

News and views

A Letter to the Editor

Referenced Authors Lists

The writers of scientific textbooks or treatises have long had the practice of providing a list of other authors referenced within the text or in footnotes. This list, which may form an integral part of the index, or be a separate list, consists usually of the bare names, followed by the page numbers where the reference is made, some of the numbers being sometimes underlined to connote some aspect of the reference made.

The usefulness of this referenced authors' list is so unquestionably established that there is more than a suggestion that at least as great a usefulness, and probably a much greater one, is offered by similar lists in periodic publications. It is therefore the purpose of this letter to propose consideration of the inclusion, next to the regular annual or semi-annual authors' list, of a list of all authors referenced by the various writers in a given volume of the Institute of Physics publications.

There is no need to dwell here on the already established usefulness of referenced authors' lists, but two instances of the potential added usefulness of such lists in periodical publications deserve mention.

One instance concerns the bibliographical value of a means to start almost anywhere in the scientific literature, and to proceed methodically and easily forward in time in following the impact of certain generic thoughts on the development of a chapter of science, to the point where the bibliographer, who could be a student about to tackle a research problem, or an author about to launch a publication, is within one year of being up-to-date.

The other instance concerns one of the knottiest tasks faced by scientific management, namely the problem of evaluating published research results.

In a world of increasingly pyramided organizational structure, the administrator of a large unit is often obliged to gauge the scientific output of an individual or of a group of researchers. When the research activities under scrutiny are of the long-range type, as indeed is the case for most basic research and for much applied research, superficiality can be forced easily on the judgment of the administrator, who may base his evaluation on such crude data as amount of published material. As this letter is addressed more especially to the editors of the many periodicals within the Institute of Physics family, the writer trusts they will agree with him that too large a responsibility would be lodged with them and their assisting editorial readers, if mere

acceptance of a manuscript were to be interpreted as more than an indication of possible value of the material presented.

A more precise, and yet impartial, evaluation would be possible, were the administrator able to gauge the impact made on scientific thought by his own research staff, or by new members under consideration. In theory, he could do this objectively by noting the references made in the scientific literature to the efforts and results of his own researchers, thus letting them, in effect, be judged by their peers. At the present time, however, a great deal of page-thumbing would be required to do this, whereas the referenced authors lists proposed here would permit one to make a fair determination in a matter of minutes.

A cursory survey has indicated that, from the publishing standpoint, the extent of these lists would not be prohibitive. The number of names they contain would be a very few times the number of names of authors of articles and letters to the editor, but with a few page numbers substituted for the titles, their bulk would be comparable to the regular authors' list. Even so, their very bulk could be a measure of the need for a pertinent cross reference in the bibliography of exponentially increasing activities.

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Eniwetok Tests

Contribute to Thermonuclear Research

"Joint Task Force 132, operating for the Department of Defense and the United States Atomic Energy Commission," the AEC announced on November 16th, "has concluded the third series of weapons development tests at Eniwetok Atoll in the Marshall Islands. Like the GREENHOUSE series 1951, it was designed to further the development of various types of weapons. In furtherance of the President's announcement of January 31, 1950, the test program included experiments contributing to thermonuclear weapons research.

"Scientific executives for the tests have expressed satisfaction with the results. The leaders and members of the military and civilian components of the Task Force have accomplished a remarkable feat of precision in planning and operations and have the commendation of the Department of Defense and the Atomic Energy Commission.

"In the presence of threats to the peace of the world and in the absence of effective and enforceable arrangements for the control of armaments, the United States Government must continue its studies looking toward the development of these vast energies for the defense of the free world. At the same time, this Government is pushing with wide and growing success its studies directed toward utilizing these energies for the productive purposes of mankind."

That AEC statement was eagerly pounced upon by the press and the public. It sounded, said the cautious, like officialese for a successful hydrogen bomb. News-

papers, nourished by a preceding barrage of "eyewitness letters home" describing a two-mile-wide sheet of flame, screamed H-Blast in their headlines and confidently predicted bigger ones to come. Two days later the Federation of American Scientists released a statement by its chairman, Jules Halpern of the University of Pennsylvania physics department, who called upon the country to "distinguish between the false security of bombs and the genuine security, which requires a slow, step-by-step, but positive approach to peace by mutual agreement, by gradual disarmament, and by world wide economic reconstruction and development. . . ."

