

letters

Review articles in certain fields already exist; all that is needed in many cases is that their references are updated and collated in one place. I am sure many good physicists would be willing to help, considering that many of us already maintain our private Reference Registers.

Imagine the boon to a starting researcher; imagine the saving of space in APS journals; imagine the saving of time in literature search. Perhaps the new AIP Abstracts Journal could add this one to its other tasks, much enhancing its utility.

ABDUS SALAM

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COMMENT FROM AIP: Creating and maintaining a registry of references, as proposed by Abdus Salam, would indeed be an arduous task, especially if it were to extend over all of physics (or even all theoretical physics alone) for topics as narrow as "Yang-Mills Theory." There would be at least several thousand separate bibliographies, with many overlaps and cross-references. Maintenance would be particularly difficult, because each time a new paper is added, an updated version of the "Standard Reference" would have to be issued and distributed. To do this for such a large number of bibliographies would make management of such a system an enormous, uneconomical task.

Some of Salam's objectives are met, to the limited extent that is practical for AIP, by the Current Physics Information program (see PHYSICS TODAY, November 1971, page 23). All important new papers are promptly assigned to one or more of 1500 headings (analogous to Salam's "Standard References," but somewhat broader) by competent physicists (not by computer). They are listed monthly in one or more of the three journals "Current Physics Titles," separately for each heading, but not cumulated (an annual subject index is under discussion). Thus, an author or editor has to look through the monthly issues of CPT under the heading or headings covering his topic and select all references that are relevant. The same information, with more back-up material, is available on computer tapes (SPIN tapes), where lack of cumulation is immaterial. Additional backup in visually readable form is given in Current Physics Advance Abstracts and Current Physics Microfilm. These aids, while not going as far as Salam suggests, should considerably lighten the burden on authors and editors.

The references themselves constitute a potentially tremendous wealth of in-

formation, and they are included in the SPIN tapes. It is conceivable, therefore, that computer manipulation of this information for the purpose of segmenting the physics literature can provide a reasonable alternative to Salam's suggestion, through automatic classification based on bibliographic coupling. (See S. Schiminovich, *Infor. Stor. Retr.* 6, 417, 1971).

ARTHUR HERSCHMAN

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More on legal suit

I was very interested in reading your well done article about my legal suit (September, page 69). Perhaps you can publish these remarks:

► A physicist who designs an experiment does not need to invent all or any of the elements of his design to be considered original. Beethoven did not invent the musical notes; electronic engineers can be very imaginative without inventing new transistors. I did not invent magnets and did not offer any new Maxwell equations. To my knowledge, however, no one in any high-energy laboratory had used or designed a double-lens spectrometer at that time.

In particular, I was then told that no Berkeley group had ever worked with or designed a beam with even a simple magnetic lens. My experiences with high-energy beams and lenses included the external beam project (adopted later on by Brookhaven, Berkeley, Argonne, Dubna) and a "pencil beam," at BNL.

I also want to recall the then popular and powerful emulsions and cloud chambers, which had already furnished some tentative evidence for antiprotons (E. Amaldi, *et al*, De Staebler, Rossi, *et al*) as other quite possible alternatives.

► There is a difference between adjusting the cable length to the proper time-of-flight and designing a beam realizing that such a method can give a rejection of many orders of magnitude.

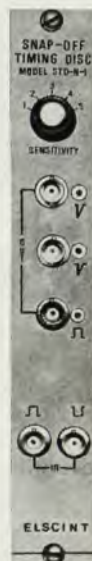
► I do not see the reason to emphasize the "velocity band" of the Cerenkov counter, because the background of particles heavier than protons was expected to be rather negligible.

► No one in the group, even after I exposed the plans, said *then* that it was as obvious as falling down. On the contrary, I was told in all seriousness that the plans were excellent and they should not be disclosed to others.

