Pioneering Magnetic Work Omitted

To the Editor:

I am writing to protest the biased view taken by the editors and authors of the August 1993 *MRS Bulletin* on Materials Science in High Magnetic Fields. In particular, several misleading statements detract from the value of the volume as a reference work.

Perhaps the most important omission is that the pioneering work of the group of Prof. F. Herlach at the University of Leuven is almost totally ignored. This group trained many of the scientists whose work is cited, and unselfishly passed on technology and know- how to them. I am certain that the coils pictured on the front cover are the work of Prof. Herlach, and yet the fact is not acknowledged. The Leuven group also holds the record for the highest nondestructive pulsed field (73 T, I believe) and yet this fact is not mentioned. There are numerous other instances.

In another section (page 46), rather indifferent data for a GaAs-(Ga,Al)As heterojunction and a crystal of κ-(BEDT-TIF)$_2$KHg(NCS)$_4$ are displayed; the intention seems to be to demonstrate the "state of the art." Workers at Leuven obtained superior data on both systems at lower temperatures (down to 300 mK) combined with higher magnetic fields (up to 50 T), and their work has been reported in the scientific press.[1-3]

In addition to these omissions, the explanation given in the text for the kink feature in κ–(BEDT-TTF)$_2$KHg(NCS)$_4$ has been discredited for a number of years (see e.g. M.V. Kartsovnik, A.E. Kovalev and N.D. Kushch, *J. Phys. I France*, **3**, 1187 (1993) and references therein).

Many workers in the field will spot these and other omissions and will wonder if a political point was being made by the authors. I hope that this was not the case. I believe that at the very least Prof. Herlach deserves an apology.

1. J.R. Mallett, P.M.W. Oswald, R.G. Clark, M. van der Burgt, F. Herlach, J.J. Harris, and C.T. Foxon, Springer Series in Solid State Physics **101** (1992) p. 277.
2. F. Herlach, M. van der Burgt, L. Deckers, G. Heremans, G. Pitsi, L. van Bockstal, S. Ashkenazy, R.G. Clark, H. Jones, and J. Mallett, *Physica B* **277** (1992) p. 63.
3. J. Singleton, F.L. Pratt, M. Doporto, J.M. Caulfield, S.O. Hill, T.J.B.M. Janssen, I. Deckers, G. Pisi, F. Herlach, W. Hayes, J.A.A.J. Perenboom, M. Kurmoo, and P. Day, *Physica B* **184** (1993) p. 470-480.

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(Letters are continued on p. 6)

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To the Editor:

In the *MRS Bulletin* on Materials Science in High Magnetic Fields (August 1993), there are omissions regarding our research group which I should like to see amended.

On the cover and on page 57, there are pictures featuring coils that were designed and made at Leuven, and no reference is made to this fact. In the related article, there is not a single reference to our published work[1] regarding these high-performance coils which generate the highest nondestructive pulsed fields presently available (up to 72 T). The strong and essential support that we have given to the NHMFL (National High Magnetic Field Laboratory) in order to set up an experimental facility with capacitor-driven pulsed magnets is not mentioned. We were approached by the director and colleagues from the NHMFL to engage in a collaboration with them. In response, we have freely shared our expertise and we have accommodated researchers from NHMFL at our laboratory to assist in winding these coils and thus get hands-on experience. There is just one rather funny sentence (p. 57) stating that the Katholieke Universiteit at Leuven has been making successful coils with glassfibres...

