sample and results were extrapolated. Our article stated that 12 robins was an average of many counts within these study areas, not a single count of 12 robins as Jukes inferred. The potential inaccuracies of extrapolation are quite evident to any scientist, which was why we used the process only as a "rough estimation." Major conclusions were not based on the accuracy of this extrapolation in any event.

Jukes has erected, then demolished, the abominable straw man of robin extinction. We never mentioned this point however, nor have other scientists. While treatment of elms has killed millions of robins, high reproduction rates, increased habitat (suburbia) and decreased predation all contribute to rising robin populations. DDT does contribute to substantial population declines among many other avian species, however (*3*). Jukes's is an example of the kind of thinking that concludes all is well with pesticides as long as there is food on our tables and robins on the lawn.

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Federal Animal Care Projects

Cohen's report on the evaluation of animal care programs by the American Association for Accreditation of Laboratory Animal Care (Letters, 29 Dec.) should be encouraging to all who believe that peer evaluation within the scientific community can be successful. With the introduction of the Javits-Rogers bills (S. 2481, H.R. 13168), this concept and all issues regarding research-animal care will be increasingly debated.

The debate will probably cause some to inquire about current federal efforts to improve care and treatment of research animals. The Department of Agriculture's role through enforcement of PL 89-544 has certainly been significant in "persuading" some institutions to improve their animal care programs. Other federal agencies contribute through exemplary "in house" animal programs and research on animal care problems.

The National Institutes of Health has a program to assist institutions in meeting their requirements for research-animal resources. This project grant program may support a variety of activities for improvement of animal resources and animal care programs. The projects range from highly specialized unique colonies of research animals to programs for improving the facilities, the scientific medical management of institutional animal colonies, and training programs for specialists in laboratory animal medicine. The program further supports projects for elucidating new model animal systems for more efficient and effective research into human health problems.

As more and more scientific institutions and their investigators recognize the significant contributions that can be made by the use of the correct animal model, properly cared for, we can expect even greater benefits than heretofore realized from animal research.

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Interstellar Travel

Although I endorse "Clarke's Third Law" (Letters, 19 Jan.), I challenge his statement that "any really competent extrapolation shows interstellar travel to be a rather simple engineering accomplishment."

An eminent practitioner of space vehicle design, Maxwell W. Hunter II, concurs with Clarke that fusion propulsion holds great promise for interstellar space ships capable of traveling at fractional speed-of-light velocities (*1*). However, he underscores the incomprehensible energy requirements necessary to propel spacecraft of realistic sizes. These demands would be measured in proportions of the total power output generated by the sun. Accordingly, the radiation-shield requirements, which compound the hazard of inadvertently vaporizing the manned spacecraft itself, appear to pose formidable problems based on any materials or cooling techniques known today. Further, each pound of spacecraft mass would necessitate initial space vehicle weights, which can be measured only in terms of significant fractions of the earth's total weight. Associated with