The history of the *Journal of Neurosurgery*: how the “White Journal” helped in the growth of neurological surgery

JNSPG 75th Anniversary Invited Special Article

Charles J. Prestigiacomo, MD

Department of Neurological Surgery, University of Cincinnati College of Medicine, Cincinnati, Ohio

As the *Journal of Neurosurgery* (JNS) enters its 76th year of publication, its role as a principal repository of the neurosurgical body of knowledge continues to rise. Following in the steps of earlier journals in other disciplines, the JNS was founded to help provide experts in the field of neurological surgery a forum to present and interpret the important data that have shaped the way the field is practiced around the world. Though not exclusive in its mission, the “White Journal” innovated the management as well as the delivery of information and has served as an example for neurosurgical journals born thereafter.

As with all events, the foundational elements of the JNS are centered on the needs of the times. An understanding of the precipitating events and the individuals instrumental in its genesis and subsequent maturation brings to light the JNS's main focus: to be the principal journal for the field.

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THE ability to communicate and disseminate knowledge to one's peers in a concise and organized manner is one of the cornerstones of science and is important, in part, to the rapid growth of the scientific endeavor. As the *Journal of Neurosurgery* (JNS) enters its 76th year of publication, its role as a principal repository of the neurosurgical body of knowledge continues to rise. Following in the steps of earlier journals in other disciplines, the JNS was founded to help provide experts in the field of neurological surgery a forum to present and interpret the important data that have shaped the way the field is practiced around the world. Though not exclusive in its mission, the “White Journal,” a recent moniker reflecting its format change in 1959, innovated the management as well as the delivery of information and has served as an example for neurosurgical journals born thereafter.

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in its genesis and subsequent maturation brings to light the JNS's main focus: to be the principal journal for the field.²²

The Birth of Scientific Journals

A journal is considered a periodical, that is, a serial publication in which parts (known as “issues”) are authored by various contributors. Each issue is numbered and constitutes part of a predetermined number of issues that completes a volume.¹⁹ The origins of the journal harken back to the days of the first newspapers of the late 16th century. Fueled by the progress of the Renaissance, the scientific revolution of the 16th century brought a desire to understand nature not by what was simply taught by those who came before, but by one's own observations, hypotheses, and experimentation. The natural consequence of this newfound desire to explain nature was the need to communicate this information to colleagues and all who were interested in understanding nature. Designed for

ABBREVIATIONS AANS = American Association of Neurological Surgeons; JNS = *Journal of Neurosurgery*; US = United States.

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the lay public and principally focused on current events, the newspaper simply provided the initial concept for a method by which information could be efficiently and effectively disseminated among a group of individuals.

It was also during the 16th century that Francis Bacon had already advocated the need not only to communicate and exchange ideas among the “natural philosophers,” as early scientists were called, but also to “weigh and consider these reports.”^{23,26} These philosophers, in general, initially disseminated their discoveries, observations, and hypotheses either by writing private letters to colleagues and friends or by publishing their works in book form. Letters were limiting in that they could only be disseminated to single individuals unless copyists were employed for distribution to a larger body of individuals. Books were preferred by many early and prolific scientists who could afford the expense because they clearly demonstrated “ownership” of that intellectual property. However, the time lag to publication, the cost, and the need to build up a fairly sizeable body of knowledge (usually over many years) was limiting to many.

Concurrently, philosophers began to naturally develop informal networks of communication and, at times, collaboration that grew through personal meetings and written correspondence. By the middle of the 17th century, these were the main mediums of idea and theory exchange and also the means of claiming priority over a discovery.²⁶ In subsequent decades, these informal networks formalized into societies and academies that began to officially record the experiments and works of their members.

Unlike books of the time, which served as the primary modality of exchanging information with others, these proceedings matured to focus on an experiment or observation per communication. Whereas books encompassed an individual’s body of work and were usually large and expensive to produce (usually funded by the individual), the communications of these societies and academies were more focused. Though the formatting of these communications was by no means standardized, what we now refer to as “society proceedings” were born.

The first scientific journal was *Le Journal des Sçavans*, founded by de Sallo on January 5, 1665 (Fig. 1).^{19,31} Its purpose was “to catalogue and give useful information on books published in Europe,” in essence abstracting the body of knowledge across Europe. The power of such a periodical was quickly recognized by the populace as well as by the government and resulted in some difficulties during the journal’s early history. Its popularity and success was emphasized by the fact that Holland and Germany reprinted the journals during portions of the 17th and 18th centuries. Nonetheless, the journal evolved into the *Journal des Savants*, predominantly a literary journal during the 19th century.