In the article "Science and Techniques Using Pulsed Magnetic Fields" (p. 44), there is a figure showing the quantum Hall effect and magnetoresistance in organic conductors, and it is claimed that the "quasistationary fields" at Amsterdam are particularly well suited for these experiments. It is not mentioned that the pioneering work in both research areas was done at Leuven, where excellent results were obtained both in higher fields and at lower temperatures (^{3}He)[2,3] It appears that research in nondestructive pulsed magnetic fields generated by capacitor discharges is not covered at all, although this makes up for the vast majority of experiments in the highest fields published so far. This includes the excellent work going on at INSA Toulouse for many years. Many laboratories are now engaged in this type of work, among others at MIT which has a long standing tradition, at Bell Laboratories, the universities of Osaka and Kobe, ISSP Tokyo, IMR Sendai, NRIM Tsukuba, Clarendon Laboratory Oxford, University of Bristol, University of New South Wales, and the Humboldt University Berlin. Many papers have been published reporting excellent results.[4-7] One would expect this to be mentioned in a review on research in strong pulsed magnetic fields.

1. L. Van Bockstal et al., *Meas. Sci. and Technol.* **2** (1991) p. 1159–1164.
2. J. Singleton et al., *Physica B* **184** (1992) p. 470–480.
3. J.R. Mallett et al., in Reference 5, p. 277–287.
4. HFM-88 Leuven, *Physica B* **155** (1989) p. 3–439.
5. Würzburg 1990, *Springer Series in Solid State Sciences* **101** (1992) p. 1–695.
6. RHMF Amsterdam, *Physica B* **177** (1992) p. 3–530.
7. Yamada XXXIII, *Physica B* **184** (1993) p. 1–533.

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Response:

The letters from John Singleton and Fritz Herlach comment on the content of the August 1993 *MRS Bulletin*, for which I served as the guest editor. The aim of this special issue was to communicate to the broad materials science community reached by MRS the excitement and growth of magnetic and magnet-related materials research and applications. The desire of Profs. Singleton and Herlach to give more exposure to the research done at the Katholieke Universiteit Leuven using high magnetic fields speaks to the very point of the August issue. Publication of these letters by the *MRS Bulletin* editors is appropriate and furthers the communication of the growing role of high magnetic field research.

The format of the *MRS Bulletin* is not that of a typical reference work. High-field magnet facilities exist and are being upgraded in many countries. In this issue, we did not catalogue all of those capabilities or include all of the latest advances normally addressed by a reference work. References were given to a number of recent publications where interested readers could obtain much of this information.

We learned of the achievement of the Leuven group in producing nondestructive pulsed fields up to 72 T after the August *MRS Bulletin* issue was already in press. We congratulate them on this achievement as they join other laboratories such as AT&T Bell, MIT, and Osaka

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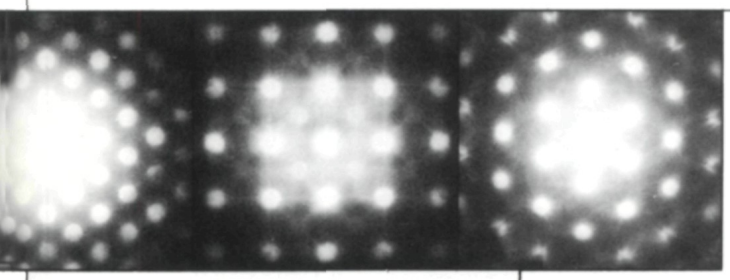

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University, who have reached over 70 T using closely related magnet technologies.

The cover of the August issue shows an experimental magnet station at the National High Magnetic Field Laboratory (NHMFL) in Los Alamos. Pictured are several commercial instruments and equipment with a 50 T magnet hidden somewhere in a pool of liquid nitrogen. We chose to make no reference to the origins of any of the equipment in the photograph. On page 57, the magnet shown in Figure 1 was made through a collaboration between Leuven and NHMFL. The caption should correctly have read, "Magnet coil tested at Eglin Air Force Base, Florida. The coil, made from ETP copper and wound at Katholieke Universiteit Leuven by NHMFL and Leuven staff, self-destructed at 57–58 T." This omission was an editorial oversight which I am pleased to correct.

Don M. Parkin
Guest Editor
MRS Bulletin
August 1993

The *MRS Bulletin* invites readers to send letters to the editor. Letters must be signed and should include affiliation, address, and phone number. Short, typed letters are preferred. Mail or fax letters to:

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