

Defence Science Journal: Sixty Successful Years of Publication

The Birth of the Publication

After Independence, the necessity for a Defence organisation dealing with research, development, and design related to equipment for the Services, including armaments, ammunition, electronics, aeronautics, vehicles, engineering stores, and operations research, was felt. So, the Defence Science Organisation (DSO) was formed in 1948 under the stewardship of Prof DS Kothari as its first Scientific Advisor to *Raksha Mantri* (Minister of Defence) (SA to RM), to tackle basic Defence problems. The DSO Science Policy Board, in the beginning of 1949, approved the publication of a journal exclusively devoted to Defence science. In pursuance of this, the first issue of *Defence Science Journal (DSJ)* appeared in July 1949. With the July 2009 issue, it has completed sixty successful years of its continued publication. However, the *Journal* could complete only 59 volumes as it was not published in the year 1951. At the time of starting, Dr Kothari spelt out the scope and objectives of *DSJ* as follows:

“Its objective is to stimulate study and research in science—fundamental and applied—in relation to the problems of Defence. It serves to bring to the notice of the scientists in universities and other research institutions the basic problems in Defence science, the work that is being done in this field and its importance and also the role of Defence Science in the progress of science generally. A properly conducted Defence Science Journal will go a long way in creating and sustaining interest amongst the research workers in universities and civil institutions, in Defence Science and Technology.”

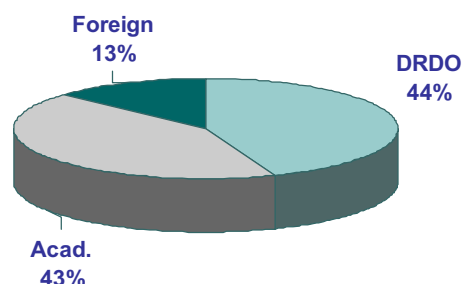
Initially the publication work was looked after by the Defence Science Library. The *Journal* in the beginning started as half-yearly, but it was made a quarterly journal from volume 2 (1952). For eight years (from 1949 to 1958, volumes 1 to 8), the *Journal* was classified as **Restricted**. To widen its scope and circulation, in 1959 it was made an open publication. The restricted papers published in the *Journal* during 1949-1958 have been downgraded in February 2008.

The Content

The contents of the *Journal* were changed from time-to-time. It covered wide spectrum of Defence-related research papers by the scientific, technical, and Service personnel as

well as the activities of the Organisation. It published the Proceedings of the Defence Science Organisation, and also current information services like Additions to the Defence Science Library (DSL), abstracts from current periodicals, conferences, symposia conducted by DSO, etc. Abstracts from current periodicals were prepared by the scientists themselves in the beginning, and later by the senior scientific assistants working in the DSL till 1958. After becoming an open publication, *DSJ* neither reported Proceedings of Defence Science Conferences as well as Commonwealth Defence Science Conferences (CDSC) nor it published the current awareness lists and related activities of DSL. The contents were only research papers.

Research papers were invited from national laboratories, research institutions, universities and industrial research establishments embodying the results of their work which immediately or subsequently may have a bearing on their application to Defence problems. Research papers and short communications are included in the four main issues brought out in the months of January, April, July, and October of every year; one or two supplements were also brought out in the months of April and October. While the *Journal* mainly intended to cover original investigations, the supplements were brought out with an objective of publishing review papers. These contained not only material collected from various sources (with due acknowledgements to the original sources), but also analyses and critical evaluations of the views, hypotheses, and theories prevailing in their respective fields. Later the *Journal* stopped publication of review articles as supplementary issues and started to include them in the regular issues. Currently, the *Journal* has about 44 per cent contributions by DRDO scientists with about 43 per cent papers contributed by academic and R&D institutions in India and 13 per cent contributed by foreign R&D institutions.



Appointment of a Regular Editor

Initially, the Registrar of DSO was the Editor of the *Journal*, but with the expansion of the Organisation and with the additional burden of work, it was not possible for the Registrar to shoulder the responsibilities of the Editor. Hence, the Editor's work was assigned to a Senior Scientific Officer (SSO). As per the records available, Dr A Seetharamiah was the first part time Editor (1952-54), followed by Dr K Neelakantam for a brief period (1955) and H Nath (1955-59) as part time editors. The year 1958 is a watershed with a lot of significance for many reasons. It was the year when all Technical Development Establishments (TDEs) and Laboratories under Ministry of Defence were merged and put under the control of DSO, which was named as Defence Research & Development Organisation (DRDO) with wider responsibility. The Scientific Information Bureau (SIB) was created in 1958 and the Publication Division of SIB started bringing out the *Journal* (SIB was later rechristened as the Defence Scientific Information and Documentation Centre (DESIDOC) and made a constituent establishment of DRDO in 1970). It was the year when a decision was taken to make the *Journal* open and to engage a full time Editor for it. In 1959, a post of SSO (Grade-I) was created for the Editor in SIB and Dr NP Rao was selected as the *Journal's* first Editor. With a full time Editor available the editing and publication work was reorganized to give new impetus for technical writing and editing to bring accuracy, clarity, simplicity and readability in the scientific writings.

