negative pressure transients, even though short-lived, might be expected to produce cavitation[3]. The authors indicated that they did make some effort to detect the presence of cavitation but with negative results. It is not clear, however, whether they examined each of the different experimental configurations; this might be necessary because the different boundary conditions change substantially the form of the acoustic transient.

Thus, as Hamrick and Cleary point out, laser-induced acoustic transients may produce a wide spectrum of possible effects. Unfortunately, the phenomenon is complicated and it may be difficult to identify the specific cause of some observed effects.

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Correction concerning Electron Paramagnetic Resonance in Human Bone Mineral

A COMPLEX resonance has appeared in bone mineral, prepared by refluxing in ethylenediamine and washed free of the solvent with distilled water[1,2]. In a further attempt to characterize this resonance, non-aqueous solvents were used as washing agents and no resonances were consistently obtained in the prepared mineral. Subsequently, spectroscopic examination of the distilled water has shown it to contain 0·02–0·2 mg of copper/l. This and the virtual identity of the resonance shape with that of the absorbed cupric ion[3–6] leave little doubt that the previously reported resonance from bone mineral was a powder spectrum of the adsorbed cupric ion. The same is also true of the similar resonance found in extracted bone collagen. We have now found no consistent resonances from bone mineral when it is rinsed free of the solvent in distilled–deionized water. This agrees with the results of a spectrographic analysis of the bone mineral similarly prepared (Table 1).

Table 1. IRON GROUP ELEMENTS FOUND IN THE BONE MINERAL USED IN THIS STUDY AS DETERMINED BY EMISSION SPECTROSCOPY

Element	Concentration
Titanium	N.D. (50)
Vanadium	3·0
Chromium	N.D. (0·5)
Manganese	N.D. (0·5)
Iron	2·0
Cobalt	N.D. (0·5)
Nickel	N.D. (0·5)
Copper	< 0·5

Results are given in parts per million of air dried bone mineral to an estimated accuracy of 25 per cent. For those elements not detected the limits of detection are given. The results indicate that the iron group elements are not present in sufficient amounts to be detected by electron paramagnetic resonance. Spectrographic analysis performed by Mr J. A. Spadaro.

When samples of bone mineral are heated to 400° C for 1 h, they exhibit a narrow resonance at $g = 2·0$ having a width of about 8 gauss. At first, the line was thought to be a result of the creation of a point defect in the bone mineral by heating[1]. Subsequent work, however, tends to indicate that the line is a result of charring the organic residue. Lines corresponding to about 10^{16} spins are readily formed by 500 μg samples of collagen when heated to 400° C in air. This is approximately the amount of organic material present in each 100 mg sample of bone material.

We conclude that bone mineral extracted with ethylenediamine has no consistent electron spin resonance when prepared in a way that precludes adsorption of foreign paramagnetic ions.

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Deposition of Inhaled Particles in Lungs

Davies and Muir[1] and Dennis[2] have reviewed the differences existing in experimental results relating particle size and deposition in the human lung. Data from six independent studies spanning 25 yr fell into two ranges, three groups of workers obtaining much higher values for deposition than the other three for particles greater than 0·5 microns in diameter. Interpretation of these results still seems to be a matter of opinion. Davies and Muir suggested that a sampling error of the exhaled air could give rise to the difference. Dennis, in reply, shows that the sampling error was not involved but that the difference may be the result of differences in nasal and oral breathing.

The title of both communications stated "lung deposition", and Davies and Muir repeatedly referred to "lung deposition", but both discussions in fact deal with data representing deposition in the entire respiratory tract. A source of much confusion in the literature on aerosol inhalation has been the use of the words "deposition" and "retention". Our use of these words will follow definitions suggested by the US National Academy of Sciences[3]—"deposition" refers to the quantity of the material in the inspired air remaining behind after expiration; "retention" refers to the fraction of deposited material remaining at a particular site at any given time. Thus the phrases "per cent total deposition" and "per cent lung deposition" which occur in various publications refer to how much of the material in the inspired air remains behind after expiration in the entire respiratory tract, and in the lung, respectively. Another source of confusion arises when the experimental terms "lung", "pulmonary" and "alveolar" deposition are used without careful definition of the anatomical regions. The term "lung" as used here will refer to the "pulmonary compartment" as defined by the Task Group on Lung Dynamics[4]; this is the region including respiratory bronchioles, alveolar ducts, atria and alveolar sacs.

Data from six independent studies were used in considering human lung deposition values. Fig. 1 shows that for average particle sizes between 0·5 and 1·5 microns aerodynamic diameter the data fell into two groups, as they did with total deposition values. Deposition values determined by Wilson and La Mer[5] are for the lung. Brown, Cook, Ney and Hatch[6] give alveolar deposition values; lung deposition values are therefore at least this