- 3. G. E. LARAMORE, J. C. BLASKO, T. W. GRIFFIN and M. T. GROUDINE, Fast neutron teletherapy for advanced carcinomas of the oropharynx. *Int. J. Radiat. Oncol.* **4,** Suppl. 2, 94 (1978).
- 4. G. E. LARAMORE, T. W. GRIFFIN, D. TONG, M. D. GROUDINE, J. C. BLASKO and R. G. PARKER, Fast neutron teletherapy for advanced carcinomas of the oral cavity and soft palate. *Int. J. Radiat. Oncol.* 5, Suppl. 2, 188 (1979).
- 5. T. W. GRIFFIN, G. E. LARAMORE, R. G. PARKER, A. J. GERDES, D. W. HEBARD, J. C. BLASKO and M. GROUDINE, An evaluation of fast neutron beam teletherapy of metastatic cervical adenopathy from squamous cell carcinoma of the head and neck region. *Cancer (Philad.)* 42, 2517 (1978).
- 6. L. J. Peters, D. H. Hussey, G. H. Fletcher, P. A. Baumann and M. H. Olson, Preliminary report of the M.D. Anderson Hospital/Texas A. & M. variable energy cyclotron fast-neutron therapy pilot study. *Amer. J. Roentgenol.* **132,** 637 (1979).
- 7. L. J. Peters, D. H. Hussey, G. H. Fletcher and J. T. Wharton, Second preliminary report of the M. D. Anderson study of neutron therapy for locally advanced gynecological tumors. In *Proceedings of the Third Symposium on Fundamental and Practical Aspects of Fast Neutrons and Other High-LET particles in Clinical Radiotherapy*, p. 3. Pergamon Press, Oxford (1979).

Europ. J. Cancer Vol. 17, p. 369
C Pergamon Press Ltd. 1981. Printed in Great Britain

0014---2964/81/030369---01 \$02.00/0

Dr. Joseph P. Geraci's Letter to the Editor was sent to

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who offer the following comments:

Dr. Geraci's Letter to the Editor was sent for comment to us as editors of the supplement of the European Journal of Cancer containing the of the Proceedings 3rd Meeting Fundamental and Practical Aspects of the Application of Fast Neutrons and other High-L.E.T. Particles in Clinical Radiotherapy, As organisers of that Meeting we had invited representatives from all centres in the world, known to have treated more than a hundred patients with fast neutrons, to report on their experiences. The group from the University of Washington (Seattle) had treated more than two hundred patients in pilot studies. Their experience was presented in a paper by Dr. Griffin et al., containing interesting data. As editors we had neither reasons nor means to analyse the data in the way Dr. Geraci did.

As clinical and experimental investigators

in the field of fast neutron therapy, it is our opinion that the available data from Houston and Seattle were not quite convincing with regard to biological advantages of a mixed beam therapy and that differences with neutrons alone could be attributed to differences in dose fractionation schemes and dose distribution. For the same reason the High-L.E.T. Therapy Group of the E.O.R.T.C. decided not to include an arm with mixed beam treatments in their trials, but to compare neutrons alone with photon treatment to establish differences in biological effects between both agents, using five daily fractions per week in both arms. The influence of a worse dose distribution in the neutron-treated patients unfortunately can not be eliminated, but by careful planning it is tried to reduce this factor. Carefully planned controlled studies are needed to establish the value of mixed beam treatments.