European Organization for Nuclear Research (CERN), Meyrin, Geneva, the following WAGER was made between Professor Viktor F. WEISSKOPF and Professor Richard P. FEYNMAN. The terms of the said WAGER are as follows:

Mr FEYNMAN will pay the sum of TEN DOLLARS to Mr WEISSKOPF if at any time during the next TEN YEARS (i.e. before the THIRTY FIRST DAY of DECEMBER of the YEAR ONE THOUSAND NINE HUNDRED AND SEVENTY FIVE), the said Mr FEYNMAN has held a "responsible position."

Conversely, if on the THIRTY FIRST DAY OF DECEMBER of the YEAR ONE THOUSAND NINE HUNDRED AND SEVENTY FIVE, the said Mr FEYNMAN shall have held or be holding no such position, Mr WEISSKOPF will be deemed to have forfeited his wager and will be in duty bound to pay the sum of TEN DOLLARS to Mr FEYNMAN.

For the purpose of the aforementioned WAGER, the term "responsible position" shall be taken to signify a position which, by reason of its nature, compels the holder to issue instructions to other persons to carry out certain acts, notwithstanding the fact that the holder has no understanding whatsoever of that which he is instructing the aforesaid persons to accomplish.

In case of contention or of non-fulfillment of the aforementioned conditions, the sole arbiter shall be Mr Guiseppe COCCONI.

Signed at Meyrin on this the FIFTEENTH DAY of DECEMBER of the YEAR ONE THOUSAND NINE HUNDRED AND SIXTY FIVE.

Richard P. Feynman
Viktor F. Weisskopf
Signed and witnessed: *G. Cocconi*

Let the record show that the above wager was paid in full by myself on 31 December 1975.

V. F. WEISSKOPF
Massachusetts Institute of Technology
Cambridge, Mass.

New journal defended

As one of the editors of the new letters journal, *Letters in Mathematical Physics*, I wish to make a short comment on the letters by N. P. Wilson and K. G. Mermin and by A. W. K. Metzner that you published in your March issue (page 11). Several reasons influenced the editors as well as the members of the editorial board of *Letters in Mathematical Physics* in the decision to initiate a new journal. The most important reasons are:

- The non-existence (until now) of a letters journal (or even a section) in the field of mathematical physics. In some cases it is important that certain results in the large number of domains covered by mathematical physics should reach the community rather quickly. The existing letters journals in physics do not in general (mildly speaking!) favor contributions in mathematical physics.
- To have such a journal centered mainly in Europe. Very unfortunately many European scientists (from both Western and Eastern countries) suffer from the objective geographical distance between the US and Europe and have difficulties in communication with US journal editors, which in many cases results in a serious delay of publication of their work.
- To have a letters journal open to *all* areas of mathematical physics, and which publishes articles *without* any fees.

As a matter of fact, for European scientists (mainly for Eastern countries but also for the West) it is practically impossible in the present situation to honor the exceedingly high publication fees required by most of the American journals.

M. FLATO
Editor, Letters in Mathematical Physics
Dijon, France

Radiation and particle life

A recent news story (November, page 18), mentions that in work at Stanford Research Institute on Rydberg atoms, lifetime variation—actually lifetime lengthening—was observed. A similar effect was noted here experimentally, (first tests carried out in 1971, at the University of Marseille), with various free particles alone or mixed with inert gases.

The origin of this work was my hypothesis put forward in 1970, postulating lifetime lengthening of a free particle if generated within a grid-isolated intensely irradiated gaseous phase, which we can call "region 1."[1]

I assumed that at atmospheric pressure free particles, A*, would survive the transfer through the grid into a "dark" compartment, (let us call it "region 2") and would trigger subsequent reactions by interacting with other molecules, B . . . ; $A + h\nu \rightarrow A^*$, in region 1, and after transfer of A* into region 2, $A^* + B \ldots \rightarrow P$. To make this split mechanism work, lifetime L of the free particle had to be longer than transfer times from 1 into 2, irrespective of the particle's trajectory δ within the irradiation chamber: $L > \delta/v$ sec. (v = particle velocity, cm/sec.)

Lifetimes of the free radicals involved in these transfer processes were in the range of 10^{-3} sec at 0.1–0.5 mm Hg (for example, Cl*).[2]

Though *a priori* speculations excluded this approach, experimental data, so far, have proven the validity of the initial hypothesis.[3] To explain this effect, I propose the following mechanism:

We sandwich between an intense radiating source and a high-opacity grid an absorbing medium, into which we inject fresh molecules, A, at a rate to replace the fluid leaving region 1, and also to prevent any backflow from region 2 into region 1. Controlled by the grid's optical transparency, photons will continuously leave the irradiated zone.

This system can be considered as a photon trap, and owing to the intense permanent irradiation coupled with high grid opacity (reduced photon losses through wall effect), irradiation density U within the volume contained by the grid will go on increasingly.

As this accretion in energy cannot go on indefinitely, at one moment it will have to reach a limiting threshold value (saturation). Once this state is reached, and in order to keep $dU/dt = 0$, the cavity will be forced to lose the captive energy somehow, through the grid's pores.

Due to its specificity, the system will gradually evolve so as to get rid of this locked-in radiation density in "association" with matter: $A + h\nu \rightarrow A^*$ (A^{**}), the only allowed route to overcome the grid's opacity, invincibly opposed to the excess number of photons. Now, because of the "material" vector's flexibility, capable of following linear as well as nonlinear trajectories, energy outflow will be unopposed by the grid's presence.

This second route will simply mean that free radicals will be transferred from the irradiation chamber, into the "dark" compartment. Saturation will have a decay-limiting effect, and this then will have to account for the observed lifetime increase of the free particle.

For laser action the cavity needs just two plane mirrors, between which standing waves are generated. Here due to the special openness of the system, the cavity will lose a negligible amount of damped photons; after saturation is reached, with correctly adjusted δ/v values, we will mainly transfer matter, namely, free particles acting in complete contradiction with their anticipated lifetimes.

References

1. G. Lucas, Informations Chimie (International Edition) 16 July–August 1971, page 33.
2. Naturwissenschaften, 1933, 21–222.
3. G. Lucas, Photochemistry Symposium, Ghent (Belgium) 1–5 September 1975. US Patent 3.800.159.

GEORGES LUCAS
Paris, France

Correction

July, page 31—The credit line for figure 7 should read "Emmanuel Lafond, Queensborough Community College." □