Lichen Society:

Vol. 4:20. 1997. *Usnea scabrata* Nyl. is correct for the last line in 9' in the key to *Usnea* species.

Vol. 5:36. 1998. *Usnea scabrata* Nyl. is correct for the fourth line from the bottom in the first column.

In the construction of a key for determination of species, it is helpful to use more than one character to facilitate choice of the appropriate alternative. Because specimens are sometimes longer and more pendent than usual, or shorter and more shrubby, those "keying out" unknowns in the *Usnea* key, vol. 4:19, may find that the characters in the final choices do not seem to match those of the specimen being identified. If so, possibly the alternate route through the key might lead one to the correct choice. In addition to variations in length, there may be an unusual amount of fibril formation that is not suggested in the key, or the papillation may be unusually sparse, even though of the typical size and shape for the species. Furthermore, we sometimes encounter an unusual collection with unexpected characteristics: for example, a short, apotheciate, non-soraliate morphotype of *Usnea californica* Herre was found in a mixed collection kindly lent from the herbarium at the California Academy of Sciences (CAS), San Francisco (on windfall, Arcata, Humboldt Co., California, J. W. Howe, 28.I. 1936 [Dudley Herbarium 629644]). The material resembled *Usnea arizonica* Motyka, and had been annotated as this species, but the medulla was denser and somewhat pink-tinged; diffractaic acid was present.
— Isabelle I. Tavares

UPCOMING EVENTS

Workshops for Fall 1999

All workshops will be held from 10am to 4pm in Room 401 Hensill Hall of San Francisco State University. Please wait at the south door. For more information please contact:

Judy Robertson,
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Santa Rosa, CA. 95407
JKSRR@aol.com
707-584-8099

September 11, 1999
Focus: "Morphology of Foliose and Fruticose Lichen Genera and Use of Keys". If you are just beginning your study of lichens, this workshop will introduce the new "lichen language" you encounter and help you learn how to use lichen keys. For more experienced members, this is an opportunity to bring your specimens to compare with the SF State Herbarium specimens or to help curate the many unidentified ones in the herbarium. Both dissecting and compound microscopes will be available.

October 16, 1999
Focus: "Squamulose Lichens". This workshop will be an introduction to squamulose lichens. We will use various keys to examine and identify members of this interesting group of lichens. If you have specimens you would like to identify, please bring them to the workshop.

November 13, 1999
Focus: "Picture-Book Microscopic Images". When the microscope is properly focused and the specimen has been appropriately mounted for clarity, picture book images are available from most good microscopes. Come learn how easy it is. Driving cars is much harder, and French Cooking much more complicated. Presented by Mikki McGee.

December 11,1999
Focus: "Lichen Identification/Use of Keys/Specimen Preparation". This workshop will be an opportunity to identify your own specimens using high quality dissecting and compound scopes. We will use a variety of lichen keys, observe herbarium specimens for comparison and identification, and discuss specimen preparation and storage.

Scheduled Field Trips

August 14–15, 1999 (Saturday and Sunday) Horse Mountain-Samoa Dunes Field Trip, Humboldt Co. We will visit these two famous *Bryoria-Alectoria* localities (see *Alectoria lata*, *Bryoria spiralifera*, etc. in I. Brodo and D. Hawksworth, *Alectoria* and allied genera, Opera Botanica 42:1–164, 1977) There are also two *Cladina* species on the Samoa Dunes, one possibly not reported for California; can we find it again? Darrell Wright will lead. Camping is available at Patrick's Point State Park and at Clam Beach and Big Lagoon County Parks on Highway 101 north of Arcata. The State Parks reservations number is 1-800-444-7275. The county parks are "first come-first served". There are also 7 motels in the Arcata area. We will meet at 4517 Valley West Blvd., #C at 10am Saturday morning. Take the Giuntoli Lane exit from U.S. 101 just north of the Highway 299 exit 1 mile north of central Arcata, turn east on Giuntoli Lane and south on Valley West Blvd to 4517 Valley West in the apartment complex at the end of the street. Participants will be responsible for their own meals. We plan to meet together Saturday evening. For motel names and telephone numbers or any other questions, contact:

Darrell Wright
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Arcata, 95521
dwright3@jps.net
707-825-0779

