imum; consequently, the results at 1 Mc/sec are probably not characteristic of zero frequency. It seems unlikely, however, that this explanation can fully account for the difference in temperature dependence between the experimental results and the theory. It is perhaps significant that the observed temperature dependence of $u_1(T)-u_1(0)$ is the same as that of the attenuation.[7,8] These questions will be discussed more fully in a later paper.

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PLATINUM AND IRIDIUM ABUNDANCES IN METEORITES*

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At the suggestion of Dr. E. M. Burbidge, Dr. G. R. Burbidge, Professor W. A. Fowler, and Professor F. Hoyle, we have carried out a determination of the abundances of platinum and iridium in meteorites. The purpose of the work was to obtain data for a more precise estimation of the abundance peak near mass 195 in the atomic abundance curve, since both the observed[1] and calculated[2] abundances for this interesting r-process abundance region were only approximate.

Platinum and iridium are concentrated primarily in the metal phase of meteoritic matter. Hence, platinum and iridium have been determined spectrographically on twenty-four iron meteorites and the metal phase of five chondritic stony meteorites. The procedures and the detailed results will be reported elsewhere.

The platinum and iridium averages of the iron meteorites and of the metal phases of chondrites are given in Table I. Also given in Table I are the maximum and minimum values, the early results of Goldschmidt,[3] and the ratios of platinum to iridium.

The chondritic metal-phase iridium average agrees quite well with the average metal-phase iridium abundance of 2.85 ppm which was obtained indirectly by Ehmann, Amiruddin, Rushbrook, and Hurst[4] from their neutron activation analyses of samples of five chondrites of known metal-phase content.

The averages for the iron meteorites are statistically weighted averages which take into account a "quantized" distribution of these elements (to be discussed in detail elsewhere) which we have observed within the broad concentration ranges as shown in Table I.

The ratios of platinum to iridium are the same, within the limits of error, for both the iron meteorites and the chondrites. This suggests that

Table I. Platinum and iridium in meteorites, in parts per million.

Description	Ir ppm	Pt ppm	Pt/Ir
	Iron meteorites		
Present work:			
Weighted average	3.7 ± 0.6	11.0 ± 1.3	3.0
Spread	0.3 - 15.3	0.5 - 29.3	
Goldschmidt[a]	4	20	
	Chondrites, metal phase		
Present work:			
Average	2.8 ± 0.4	8.5 ± 1.2	3.0
Spread	2.1 - 3.2	7.9 - 9.1	

[a]See reference 3.

Table II. Atomic abundances of platinum and iridium, Si = 1 × 10^6 atoms.

	$_{77}$Ir	$_{78}$Pt
Present work, based on iron meteorites	0.307	0.890
Present work, based on metal phase of chondrites	0.380	1.157
Clayton and Fowler,[a] calculated $N_r + N_s$	0.39	0.80
calculated N_r only	0.33	0.59
Suess and Urey,[b] interpolated values of Goldschmidt[c]	0.821	1.625
Cameron,[d] revision of Suess and Urey[b]	0.494	1.28
Clayton, Fowler, Hull, and Zimmerman,[e] revision of Suess and Urey[b]	0.328	0.650

[a]See reference 5.
[b]See reference 1.
[c]See reference 3.
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apparently no major fractionation has occurred between Pt and Ir in the evolution of the meteorites. The ratios are therefore particularly important abundance ratios.

Our atomic abundances of platinum and iridium are given in Table II, in accordance with the conventions of Suess and Urey.[1] The table also contains previous abundance estimates based on the original work of Goldschmidt,[3] and the recently calculated $N_r + N_s$ abundances of Clayton and Fowler.[5] In these calculations N_r is the relative proportion of the primary r process (synthesis by the rapid capture of neutrons in supernovae) and N_s is the proportion of the s process (synthesis by the slow capture of neutrons in stars), both adjusted to the scale Si = 10^6 atoms. It can be seen that the meteoritic abundance distribution near $A = 195$ is close to what one expects from the calculated $N_r + N_s$ distribution.

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