Scotia material was very badly affected with the tissues collapsing into a shapeless black mass before it was properly dried. This is the best species in which to observe the "apparent amyloid" reaction. It is found in certain strands of hyphae which can be traced through the context of the pileus and spines, and there is a layer of them beneath the hymenium. In this species the amyloid reaction might be considered to be associated with certain hyphae starting to break down in old specimens. However, the same reaction is found in young carpophores of *H. cruentum*. The "apparent amyloid" reaction in this species is associated with a bluish-green reaction in KOH.

It is probable that this species is the same as *H. longidentatum* Coker, a nomen nudum because of the lack of a validating Latin description. Coker's type is a partly decayed carpophore with a broken fragment of a stipe. To avoid any possible confusion because of the inadequate material the Carolina collection is being disregarded in favor of the Tennessee collection, most of which is in excellent condition and contains several complete carpophores with attached stipes. A good description of the fresh material is also available. This species belongs to the stirps cruentum.

Hydnellum cyanopodium K. Harrison, sp. nov.

Pileus 4–8 cm latus, lobatus, sublilaceus, ad marginem albidus et rubro-guttulatus; caro dura, suberea, zonata, zonis atrocaeruleis; odor aromaticus; sapor subamarus. Aculeae usque 3 mm longae, subdecurrentes, caeruleo-vinaceae. Stipes 2–5 cm longus, 1–2 cm crassus, radicatus, solidus, caeruleo-atratus. Sporae 4–5 × 3.5–4.5 μ, angulares. Hyphae fibulatae. Typus: Sm 9006 (MICH).

Pileus 4–8 cm broad, very irregular, lobed, surface scrupose, ridged, color dark "bluish vinaceous" changing to lavender and then whitish at the margin, and beaded with droplets of red juice; context woody, corky, zoned, bluish-black; taste disagreeable, odor heavy aromatic, disagreeable. Spines up to 3 mm long, slightly decurrent; "grayish violet blue" soon darker "vinaceous blue" (brownish rather than a purplish shade) glaucous. Stipe 2–5 × 1–2 cm, rooting, lateral to eccentric tapering downwards, solid, surface unpolished, deep bluish-black, concolorous within, base white mycelioid (only one root present and it was muddy, but a whitish surface was apparent in several spots).

Spores 4–5 × 3.5–4.5 μ, angular, cruciate with four to six stout processes. Large medallion-type clamps present. KOH turns flesh of stipe, pileus, teeth blue-green. In Melzer's reagent the dark color of granular material associated with the hyphae intensified, making it possible to trace hyphae through sections of the context. The same reaction showing up clearly in the context of the spines.

Habit, habitat, and distribution: Solitary, gregarious, or concrescent under Sitka spruce and pine, Crescent City, California.

Material examined: California, Sm 9006. Type.

This is an interesting species which together with *H. cruentum* and *H. scleropodium* makes the new stirps cruentum. The spores of the three species in the group are identical and Dr. A. H. Smith in his field notes of the California species used the same comparison "the spores resemble jacks" as used

by Harrison (1961) in describing *H. cruentum* in Nova Scotia. The stirps is marked by abundant red juice on young plants, the bluish shade of the maturing spines, and a peculiar odor which was referred to as "medicinal" by Harrison for *H. cruentum* and "aromatic" by Smith for this species. The western species has a very rough surface, is darker colored, and has a bluish-black context while *H. scleropodium* is smoother and the dominant color is pallid with only a little blue in the light-colored flesh. In KOH the blue-green reaction is associated with the bluish color of the flesh and in *H. scleropodium* the color change is not as distinct. Likewise, Melzer's reagent clears the sections and intensifies the colored walls in the bluish areas much more strongly in the California species than in the other two.

Hydnellum cruentum K. Harrison

Stipitate Hydnums of Nova Scotia. p. 37. Ottawa, 1961.

The pileus is "light vinaceous cinnamon" to "orange cinnamon" to "snuff brown" and "russet"; with the spines "dark dull bluish" when young, then "grayish blue violet" to "dark dull bluish violet" and "dark dull violet blue". Spores 4.5–5 × 3.5–4.5 μ, oblong, cruciate, nodulose tuberculate, with very large nodules. Basidia 5–6 × 35, sterigmata 4 μ long. Hymenium up to 50 μ thick. Hyphae of the spines 2.5–4 μ, compact. Hyphae of the pileus 4–6 μ wide, flexuous and parallel. All hyphae and basidia have large clamps, and in the pileus one measured 8 μ long by 6 μ wide. The bluish tissue turns blue-green in KOH and granules on the cell walls dissolve. The granules remain blue-green when an aqueous solution of Congo red is used as a counterstain. The flesh of this species is brittle and sections poorly. In Melzer's there are hyphae in the context and spines which are "apparent amyloid".

Hydnellum cyanodon K. Harrison, sp. nov. Fig. 9

Pileus 3–6 cm latus, turbinatus et convexus, irregularis, interdum planus vel concavus, ad marginem elevatus, zonatus, tomentosus griseo-brunneus vel fuscus, ad marginem, pallidiore; caro compacta, brunnea, zonata; sapor mitis; odor medicantis. Stipes deorsum attenuatus, tomentosus, badius; caro incarnatobrunnea, zonata. Aculeae 1–5 mm longae, decurrentes, confertae, ad apicem purpureo-griseae. Sporae 4–5(5.5) × 3.5–4.5 μ, pallide brunneae, subglobosae, tuberculatae. Typus: KM 4871 (DAOM et MICH).

Pileus 3–6 cm broad, turbinate, irregularly convex becoming plane to concave, uneven to colliculose; surface fibrillose becoming matted to glabrous; disc "russet" to "brick red" and changing unevenly to dusky drab to "dark slaty brown"; margin lighter colored, fibrillose, thick, uneven; context compact, sessile, dark brown with slightly darker zones; odor slightly medicinal, taste slight, similar. Spines up to 5 mm long, close, many fused, decurrent to a line, indigo colored with lighter fimbriate tips. Stipe 2.5–4 × 1–1.5 cm; tomentose, tapering downward to a pointed root; surface chestnut-brown, context brownish, zoned, base rusty indigo.

Spores 4–5(5.5) × 3.5–4.5 μ, dark, mostly 4 μ wide but varying in length, with four to six low tubercules, apiculus prominent. Basidia 4–5 × 20 μ, 4-spored, sterigmata 3–3.5 μ long. Hyphae of context of pileus 3–4 μ wide, flexuous, parallel, septa far apart, no clamps seen; spines and context dark colored in Melzer's solution, and numerous dark blue granules present on the