# TABLE OF CONTENTS

Itinerary xi

## OVERVIEW OF BLACK HILLS GEOLOGY AND GOLD DEPOSITS

Geologic setting, Black Hills, South Dakota  
J. A. Redden and A. L. Lisenbee 1

Gold deposits in the Black Hills, South Dakota  
C. J. Paterson, A. L. Lisenbee, and J. A. Redden  
(reprinted from WGA Guidebook, 1988) 10

Metallic mineral districts and mines of the northern Black Hills, South Dakota and Wyoming  
E. DeWitt and A. B. Wilson 20

Factors affecting the development of gold and silver mining in the Black Hills, 1875-1919.  
J. P. Gries  
(reprinted from 19th Annual Dakota History Conference, 1988) 31

Geochemistry of Laramide igneous intrusions, northern Black Hills, with implications for petrogenetic relationships and magma sources  
C. K. Shearer 35

## DAY ONE - Papers

Fluid inclusion characteristics of graywacke- and shale-hosted Precambrian gold-quartz veins, Black Hills, South Dakota: a preliminary compilation  
E. F. Duke, I. Akpinar, J. A. Burbank, and K. C. Galbreath 43

A view through an epithermal-mesothermal precious metal system in the northern Black Hills, South Dakota: a magmatic origin for the ore-forming fluids  
C. J. Paterson, N. Uzunlar, J. Groff, and F. J. Longstaffe  
(reprinted from Econ. Geol. Monograph 6, 1989) 53

The geology of the Gilt Edge gold deposit, northern Black Hills, South Dakota  
R. J. MacLeod and J. N. Barron 60

Ore paragenesis and fluids in the Gilt Edge deposit, South Dakota  
J. Groff and C. J. Paterson 67

## DAY ONE - Road Logs

Precambrian vein deposit (Bullion mine), igneous-hosted gold deposit (Gilt Edge), and geology of the central Black Hills: Road log  
J. A. Redden, A. L. Lisenbee, and R. J. MacLeod 73

## DAY TWO - Papers

The Homestake mine, Lead, South Dakota: an overview  
R. L. Bachman and S. W. Caddey 89

Structure and ore trend description of the Homestake mine  
L. F. Meier 95
Geology of Precambrian rocks in the Poorman anticlinorium and Homestake mine, Black Hills, South Dakota
H. Rogers

Petrogenesis of the Homestake iron formation, Lead, South Dakota: assemblages of metamorphism
R. L. Kath and J. A. Redden

Tertiary epithermal to mesothermal porphyry-related Au-Ag mineralization in the Homestake mine, Lead, South Dakota: mineral and metal zonation
N. Uzunlar, C. J. Paterson, and A. L. Lisenbee

DAY TWO - Road Logs
The Homestake iron-formation-hosted gold deposit: an introduction
C. J. Paterson

Homestake mine underground tour
H. Rogers

The Homestake iron-formation-hosted gold deposit, Lead: Road log for surface tour
R. L. Bachman and S. W. Caddey

DAY THREE - Papers
Controls on Tertiary epithermal gold-silver mineralization, northern Black Hills, South Dakota.
J. A. Redden

The relationship of gold and silver mineralization to alkalic porphyry and breccia, Golden Reward mine, Lawrence County, South Dakota
K. M. Emanuel, J. J. Wagner, and N. Uzunlar

Geology of the Annie Creek sediment- and porphyry-hosted gold deposit
J. F. Lessard and T. A. Loomis

Carbonate-hosted Au-Ag-Pb deposits, northern Black Hills
W. Montri and C. J. Paterson

DAY THREE - Road Logs
Sediment-hosted and igneous-hosted Au-Ag deposits at Golden Reward mine, Annie Creek / Foley Ridge mine, and the Ragged Top district: Road log
A. L. Lisenbee, T. A. Loomis, J. F. Lessard, and K. M. Emanuel

DAY FOUR - Papers
Diatremes and breccia pipes of the northern Black Hills, South Dakota - Wyoming
A. L. Lisenbee and W. M. Roggenthen

DAY FOUR - Road Logs
Breccia-hosted gold deposit (Richmond Hill) and paleoplacer quartz-pebble conglomerate Au-U deposit, Nemo area: Road log
A. L. Lisenbee, T. Duex, and J. A. Redden