The first English scientific journal was born of the Royal Society of London two months after the birth of the French journal.⁵ In contrast to *Le Journal des Sçavans*, the English journal, founded by Henry Oldenburg, would focus on experiments and some significant correspondence of the Royal Society’s members. *Philosophical Transactions* became the standard for other societal journals and became the official journal of the Royal So-

FIG. 1. Cover of *Le Journal des Sçavans*, published in 1665. Public domain.

ciety only after its 46th volume.¹⁹ Written predominantly in the society’s vernacular, the popularity of the journal’s format encouraged such future publications to adapt a vernacular approach to writing and perhaps may have ultimately influenced the movement of using “scientific English” as a common language of science in the later centuries.

Proceedings were a significant milestone in the birth of the scientific journal since they demonstrated the importance of peer review. Initially, all manner of letters, observations, and essays were included in the proceedings, whose only restriction was that the material had to be submitted by a member of the society. Though in many ways this may have inhibited scientific progress, it is historically evident that the success and longevity of a journal are in large part linked to the society’s continued sponsorship of the journal.

Likely the oldest scientific society in continual existence since its founding in 1652, the Collegium Naturae Curiosorum first published *Miscellanea Curiosa* in 1670. This journal may represent the first to freely accept contributions from nonmembers across Europe. Interestingly, this journal also seemed to have a significant amount of

medical correspondence, an inclusion mimicked by Copenhagen's *Acta medica et philosophica Hafniensia* in 1673.¹⁹ Thomas Bartholin, professor of anatomy at the University of Copenhagen, served as one of the earliest "peer reviewers" in that he provided his own editorial comments to the communications that were published in this journal. The first authentic medical journal written in its vernacular was *Les Nouvelles Descouvertes sur toutes les parties de la Medecine* in 1679.¹³

The journal format, though a clear success, was not all positive. It is estimated that by the end of the 17th century, approximately 30 scientific and medical journals were published with some form of regularity. Garrison estimated that by the end of the 18th century, the scientific or medical journal had expanded to approximately 755 publications in various languages.¹³ With a lack of societal support, most journals folded after several years, or even several issues, of publication.

Many important discoveries and communications were reported through this medium. Indeed, Isaac Newton's 1666 experiments with the prism were reported in the *Philosophical Transactions* of the Royal Society. This report was met with subsequent letters submitted by scientists who criticized and challenged Newton's findings. Though Newton responded to these letters, he never again published his works in a scientific periodical, instead choosing to publish his works in book form, as evidenced by *Principia* in 1687 and *Opticks* in 1704.²⁶

By the middle of the 18th century, the rapid growth of many scientific disciplines forced a specialization of individuals into specific scientific disciplines and in turn the need for specialized scientific journals. By the end of the 18th century, the founding of university science departments increased the development of more specialized subjects with only a minority of journals still devoted to general science (e.g., *Nature* and *Science*). With this, other common aspects of the journal began to develop as well. The format we recognize today—specified sections, author roles, citations, and, most importantly, peer review—were born.²⁶

By this time, the purpose of the scientific journal was firmly defined:¹⁹ 1) share knowledge from the foreign language literature, 2) allow for discourse (through abstracts, summaries) on scientific works without reading the entire article, 3) archive material that might have been dispersed in more transient forms, 4) promote scholarship through an inexpensive channel of communication, 5) encourage scientists to publish, and 6) critically examine hypotheses and theories.

The Birth of Neurosurgery and Its Influence on the Birth of the Journal

Though neurosurgery has been practiced since prehistory, the birth of modern neurosurgery has been grounds for heated debate. The introduction of anesthesia and the Listerian concepts of antisepsis, as well as the birth and growth of cerebral localization, established the foundations upon which the field of modern neurosurgery could develop. Though surgery to the calvarium and dura mater had been variably performed in the setting of trauma

since antiquity, it is known that the first elective surgery specifically targeting a lesion deep to the dura was successfully performed by Macewen in 1879.^{25,27,37} Macewen described the resection of a dura-based lesion (likely a tuberculoma) in a 14-year-old girl. Sir Rickman Godlee reported the resection of a tumor in a patient with severe headaches and hemiplegia in 1884.⁴ Though the procedure was successful, the patient survived only a few months, with postmortem examination demonstrating a malignant tumor. Although Godlee did not perform any further intracranial operations, he is considered important in the establishment of neurological surgery as a distinct surgical discipline. Whereas Macewen and Godlee demonstrated the ability to safely perform elective surgery deep to the dura, Victor Horsley's focus on all aspects of the central nervous system brought him to the forefront of the new discipline. The Board of Governors of the National Hospital for the Paralyzed and Epileptic in Queen Square were instrumental in creating the first neurosurgical post by appointing Horsley as director of cranial surgery, hence the first "neurosurgeon."³²

