

# Letters

## Drift Theory:

### Antarctica and Central Asia

The discovery of early Triassic tetrapods in Antarctica, recently reported by Elliot *et al.* (18 Sept., p. 1197), is an important event for paleontology and geology. As pointed out by these authors, the occurrence of *Lystrosaurus* and some other more broadly similar faunal elements in Antarctica, South Africa, and India is evidence that those crustal segments were then continuous, and they are interpreted as parts of pre-drift Gondwanaland. Elliot *et al.* also mentioned that *Lystrosaurus* and other generally similar faunal elements likewise occur in Sinkiang, that is, in what is now central Asia, but they did not discuss the bearing of that fact on paleogeography. Application of their reasoning would indicate that central Asia also was then in continuous (not necessarily direct) connection with Antarctica. However, proponents of Gondwanaland have hitherto excluded central Asia from that former land mass. Some recent forms of drift theory indicate a major lack of connection between pre-drift Antarctica and central Asia, although the earlier hypothesis of Wegener had them separated only by shallow epeiric seas. Accepting the Antarctic discovery as strong support for drift theory, we may still have to reconsider the concept of Gondwanaland and some other paleogeographic and biogeographic points.

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### Cleaner Air—Fewer Cars

However obvious the benefits of cleaner air may appear to some, a savings of more than \$2 billion annually should be sufficient to convince everyone that an immediate and effective reduction in air pollution is essential. In "Air pollution and human health" (21

Aug., p. 723), Lave and Seskin estimate that, in terms of morbidity and mortality, a 50 percent reduction in air pollution would reduce health costs by more than \$2 billion annually. But human beings seem to respond only to situations of crisis proportions; they appear to adjust to slowly changing circumstances of incredible unpleasantness. For example, suppose that on some particular day smog in Los Angeles killed 30,000 people. Obviously, this situation would create a storm of protest and would receive immediate attention. Yet, on certain days when the smog is bad, that city cautions schoolchildren to minimize exertion in order to protect their lungs. And these warnings pass by without significant comment. It is time for the federal government to seize the initiative and take steps to reduce air pollution before a major disaster occurs.

Since the automobile has been identified as an important contributor to air pollution, any improvement in its efficiency of operation would mean a reduction of emissions from that source. (Efficiency here is defined as passenger miles by any method per quantity of pollutants.) The efficiency can be increased by either raising the number of passenger miles or by lowering the quantity of pollutants, or both.

Expenditure of vast amounts of time and money (for development of new engines, fuels, and antismog devices) is not required to realize *immediate* increases in efficiency. If driving an automobile is made more expensive and less convenient, then people would be inclined to ask themselves such questions as: Is this trip necessary? Can I walk? Ride a bicycle? Ride with someone else? Take someone else with me? Answers to these questions could result in fewer pollutants and increased passenger miles.

Two ideas, neither new, for raising the expense and lowering the convenience of automobiles could bring rapid results if implemented by law. First,

why not increase the gasoline tax to 50 cents or even \$1 per gallon? Not only would this new revenue be available for the development of good mass transportation, but people would be encouraged to use automobiles more efficiently. Furthermore, taxes would be paid in proportion, more or less, to the amount of pollutants created. Second, restrict the use of certain streets during particular periods of the day to automobiles that contain a minimum number of passengers (why not three?). Give violators a choice between an expensive ticket or waiting by the roadside until the prescribed period had passed. Such a regulation would do much to increase multiple passenger use of an automobile.

Admittedly, these two measures are not a final solution to the problem. That must await a good mass transit system and, to some degree, further technological development of engines and fuels. But these steps should yield dramatic results pleasing to everyone: the citizen will breathe less polluted air and face fewer traffic jams; government will gain a large source of new revenue; the automobile industry probably would not have to face a potentially costly suit concerning antismog devices being brought by several states; and the oil companies can ease their concern for our increasing dependence on foreign oil, since reduced consumption means longer life for our own resources.

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### Geologists Prefer Earth Studies

In his editorial "Lunar science and planetary history" (18 Sept., p. 1159), Preston Cloud states: "It will be hard to find an informed scientist of any breadth who views this last reduction of the Apollo program with anything short of dismay." I am not sure he means to include geologists in the category—"informed scientist of any breadth"—but I think he does, since the rest of the article refers to geology. If all geologists were asked: "Do you know better ways to spend \$24 billion on geology than by sending a dozen or so Apollo flights to the moon," I venture to guess that a majority would answer in the affirmative.

I was especially interested in a ref-