A NEW H-3 CHONDRITE FROM STUDY BUTTE, TEXAS; K. Fredriksson*, R. S. Clarke, Jr.* and R. Pugh**, *Department of Mineral Sciences, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560, and **4617 N.E. 26th Ave., Portland, OR 97211

The single weathered individual, weighing 417 grams, was found on Sept. 30, 1983, by Mr. Tim Turrentine approximately 2.2km SSE of Study Butte, Texas (29° 18' 6" N, 104° 30' 0" W). It was recognized as a meteorite by one of us (RP) and subsequently obtained by the Smithsonian Institution. The name Study Butte has been submitted to the "Meteoritical Bulletin". Macroscopically the specimen was almost completely enveloped in dark brown fusion crust; only a small part had been broken off. The first cut showed numerous chondrules and a few irregular, both light and dark, fragments, in a mottled matrix. A preliminary chemical analysis gave ~31% total Fe (Table 1) indicating that the meteorite belongs to the H (high iron) group chondrites. Microscopic and electronprobe studies on polished thin sections revealed a highly chondritic structure and a great variation in olivine (Fa 0.1 to 26 with a PMD of ~50%) and orthopyroxene (Fs 1 to 16%) compositions. According to current criteria this meteorite is therefore of petrographic grade 3. The modal composition is 77% silicates, 5.5% FeS, 8.4% metal, and 9.3% "oxide", apparently mostly oxidized metal; thus the original metal content also indicates the H-group. The metal grains, often intergrown with sulphides, are complex; kamacite (~6% Ni, 0.4% Co), taenite (15-32% Ni) and tetrataenite (up to 57% Ni) have been identified. Thin sections reveal numerous lithic fragments, both light and dark, mostly finegrained and with compositions near that of ordinary H-chondrites. However, a small achondritic fragment (0.2 x 0.3mm) is unique; it has andesitic bulk composition (Table 1) and texture and contains diopsidic pyroxene and twinned plagioclase (~An40) in a glassy matrix. This chondrite is clearly a complex breccia and probably gas rich; further studies seem warranted.

Table 1. Composition of Chondrite from Study Butte; wt %

	Bulk	"Andesitic" fragment
SiO_2	34.9	57.-
Al_2O_3	2.00	17.-
FeO	26.0-	2.5
MgO	22.7-	5.5
CaO	1.73	9.-
Na_2O	0.69	5.-
K_2O	0.12	0.4
FeS	4.5	-
Ni [1)]	1.2-	-
SUM [2)]	94.3-	-
Fe_{Tot} [3)]	~31.--	-

Bulk, Mode (1221 points)	
Silicates	77.-
Metal	8.4
Troilite	5.4
Chromite	0.1
"Oxides"	9.3

1. Ni mostly in oxides.
2. Low summation due to weathering (Fe^{3+}, H_2O). Includes Cr_2O_3 0.48%.
3. Assuming 10% Ni in metal and "oxides".