

that undesirable. If I were W. H. Henry (or anyone else—such as me), those are the people that I'd be afraid of!

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Astronomical error

An ancient astronomical joke has a little old lady saying, with admiration, that astronomers must be wonderfully wise since among other abstruse things they have even discovered the names of the stars! At least some of us have; unfortunately the reviewer of the Adelmans' book "Bound For The Stars" (August, page 38) erred in stating that Beta and Gamma Centauri are the fainter members of the Alpha Centauri system. They are, in fact, quite respectable stars in their own right, having nothing to do with Alpha.

Incidentally, it is worth mentioning that the separations of the two brighter components of Alpha Centauri at apastron and periastron are considerably overestimated in "Bound For The Stars." The correct values are approximately 35 and 11 AU. Thus its planets, if any, will have somewhat less maneuvering room than might have been thought from the original figures.

WILLIAM P. BIDELEMAN
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9/82
THE AUTHOR COMMENTS: I had no sooner read the printed version of my review of "Bound For The Stars" (August) than I realized my offhand comment on stellar terminology was quite wrong; alpha, beta, gamma, ... designating typically the brighter stars within a given constellation and not (usually) members within a binary system. This is sufficiently well known (even to me) that PHYSICS TODAY may have to come out with a special oversized edition to contain all the gleeful letters that must be amassing at the editorial offices. I hope that IAU will not have to set up a special commission to set things straight. Astronomical nomenclature has enough problems without my help.

F. CURTIS MICHEL
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10/82

In defense of GRASER

In August (page 76) Charles Holbrow objected to our using the acronym GRASER for the hypothetical analog of the LASER that might generate coherent gamma radiation by stimulated emission¹ and proposes instead to substitute the word GRAYL. May we presume to ask for equal time to explain why we

cannot endorse his suggestion, even though we appreciate his desire to contribute to this field of research?

► Holbrow's proposal comes somewhat late; the present acronym has existed in published literature for nearly two decades.²

► The structure of the present acronym is consistent with those for other devices that Amplify-by-Stimulated-Emission-of-Radiation; GRAYL would not be (nor, incidentally, would GASER, sometimes proposed, because "gamma" alone may not necessarily imply "gamma-ray").

► The quest for a gamma-ray laser hardly resembles the search for the Holy Grail of antiquity,³ which was well-supported, fully staffed, and encouraged by the highest authorities in the land.

► Said Grail is believed to have emitted only in the visible.

► Those few individuals who have persisted in this frustrating but challenging task bear little resemblance, other than dedication, to the knights of yore.

► Were Holbrow more meticulous in his spelling and as bullish as we in assessing the prospects for eventual success and significant application of the results of this undertaking, he would be less disturbed at what he terms "bovine implications" of the established acronym.

References

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2. G. C. Baldwin, J. P. Neissel, J. H. Terhune, and Lewi Tonks, "On the Possibility of Laser Action Between Nuclear States," *Trans. Amer. Nuc. Soc.* **6**, 176 (1963).
3. Sir T. Malory, "Queste de Saint Grael," in *Monte d'Arthur*, Caxton Press (1485); see also articles "Malory, Sir Thomas," and "Grail, the Holy," in *Encyclopedia Britannica*, University of Chicago (1969).
4. A. Lord Tennyson, "The Holy Grail and Other Poems" (1870).

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10/82

Unemployment dispute

Leonard Ball's "Unemployment: a new solution" (August, page 13) presents a concept for legislating an end to unemployment. However, I find an example that shows that Ball's solution creates more hardship than it relieves and demonstrates that the system is unworkable.

Consider: The gardener at the local state university with many years of

satisfactory employment, reasonably secure in his position and living a lifestyle he can afford. Under Ball's scheme he is immediately forced to live on $29/40$ of his current income! Mr. Gardener can now endure the hardships and lower his standard of living or, unwilling to lower his standard of living, he can find a job opening with the County Park Department doing the same kind of work for which he is eminently qualified and pick up another 12 hours work each week. Of course his counterpart with the County Park Department is hired by the university and, alas, no new jobs are available.

Might we postulate for a given state of the economy that there exists conservation of jobs and workers? Probably not, as the government intervention surely creates more nonproductive paperwork. Oh! A feedback loop that takes our economic state to a lower level. Of course, Ball might argue that we can make it illegal for the Park Department to hire Mr. Gardener without paying him double time, that is, "self-policing." But those laws will probably be as effective as the ones that make the muggers' occupation illegal.

What is needed is not a redistribution of currently available jobs but the creation of more jobs. Will the social engineers never learn that the biggest parasite on the free-enterprise system is government?

LANNY JOE REED
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9/82

THE AUTHOR COMMENTS: Lanny Reed's claim that the gardener parable "shows that Ball's solution creates more hardship than it relieves" is unfounded. The letter fails to identify any hardship, or illusion of hardship, created by my proposal. My proposal specifically re-distributes pre-existing hardship by transforming unemployment into underemployment, and provides both hope and incentive (which do not now exist) for solving both problems through democratic processes.