After Dr Rao, many Editors, including Joga Rao, GS Sharma, PG Krishnamurthy, BC Pande, etc. made valuable contributions during their association with the *Journal*. Dr SS Murthy took over as Director, DESIDOC and Editor-in-Chief in October 1979 and continued in that capacity for over two decades. He introduced many new features like publishing special issues on topics of Defence interest, inviting review papers from experts of eminence, change in the get up and layout of the *Journal*, and so on. The Editorial Board selected best papers published in the *Journal* in a year in different disciplines and conferred Best Paper Awards on the authors. These measures attracted attention of R&D scientists and researchers thereby improving the number and quality of papers received for publication. During this time in 1987, Dr AL Moorthy, the current Editor-in-Chief, joined as Editor of the *Journal*. He has taken keen interest in automating the Editorial process, speeding up the refereeing system by maintaining a database of active subject experts in various

fields of specialization, introducing uniformity in style, standardization of references, changing the size and layout of the *Journal* to the current one (A4 size) in two columns, using better quality of paper, and so on. In a few Editorials in 1991 and 1992, he described steps taken towards changing the get up, strengthening the refereeing system to stem out plagiarism, and improving quality of research papers. During his time, in 1991, the *Journal* became the first in the country to accept papers as *compuscripts* (in electronic format) irrespective of word processing language used in the preparation of the paper. It also one of very few journals that defrays the incidental charges met by referees and pays a token honorarium to the non-DRDO Guest Editors. These unique measures made the referees and Guest Editors more involved in their tasks leading to the improvement of the overall quality of the contents.

The Editorial Board

The *Journal* has an Editorial Board with the SA to RM & Director General, Defence R&D and Secretary Department of Defence R&D as the Ex-officio Chairman, with eminent scientists, technocrats and science administrators as its members and the Director of DESIDOC, the Editor-in-Chief, is the Member Secretary of the Editorial Board. The Editorial Board looked into the policy matters to improve the quality of contents, identifying Guest Editors for Special Issues and to guide the *Journal* in its endeavours towards disseminating current Defence R&D to its readers.

The first Editorial Board for the *DSJ* was constituted in 1965 with Dr S Bhagavantam, SA to RM and Director General, Defence Research and Development as Chairman, Prof TR Seshadari, FRS, Delhi University; Dr KR Ramanathan, Director, Physical Research Laboratory, Ahmedabad; Prof BR Seshachar, University of Delhi; PL Bhatnagar, Indian Institute of Science, Bangalore; BS Kesavan, Director, INSDOC, Delhi; Dr V Ranganathan, Dy Chief Scientist, DRDO HQrs and Dr Kartar Singh, Director, Defence Science Laboratory, Delhi as Members with Officer-in-Charge, DESIDOC as Member Secretary. To bring in fresh ideas, it was reconstituted occasionally; significant changes in the members were effected in the years 1981, 1985, 1989, and 1992. The current Editorial Board was reconstituted in 2007.

The Editorial Board met from time to time to lay down broad editorial policies for the *Journal* and to direct its progress through suitable advice. Most of the times, the Members were not in a position to attend the meetings due

to preoccupation in other assignments. The first meeting of the EB was held on 23 October 1969 in Metcalfe House. Important decisions taken with respect to *DSJ* include discouraging proliferation of journals issued by individual DRDO establishments/ laboratories DRDO; mobilization of quality material from the establishments for inclusion in the *DSJ* to represent the total research efforts of DRDO, printing the *Journal* by private presses in view of the unsatisfactory printing at the Govt of India Press at Shimla, to establish a printing press at DESIDOC for printing the *DSJ*, possibility of increasing the exchange of the *Journal* with other journals, and publication of proceedings of the seminar/symposia held at DRDO laboratories. These decisions made a tremendous impact on the quality improvement of content and printing. Other significant decisions were taken in the Editorial Board meetings held in 1982 and 1991.

The *Defence Science Journal* is a multi-disciplinary journal covering a wide gamut of areas in basic and applied science, engineering and technology. So, it is likely that a reader may not get even a single paper of interest in some issues. So, efforts were taken to cover over 15 broad subject fields covering aeronautics, armaments and explosives, biomedical sciences, agricultural sciences, chemical technology, computer sciences, electronics, fluid dynamics and applied physics, material sciences, operations research and management, etc. To attract good quality papers and to increase the visibility of the *Journal*, the Editorial Board in the year 1983 decided to bring out special issues on topics of Defence interest with eminent experts in the field as Guest Editors. The first special issue was published in January 1984 on Ocean Optics guest edited by Dr R Hradaynath, the then Director of Instruments R&D Establishment, DRDO. This issue (July 2009) is the forty-sixth in the series with a few more special issues planned during 2009-2011. All the special issues were well received by the scientific community.