In conclusion, if I remember well, despite their lack of any previous experience with the Bevatron or other GeV accelerator, the group outcompeted three other groups who, by spring or

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summer 1955 had showed interest in antiprotons. One of them, composed of most competent people, used several Cerenkov counters but not the method of the time of flight over the entire allowed length of the double spectrometer. This seems to show both the competence of the team and the non-triviality of the original plans.

ORESTE PICCIONI

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It has been a long time in coming but the event should surely be no surprise to anyone. The suit brought by Oreste Piccioni against Emilio Segrè and Owen Chamberlain (September, page 69) is a natural consequence of "Big Physics" where a few people have control over the expenditure of large sums.

In saying this I imply nothing about the validity of Piccioni's charges. However, from my experience with a high-energy experimental group I would certainly agree with Clyde Wiegand's view that such experiments do indeed "grow" and, I might add, usually have their roots well disseminated. For this very reason it is no service to physics to single out one or two individuals and give to them what amounts, in the case of the Nobel award, to entire credit for a collective achievement.

R. B. THOMAS, JR

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Leonard Weisberg asks (September, page 13) why so much passion is raised over "unorthodox" scientific theories. Just as the politician wraps himself in the flag and accuses all who disagree with him as being un-American, the scientist wraps himself in phrases such as "(lack of) causative basis for his ideas" and accuses others of being unscientific. The answer is "vested interests."

That this is so is evidenced in these columns by the complaints concerning reviewing for publications. Almost no one will disagree that it is an adversary process, and yet no reviewer will disqualify himself as one having a conflict of interest. In fact, the editor's choice of reviewer insures that just such a situation occurs. The problem is further compounded by the fact that no one ever really knows who his adversary is. We do not accept this kind of process in other aspects of our lives, but acquiesce to it in our scientific lives. The system works when an idea agrees with the adversary's interests,

but breaks down when the idea is "unorthodox."

Sometimes, when one is fortunate, one gets a very unusual adversary who is secure in his own right, and a new idea is exposed for consideration. However, to depend on such a chance encounter is disheartening for the author and self-defeating for science. I agree with Alfred Landé (May 1971, page 68) that the reviewing process "is inadmissible censorship when one or even three referees try to block an article as incompetent when their own private but precious standpoint differs from that of the author..."

Until the system is changed, I feel that Oreste Piccioni is doing a service for science at large (September, page 69) when he demands a hearing outside an arena of possible conflicts of interest. I know nothing about the case, but I do agree most heartily with his statement "I think it's high time that physicists understand that the basic rules of morality are not for them to create because they have been already created and experimented with by the rest of humanity, which by and large is not made of lower animals than physicists."

HAROLD A. PAPIAZIAN

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Future energy needs

In the article by Floyd Culler and William Harms on breeder reactors (May, page 28), figure 1 estimates that the energy "needs" for the US in the year 2000 will exceed the 1970 level by a factor of 6.3. By contrast, the present rate of population increase is about 1% per year, or 35% in 30 years. For what conceivable reason can 35% more people "need" 630% more electrical energy? Even today, much of our electrical power is used for luxuries—neon signs in the daytime, air conditioners in the winter, aluminum (rather than steel) beer cans to litter the roadsides, inefficient home heating by electricity. Does each of us really need five times more of that?

Economists tell us that demand, supply and price of any product or service are closely related. The price of electricity (including tax on its use) is wholly controlled by government agencies, and these agencies therefore have the power to lower (or raise) the demand to any desired level, simply by raising (or lowering) prices and taxes. Even a small increase in the cost of power would direct consumers' demand away from electrical gadgets towards goods less noxious to our environment; conversely, if a five-fold per-capita increase in power consumption does occur, it will be the consequence of having fixed prices for electric power at

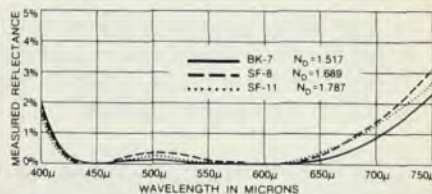
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