PRESIDENT'S MESSAGE

My lichen collecting began in January 1997 with the CALS field trip to Wantrup Preserve in Napa County. Since then I have had the wonderful opportunity to attend many field trips offered by our society. That first trip was filled with the frustration of trying to remember names of lichens so easily identified by others. With each field trip I have built upon a rising foundation of knowledge. Thanks to the mentors in CALS less often do I have to remind myself of the name of this or that lichen. I am thankful for my husband Ron who is an avid collector and who has an eye for the unusual. In our travels I am learning that we can take nothing for granted. Just because we have seen certain species of lichens on one rock we can't expect the same ones on the next outcrop only a few feet away. We are in for a surprise. So many times the next tree or next outcrop is the home of something new. In this issue of our *Bulletin* we are honoring Sylvia Sharnoff. I knew Sylvia for only a short while but I was impressed with her vitality and her spirit. To search, to expect the unexpected, to look for the surprises: the study of lichens affords all of these goals. Building stage by stage to become familiar with the common lichens and then to add to that knowledge a new species, a new location, a new interaction. That is the delight of what we do. I believe that was the delight Sylvia shared with us in her love of lichens and the outdoors and the beauty of life. I hope CALS can serve as a place for beginners to meet with mentors who can help in this discovery and I hope CALS can serve as a place where advanced lichenologists can participate and encourage this discovery of the beauty and uniqueness of our world of lichens.

Judy Robertson

The Bulletin of the California Lichen Society

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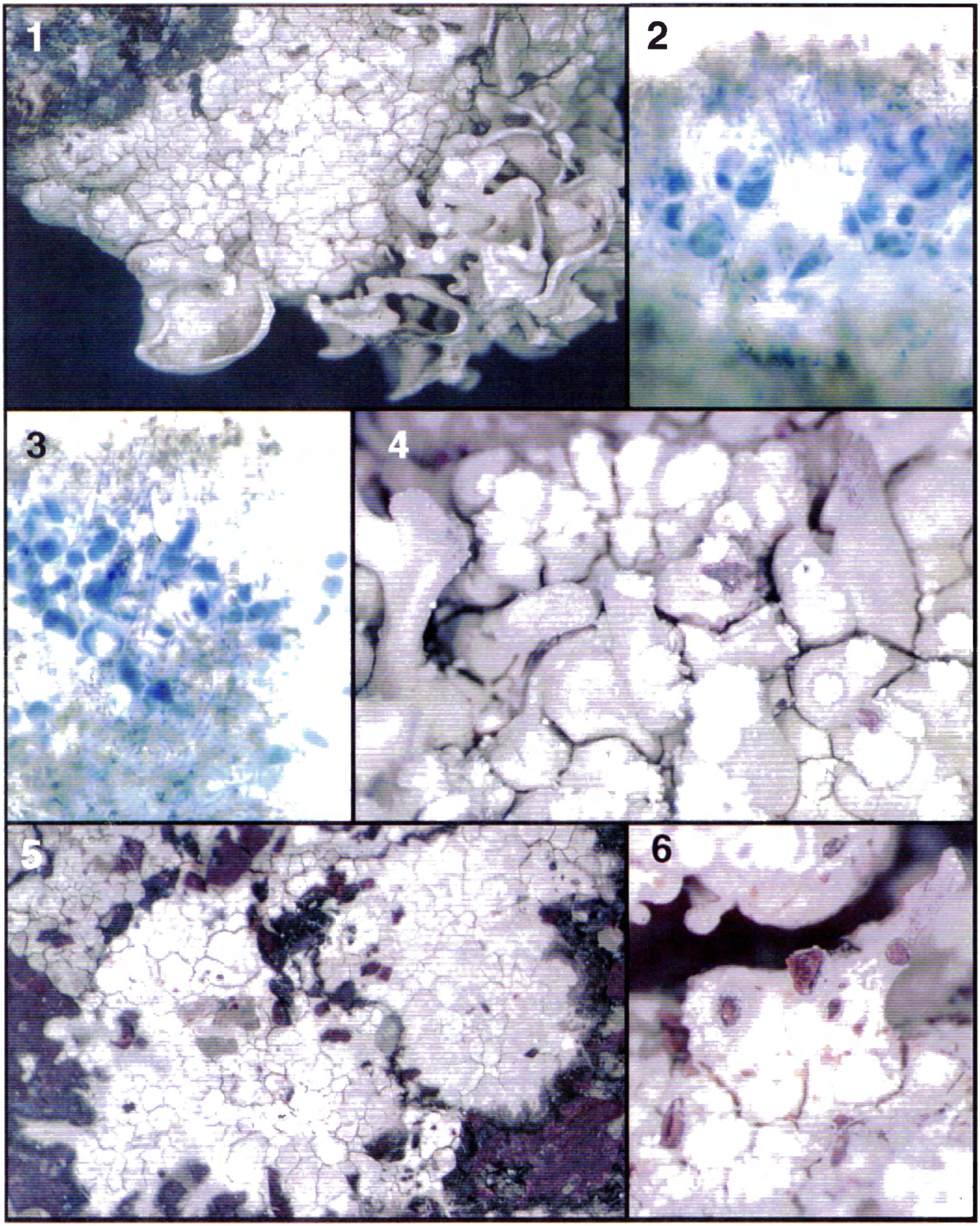
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