The Editorial Executive Committee

However, many Members, being very senior officials and top-level science administrators, could not attend the meetings due to their busy schedules and preoccupation or prior commitments. A strong need was therefore felt to have a working group like EEC comprising members with knowledge of Defence R&D areas who can meet more frequently. So a decision was taken in the year 1993 to have an Editorial Executive Committee (EEC) to oversee editorial process and to guide the editorial office in getting good quality papers and in their evaluation. The

main functions of the EEC are to identify the gaps in the areas to be covered by the *Journal* and also authors for approaching them for obtaining the papers, to recommend topics for commissioning technology reviews and state-of-the-art papers and to identify referees for various areas, to scrutinize the papers meant for publication in the *Journal*, for their suitability in general, subject to refereeing, to help in improving the Editorial processing of the papers to maintain high academic standards, and to help in identifying topics of current Defence interest for the special issues of the *Journal* and eminent guest editors for the special issues.

The EEC had a dynamic Chairman in Dr M Krishnamurthi who guided the EEC for more than a decade. This led to the improved quality of the publication, timeliness, and selection of Guest Editors for the special issues besides helping the *Journal* in refereeing or helping in identifying suitable referees. The EEC reconstituted in 1998 is guiding the *Journal*.

Printing of the *Journal*

During 1949 and 1982, the *Journal* was printed from Government of India Presses at Shimla or Nashik or Faridabad. Long distances (except Faridabad) between Delhi the Editorial office and the Press led to delays. So, the *Journal* started publishing late, often lagging behind even by a year and the overall quality of copies was not elegant. It was very difficult to get an urgent job done in due time. Many a time the Editor, had to visit the Press to oversee carrying out the corrections and to avoid delays. In those days printing of all Govt publications is to be carried out centrally by Govt of India Presses. So, a Government sanction was obtained in November 1980 to get the *Journal* printed in private presses on competitive tender basis. With the concurrence of Integrated Finance (Defence) tenders were invited; only one press came forward as the *Journal* contains a number of formulae, mathematical equations and symbols. In the year 1982, the *Journal* started printing by the Kapoor Art Press, Delhi with an overall expenditure of Rs 64,777.80, including paper and binding. For the next six years (1983-1988), Leipzig Press, New Delhi, printed the *Journal* at a slightly less cost. This greatly cut the time taken for checking galley proofs and it gave a lot of flexibility and also facilitated the Editors to have greater interaction with the Press to improve the quality and layout.

Establishment of In-house Printing Press

To facilitate small and urgent printing jobs like pamphlets, forms, brochures, etc and to overcome delays

in printing, in 1961 the SIB established a Polygraphy Division, a printing press with Letter Press Unit. In those days, only hand-written (and not typed) manuscripts with free hand drawings using tracing papers were received from the authors. Photographs were processed from the Reprography Division of the SIB. Individual alphabets, equations, symbols, etc were composed on the wooden blocks for printing. Proof editing was a cumbersome process and carrying out major corrections using this technology became difficult. Between late 1960s and early 1980s mechanization of printing activities started with the addition of Rota print, Romayer, Swift offset printing machine, Varytype and Network typewriters, IBM Electric Selectric compositors with in built memory, use of pre-sensitised plates, and Swift offset machines. During the second half of the 1980s Dr SS Murthy took steps to modernise the printing unit with two high speed offset printing machines (Dominant and Heidelberg) imported from abroad. NC Scriber was added to facilitate redrawing illustrations, figures and sketches in the research papers to get the required quality in the publications. Also the CR Tronics computer-based phototypesetting machine and a Climisch camera were imported to further strengthen the printing facility. This has further helped in the timely publication and control of quality in printing as it was an in-house activity.

Current Status

The *Journal* is covered by over a dozen major indexing and abstracting agencies including HW Wilson full-text databases and World News Connect database of NTIS. A DVD containing full-text database of *Defence Science Journal* from 1949 to 2007 (volumes 1 to 57), searchable by author, subject, keywords, and volume is also available through subscription. Keeping in tune with the latest developments in Open Access Initiatives, all the volumes of the *Journal* are hosted on Internet for Open Access. From the year 2007 the *Journal* started using Open Journal System Software to further speed up the editorial and refereeing processes thereby reducing by half the time taken from submission to acceptance of papers. The authors (and also referees) are registering themselves on the *Journal's* website and are able to track the progress of their papers, online. A database of referees is maintained through OJS along with their e-mail addresses. After online refereeing and receipt of the evaluation reports, a communication regarding acceptance/rejection or revision is sent to the authors. A rigorous refereeing system is in place with an overall acceptance rate of around 45 per cent. Now a paper is forwarded to three referees to help reduce the time taken for papers with differing evaluation reports. This has considerably reduced the time in the refereeing process.

Defence Science Journal Cover Page: Through Sixty Years



1949-1962
(15 cm × 22 cm)



1963-1967
(17 cm × 24 cm)



1968
(17 cm × 24 cm)



1969-1971
(17 cm × 24 cm)



1972-1980
(21 cm × 27 cm)



1981-1991
(17 cm × 24 cm)



1992
(21 cm × 27 cm)



1993-1996
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1997-2007
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2008 onwards
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Editor-in-Chief