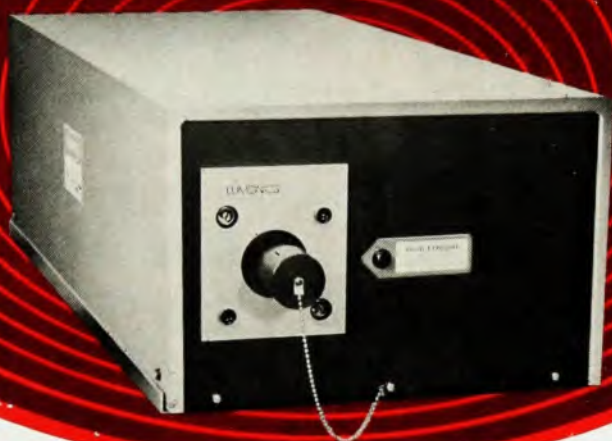


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letters

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stifle the US research community, and too much management can be as bad as too little management!

References

1. B. Hoffmann, *Albert Einstein, Creator and Rebel*, Viking, New York (1972), page 34.
2. L. Lessing, *Fortune*, April 1972, page 69.

T. TSANG

Howard University

2/17/78

Washington, D.C.

No prejudice against women

I think Alice Macnow's comments (November, page 11) on William Fowler's article to the effect that "Physicists are always imagined as men" is a bit unfair to him. Fowler was recalling his acquaintances at Caltech. That school didn't begin admitting women as graduate students until the late 1950's. It was even later that things opened up for women undergraduates. As he said, his was a personal view of things. I was a student in Engineering Science when there were only six women on campus. Fowler would only have known one of us at that time—Virginia Trimble—and she was in Astronomy.

Let's put this women's lib thing in perspective. The physics department at Caltech has no observable prejudice against women.

LOUISE GRAY YOUNG

Texas A&M University

1/6/78

College Station, Texas

World oxygen supply

With regard to Yale Jay Lubkin's letter in January (page 87), I strongly disagree with his unusual comment that "there are vast acreages of useless jungle all over the Third World." Where does Lubkin think the world's oxygen comes from? Let him keep his suicidal ideas on an individual scale.

ART J. NELSON

Colorado School of Mines

1/31/78

Golden, Colorado

THE AUTHOR COMMENTS: If one were to take the question raised by Nelson seriously, one would note:

The jungle acreage of Brazil is about 10⁹ acres. At 100 tons of biomass per acre per year, which is not difficult to obtain, the total Brazilian jungle biomass is 10¹¹ tons/year, which could produce 2 $\times$ 10¹¹ barrels of alcohol per year. World petroleum production is of the order of 10¹⁰ barrels per year, so that 5–10% of the Brazilian jungle, by itself, could replace all of the petroleum now used. This is a very small portion of the Earth's annual biomass production.

Harvesting of the jungle does not in any way preclude regrowth; in fact, regrowth in cleared land usually can proceed at a higher rate than new growth in uncleared land. The total plant oxygen output could very well be higher if jungle were cleared and allowed to regrow.

The Earth's biomass is part of a negative-feedback loop. If carbon dioxide concentrations are raised, either through production (due to burning) or to a temporary decrease in the rate of plant conversion, then plants convert carbon dioxide to oxygen at a higher rate, tending to stabilize the oxygen/carbon-dioxide ratio.

In short, even if one were to completely convert to cellulose-generated alcohol, the net change in the global oxygen mass would probably be undetectable. In any case, I have been informed that the primary source of atmospheric oxygen is

photodissociation of water vapor in the upper atmosphere, and even with no plant life at all, there would be plenty of O₂.

YALE JAY LUBKIN
Ben Franklin Industries, Ltd.
Casey Creek, Kentucky

2/13/78

Space colony disagreement

I disagree with Malcolm Thackray's view (February, page 83) that space colonies would really help the future generation escape the "lethal politics" of man on Mother Earth. In all likelihood, the space colonies would be shooting at one another. One space colony would probably make a temporary alliance with a second to conquer or liquidate a third.

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Future jobs in physics

By chance the data from two different studies concerning the future employment of physics PhD's were published on facing pages in the November issue of *Manpower Comments*. The results are quite contradictory. Lee Grodzins from MIT anticipates that if the size of the physics labor force is unchanging, "the

Comments may have gotten confused signals, but the overall impression—that long-range manpower forecasting is not to be relied on for career decisions—is, as they say, right on. In any event, I hope that no one considers my forecast—that in 7 to 10 years, demand will catch up with supply—to be a prediction of euphoria; it is just the most optimistic of the uniformly pessimistic forecasts around. As to

Physics PhD projections 1974-85

	Supply	Demand			Supply/Demand
		Replacement	Growth Overall	Total	
BLS	12 100	5400	1200	6600	1.83
Grodzins	10 400 (+1700/-1200)	6700 (+2400/-1100)	2400 (assumed 1%/year)	9100	1.14 (+0.4/-0.2)

demand will start to exceed the supply by the mid-1980's." On the other hand, the National Research Council predicts a supply 85% higher than the demand by 1985.

Undoubtedly the difference arises from Grodzins's assumption that there will only be 1000 PhD's in physics per year in the next decade, whereas the National Research Council has probably assumed an increase in number. Whatever the basic assumption, it is not difficult to see why the young have so much difficulty with career counseling available to them.

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1/3/78
Cambridge, Massachusetts

THE AUTHOR COMMENTS: Dorothy Zinberg and other readers of pages 2 and 3 of the November issue of *Manpower*

the excerpt on page 3, I, too, was confused. Some digging clarified the situation this far: The data attributed to the NRC is from a Bureau of Labor Statistics Bulletin 1918 *Occupational Projections and Training*. The projection is not for the year 1985, but for the integrated period from 1974 through 1985. A direct comparison between the BLS study (Table X) and mine (Table 10) is shown in the accompanying table.

All readers should understand that long-range manpower forecasts are, at this time, exercises in the development of forecasting. My contribution, which I hope has advanced the state of that black art, should not be relied on for career decisions; at most it may help to define the options available.

L. GRODZINS
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2/1/78
Cambridge, Massachusetts □

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