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EDITORIAL

IDS in 1992 and 2020

For global drying R&D, it is fair to say that 1978 was an important year of historical significance. Establishment of the biennial International Drying Symposium (IDS) was a watershed event, which triggered interest in recognizing the critical role of drying in most industrial sectors. As an energy-intensive operation with large carbon footprint and decisive effect on product quality, it is not surprising that both academic and industrial communities started paying serious attention to developing a knowledge base and even know-how to enhance the performance of scores of dryer types found in drying thousands of wet materials. The IDS series, along with a number of sister conference series around the world, has contributed to innovation in drying technology. Indeed, this journal also has its origin in the success of the initial three conferences viz. IDS 1978 in Montreal, IDS 1980 in Montreal and IDS 1982 in Birmingham, UK.

Recently, I had the occasion to study carefully the technical program of IDS 1992, which I organized in Montreal. Naturally, I am tempted to compare various aspects of IDS 1992 with IDS meetings held in recent years. A thorough comparative evaluation is clearly impossible in a brief Editorial, so I will only focus on some key significant changes. As the only individual who has attended every IDS held since 1978, it is perhaps useful for our readers to receive my views on IDS—now and then. While the objectives and format of IDS have remained essentially unchanged, the truly familial and friendly atmosphere that prevails at IDS meetings is the highlight of this symposium series. Typically, only about 20–30% of the attendees are repeat participants from preceding meetings. Thus, there is healthy regular renewal of both presenters and participants. Indeed, most of the early regular participants from the initial ten meetings are now retired; we are grateful for their contributions without which the series may not have retained its vitality and value. I do not know of any conference series that has had a successful run for over four decades. The truly global nature of IDS has been the key to success since contributions from numerous countries have varied dramatically over the decades. Major participating countries from the first decade now make minimal contribution. China, on the other hand, was not a notable contributor just two decades ago, while is now by far the most significant contributor.

An important difference in the early technical programs and the one now is that the number of participants as well as countries they represent are both higher. This is not surprising since the number of countries around the globe has nearly doubled over the past three decades. Second, participation by industry has declined with occasional increases in some IDSs. Also, early meetings had sought and obtained co-sponsorship from numerous interdisciplinary professional as well as industry societies. Since 1986, IDS developed a major awards program, which attracted industry support. Despite lack of telecommunication facilities and dependence on snail mail, IDS did attract global attention. Also, early IDSs managed to publish hardcover proceedings, which were widely available and indeed served as the only unified vehicle for dissemination of research publications around the world. Selected refereed papers also appeared in this journal.

With reference specifically to IDS 1992, it is interesting to note a drastic reduction now in global R&D in the forest products sector. While multiple technical sessions were organized at IDS 1992 on drying of pulp, paper, and wood, very few papers appeared in these areas in recent IDSs. On the other hand, IDS continues to encourage industry-academia interaction with increasing success. Also, initial focus on energy efficiency has shifted towards product quality and innovation. Industry focus has continually shifted towards foodstuffs.

It is interesting to note that IDS 1992 introduced a number of themes, which continue to attract attention of participants even now. These include pulse combustion drying, impinging stream drying, intermittent drying of batch dryers, image analysis to study microstructure of drying objects, use of artificial neural networks to model nonlinear dryers/drying processes, atmospheric and low-pressure superheated steam drying, microwave and RF drying. Interestingly, the concept of microwave vacuum drying was first presented by the US aerospace company McDonnell Douglas at IDS 1978. Much work has been done in development of this concept but it has not reached mainstream yet. Superheated steam spray drying idea was also introduced by late Dr. W. H. Gauvin at IDS 1978. It is now being evaluated for commercialization. These are topics I mentioned as potentially important innovative themes for future research in my plenary lectures. It is noteworthy that these topics are covered even in the latest IDS program. The fact that the novel themes in drying research presented at IDS 1992 (or even 1978!) continue to evolve three decades later is testament to the long gestation times needed to bring novel ideas to commercial reality. As I have noted repeatedly over the past three decades, the long half-life of drying

technologies is one of the reasons for the slow pace of introduction of innovation in practice. At least five innovative drying technologies for paper were researched extensively during 1970–1980 and later abandoned in favor of incremental innovation of conventional dryers. This explains why many of the early ideas are still being investigated and some have potential for commercialization. Lack of proactive industry participation also slows down technology transfer from academic innovators to industry. Much of the literature on innovative dryers originates from academia. Close contact and collaboration with dryer vendors and users is essential to scaling up novel dryers, so they can be introduced successfully in industry. International networking also helps dissemination of new ideas and allows link to be established between researchers with common interests.

Finally, I am pleased to note that the ongoing success of IDS highlights the continuing importance of thermal drying to industry. The need to dry thousands of materials to varying specifications in hundreds of dryer types makes the overall research and design problem extremely broad. Use of advanced analytical and computational tools will help us advance our knowledge base more rapidly than we could in the past. I believe we still face numerous challenging problems in drying science and technology that will make for stimulating programs at future IDS conferences.

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