The parable is hopelessly flawed. To get his second part-time job the gardener must resolve schedule conflicts and compete with hundreds of unemployed applicants (who have no such conflicts) for a place on a waiting list. Bosses will minimize their inconvenience and overhead by collectively taking measures that reduce the reported unemployment rate. To do otherwise would be stupid. Bosses will actively discriminate against those already employed because it will be in their self-interest to do so, precisely contrary to the situation under present law (which encourages moonlighting and inflationary stealing of employees from other employers). If necessary, such discrimination can be further encouraged

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A second job will be as difficult to get as overtime. Either will require exceptional merit. The cost in time, money and effort expended in seeking the second job will quickly exceed any possible reward the job might offer. The gardener will soon recognize this and will instead spend his new-found leisure time in more pleasant pursuits. If he has a conscience, he may also recognize that working hours beyond L at less than double wages is stealing the livelihoods of others as surely as mugging.

I enthusiastically applaud the plea by the gardener-parable author for "creation of more jobs," but I direct his attention to the following facts:

► The lesson of history is that significant job creation, however desirable, will not happen

► There is a considerable body of conservative political opinion steadfastly opposed to job creation, and this body currently runs our government and industries

► The principal arguments against job creation are inapplicable to work redistribution, which is therefore a more easily achievable objective

► From the democratic principle of majority rule it follows that nothing serious will be done about unemployment until it reaches, one way or another, 50% of the population

► The feedback-controlled workweek offers a quick way of uniformly distributing the hardship over almost 100% of the population, thereby enabling the majority to do what is right, through democratic processes, long before the unemployment rate actually reaches 50%

► The free-enterprise system is concerned only with immediate profit and simply does not care about unemployment. The free-enterprise system can be made to care, if at all, only through government intervention. Government (with the exception of a nonmilitary NASA, of course) may be both reprehensible and parasitic, but government is the only tool that can affect the problem.

Social engineers? What a delightful suggestion! I have never known an engineer to back away from a problem solely because of the lame-duck excuse that it had never been solved before. How refreshing it would be to see social problems attacked with the same determination, variety of methods, and willingness to perform necessary and relevant experiments. Our problems cannot be solved by instantly dismissing new ideas, endlessly reciting old ideas that have been shown to fail in whole or in part, or by staring into mirrors while chanting that our prob-

lems are hopeless. At the very least, some old ideas may have to be bent considerably.

The unemployment situation continues to degenerate. My proposal was too timid. Accordingly I now modify it as follows: *Let the initial value of the feedback coefficient k be 3.0, and double the value of k in each and every month thereafter with announcement of the official unemployment rate.* With this modification, employers (after a little calculation) will be able to foresee precisely what is expected of them. Let the shanghaiing begin!

LEONARD M. BALL
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10/82

Slight correction

A slight correction to Ferdinand Brickwedde's interesting article in September (page 34): D. H. Menzel was never "professor of astrophysics at Lick Observatory"—there were none. During his productive Lick years Menzel held the less distinguished but still honorable title of "Assistant Astronomer."

WILLIAM P. BIDELEMAN
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10/82

Preparing teachers

Is there any university in the US that has an active program in which physics graduate students are being deliberately prepared to fulfill their instructional responsibilities as future physics professors at the college or university level? I have come to doubt seriously that such a program exists.

The kind of program I am interested in discovering would not be primarily designed to prepare graduate students for any of the following:

► Research activity at the university level, or in industry

► Teaching or administration in high schools or two-year colleges

► Subject matter other than physics.

The kind of program I would like to know about would offer personable graduate students who are interested in excellence in teaching in physics the needed positive encouragement and learning opportunities via

► Seminars and workshops constituting about 10% to 20% of their graduate work for credit

► Transdisciplinary and interdisciplinary course-work options different from those required of research-track students

► A formal program of practice teaching within the department, with transdisciplinary supportive criticism and encouragement.

This is a general request for informa-

tion about any program that comes anywhere near being what I have indicated. I will report the responses to this request to the appropriate leaders within AAPT and the Congress. If there is no such program, there should be.

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National Council of AAPT
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11/82

Corrections

November, page 36—Because of a composition error two lines were transposed from one column of text to another. The affected paragraphs should have read:

A number of other processes in space are radio emitters—molecular rotational transitions excited by collisional impact and free-free transitions in ionized gas, to name two—and radio astronomy as a consequence is both "high energy" and "low energy," "relativistic" and "chemical," with a phenomenology extremely rich compared to that of most bands of the electromagnetic spectrum. Radio waves have been detected from nearly every class of object known to astronomy at the time of Jansky's discovery—including the Sun, Moon, planets, stars, gaseous nebulae, supernova remnants and normal galaxies—and radio investigations have revealed entirely new objects without which modern astrophysics would hardly exist: neutron stars, molecular clouds, quasars, radio galaxies, and the cosmic microwave background. The Nobel Prize in physics has been awarded to four radioastronomers who participated in these discoveries—in 1974 to Martin Ryle for work on the extragalactic sources and to Anthony Hewish for the discovery of pulsars (neutron stars), and in 1978 to Arno Penzias and Robert W. Wilson for the discovery of the microwave background.

As a result of these accomplishments, radioastronomy has grown into one of the main subdivisions of observational astronomy. Nearly 30% of the observational papers in the leading astronomical journals are based on radio data, and there are large radio observatories in over a dozen countries, with major new facilities under construction or planned by Australia, Britain, Canada, France, Germany, Japan and the United States.

page 38—The photo in figure 2 is printed upside down, so that the companion of M51 is in the lower part of the photo instead of at the top. The editors regret these errors. □