"Almost three years ago," the FAS statement continued, "we urged establishment of a top-level commission with broad perspective to make a fresh start on our atomic policy. A State Department advisory panel has this objective in part and release of their findings is eagerly awaited. The entire problem must be a matter of the first and most urgent consideration by the new administration. Efforts toward international atomic control must be pushed forward in spite of present obstacles. The AEC announcement is a sober and grim reminder to the world that a way must be found to prevent the use of these and even more potent weapons to come."

The last sentence of the Commission's released statement, against the background of earlier beliefs that the thermonuclear release of energy could be applied only in terms of super-explosions that would be some orders of magnitude greater than those of atomic bombs, raised some of the same eyebrows that had previously been affected by a remark of the late chairman of the Joint Congressional Committee on Atomic Energy, Senator Brien McMahon, who had suggested that "important peacetime applications of hydrogen principles" might turn out to be an ultimate consequence of the AEC's thermonuclear research.

End of a Project

Richter's Arrest Reported

An officially unconfirmed story from Buenos Aires has indicated that Argentina's well-publicized attempt to produce thermonuclear energy for industrial purposes has finally fizzled out. According to a special dispatch to *The New York Times*, written by Edward A. Morrow and datelined December 4, all three hundred workers at the secret Huemul Island laboratory on Lake Nahuel Huapi near the Patagonian town of San Carlos de Bariloche are reported to have been dismissed, and laboratory director Ronald Richter is said to have been arrested by the Argentine government.

As late as last July, according to the *Times*, President Perón promised that within eighteen months to two years Argentina would have an atomic power plant in operation. It was also reported that there have been many changes in the Argentine Atomic Energy Commission during the past year—perhaps the most outstanding one being the appointment of Commander

Pedro Goytia to succeed Colonel Enrique Gonzales as AEC chairman.

In March 1951, the Associated Press quoted President Perón as declaring that one month earlier, in the pilot plant on Huemul Island, "thermonuclear experiments were carried out under conditions of control on a technical scale". Argentina, he explained, had given much thought during the early postwar period to whether it was worth the trouble to make the necessarily enormous capital investment required to produce nuclear fission or whether it might be preferable to "run the risk of creating a new system which might lead to better results but also might lead to failure".

"The new Argentina," he continued, "decided to take the risk and adopt all measures which might bring the desired result. Preliminary tests were crowned with success, encouraging us to install on Huemul Island a pilot plant of atomic energy with the aim of creating new conditions of work which would permit us to carry out the new project."

"There, contrary to what has been done in foreign experiments, Argentine technicians worked on the basis of thermonuclear reactions, which are identical with those whereby the sun releases atomic energy. In order to produce such reactions it was necessary to have enormous temperatures of millions of degrees."

"For that reason the fundamental problem to be solved was how to produce such temperatures. The next step consisted in injecting within the zone of reaction nuclei capable of reacting. To avoid catastrophic explosions it was necessary to find processes whereby it would be possible to control thermonuclear reactions in a chain. That objective, almost unattainable, was reached."

"The result of this and many other previous experiments led up to that of February 16, when there was held with complete success the first tests which, with the use of this new method, produced controlled liberation of atomic energy."

In concluding his official statement, President Perón is reported to have said, "I wanted to inform the people of the republic with the seriousness and veracity which is my custom concerning a happening which will be transcendental for their future life and, I have no doubt, for that of the world. In so doing I hope to exhort all Argentines to collaborate in this great project which will redound so much to the enormous benefit of our country. . . ."

"Each one of us must, with his knowledge, his studies, his material assets, bend his work and effort toward making this project successful. The country will owe them in the future a greatness which today we cannot begin to imagine. So be it."

American Physics PhD's

60% Awarded by 13 Institutions

Of the three thousand PhD's in physics listed in *American Men of Science*, more than sixty percent received their doctorates from thirteen leading institu-