# From the Editor's Desk

## *Ephemeral Versus Eternal*

■ **Madhu S. Gupta**

Is *IEEE Microwave Magazine* an archival periodical or a throwaway magazine? This question may appear simplistic, because it ignores the reality of a continuum of archivalness among writings, ranging from the Magna Carta to last week's weather forecast in the newspaper. Nevertheless, it is still asked in practice and not simply due to idle curiosity, but because it influences real decisions concerning, for example, the indexing of the *Magazine* (until recently, the IEEE has indexed it only selectively) and the writing of articles for the *Magazine* (some authors want to write for, and value, only the archival publications).

The posed question would be easy to answer if we had a precise definition of exactly what "archival" means. According to Webster's dictionary, anything contained in, or relating to, public records or historical documents is archival. This technically makes the *Magazine* archival, because its contents are, indeed, public record, stored and accessible through libraries and the Internet. But those who ask whether the *Magazine* is archival are not looking for a mechanical answer that totally sidesteps a value judgment.

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To many, being archival is synonymous with being valuable, presumably because only valuable things are archived. That may well have been true in the days of the Library of Alexandria, when records were kept on papyrus scrolls; distinguishing between the ephemeral and the eternal has become more involved since the advent of computers, the Internet, and cyberspace. Neither does the availability of some writing in an archive constitute a confirmation of its continued value: no one makes a value judgment periodically to determine whether an archived item should remain archived or should be deleted to make space for the other items vying to become archival. At the rate at which the storage capacity of computers has increased, while the cost has dropped, in the past few decades, such vigilance is unnecessary.

Academics, for whom publications are a principal measure of their output, tend to be particularly sensitive to the archiving issue, sensitized in part by conferences with no published record, and "publications" consisting of postings on a Web site. They employ archiving as one of the criteria to distinguish between different types of publications and to organize their publications in the order of significance, for at least two reasons. First, archiving ensures the long-term accessibility of the written material, enabling it to be available for later reevaluation and utilization (and hopefully discourage republication?), in keeping with the academic values and tradition. Second, a work, with an enduring, rather than fleeting, significance is highly prized in academic circles, and such work is expected to be archived. It is ironic that while the academic value system reveres eternalness, a vast majority of research work conducted on university campuses in the field of engineering continues to be mostly empirical and short lived and is not destined to become enshrined in the textbooks of the next generation.

Although archiving appears to confer a form of immortality on an article, availability in a long-term archive does not imply its continued usefulness. In fact, the duration of archiving is highly subject to the "halo effect": given the reputation of the IEEE as a heavyweight in the field of electro technology and the simplistic tendency to lump all IEEE publications together, the archival lifetime for IEEE publications can be projected to be longer than that of any IEEE member currently living, irrespective of the longevity of its content. That the utility of an article can come to an end

well before its availability in an archive is verified by the statistics on the frequency of access and retrieval of articles from electronic databases or, equivalently, from the layers of dust on the untouched older journal volumes in a library. In deductive subjects like mathematics, where results are objective, it is not uncommon to need a 100-year old paper for study. In technology, few other than historians would read a paper published that long ago, because advances are preserved in the state of the art rather than in the literature.

In technological fields, very little is forever because forever is so, so long! However, some things do come closer to being forever than others. It is easy to find examples: electromagnetic field theory will outlast CDMA technology. But electromagnetic theory has endurance not because Maxwell published his work in an archival periodical or because his original works are still being widely read, but because it has an enduring usefulness. Clearly, the merit of a work lies in its usefulness and the duration of that usefulness, not in the duration of its availability in an archive. Archiving can confer only a long availability, but not the longevity that comes from the intrinsic utility of the content.

While useful writings are archived, not all archived writings are useful. Moreover, editors routinely accept articles for publication that might have only a current relevance, not necessarily a lasting value. Therefore, inclusion in an archive does not constitute certification of either usefulness or long-term worth; to treat it as such is to blur the distinction between long-term availability and long-term value. It also ignores the thorny question of whether such a priori determination of usefulness and durability is even feasible.

Long-term archival accessibility may not even be essential to usefulness. The duration of usefulness is indeed one measure of the worth of a publication, but it is by no means the only measure, or even necessarily the most important or essential one in a technological field. Contributions of immediate, short-term value can be very important too, because a work of engineering may serve its purpose admirably by being useful only once, or at one time. While science has always prided itself for having the goal of the search for enduring truth, the goal of technology is to serve mankind here and now. An engineering contribution can more than make up in its immediate impact and relevance what it loses by not having an archival-type long-term value. The worship of archival-ness in the halls of academia may be nothing more than another example of the engineering discipline seeking respectability by emulation of the sciences.

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