Neurosurgery as a distinct modern discipline was still very much in its infancy during the late 19th and early 20th centuries. Though the field has its roots in the United Kingdom, several of Horsley's contemporaries were likewise making inroads in moving the field forward across Europe. Although Horsley made tremendous strides in improving outcomes in patients undergoing brain surgery, he himself recognized several limitations in the current surgical methodologies as defined by the world of general surgery.^{17,32} It was in the United States (US), however, that the rigid application of techniques, new insights into the physiology of the brain and cerebral circulation, and innovative techniques and devices that helped to achieve hemostasis in the brain were developed. Harvey Cushing's initial work at the turn of the century and his meticulous record keeping on patient outcomes (through the tireless efforts of Dr. Louise Eisenhardt, the first editor of the *JNS*) served as the impetus to make this fledgling field blossom.^{20,21,24}

The first journal dedicated to the field of neurosurgery can be debated. The first recurrent publication whose major focus was in the field of neurosurgery was *Travaux de Neurologie Chirurgicale*, initially published by Chipault in 1896 (Fig. 2).²⁹ As was customary at the time, Chipault presented his works to several different societies and to the Academy of Medicine. He recognized the lack of a cohesive place for which his works and those of his French and multinational colleagues could reside; therefore, he independently created annual volumes of *Travaux de Neurologie Chirurgicale*. A brief review of materials in the first volume demonstrates a very in-depth analysis of subject matters ranging from the patterns of skull base fracture based on experimental models to injuries of the spinal cord and peripheral nerves (Fig. 3). This title was published annually for many years. Chipault's bibliography and the contents of his volumes of work hold true to his passion and belief that neurosurgery was a broader field than simply the treatment of the brain and spine.

Chipault's *Travaux* fulfills in several ways many of the factors that define a specialty scientific journal; it was a

TRAVAUX DE NEUROLOGIE CHIRURGICALE

(PREMIERE ANNÉE)

PAR

A. CHIPAULT

ASSISTANT DE CONSULTATION CHIRURGICALE A LA SALPÊTRIÈRE

J. BRAQUERAYE
PROFESSEUR AGRÉGÉ
DE LA FACULTÉ DE BORDEAUX

A. DEMOULIN
CHIRURGIEN
DES HÔPITAUX DE PARIS

E. DALEINE
DOCTEUR EN MÉDECINE
DE LA FACULTÉ DE PARIS

PARIS
VIGOT FRÈRES, ÉDITEURS
10, RUE MONSIEUR LE PRINCE, 10
—
1896

FIG. 2. Cover of *Travaux de Neurologie Chirurgicale*, Volume 1, 1896. Public domain.

recurrent publication focused on a specific subdiscipline with discrete articles, references (in footnotes), and different authors. Therefore, it is fitting to consider Chipault's work as the first in neurosurgery. However, *Travaux* lacks some critical elements. For instance, though there was a list of individuals on its cover, it is unclear if they represent authors or reviewers, such as an editorial board. Moreover, the publication itself was a single annual issue, which, though technically a journal (one issue per year), does not truly reflect the concept of a periodical.

On the other hand, *Zentralblatt für Neurochirurgie*, founded by Tonnis and Foerster in 1936 in Leipzig, seems to address all the criteria for a journal (Fig. 4). With its multinational editorial board (including Drs. Dandy, Cushing, and Putnam from the US) and regular, serial publications between 1936 and 1943, this journal addressed the many facets of a growing field, with articles spanning broad topics of interest. Because of the war, publication of this journal was suspended.⁸ Indeed, it was the shortage of paper and the call of surgeons to war that stifled some of the growth of scientific publication during this time.

FIG. 45-50. — Exemples de fractures directes avec trait commençant à petite distance d'un traumatisme ayant porté sur le vertex. (x indique le point d'application de la force) : aa') Perrin ; bb') Perrin ; cc') Chipault.

FIG. 3. Figure in the first issue of *Travaux de Neurologie Chirurgicale*. Public domain.

The Birth of the *Journal of Neurosurgery*

With the publication hiatus of *Zentralblatt für Neurochirurgie*, the field of neurosurgery again lacked a forum for scientific information exchange. Dr. Alfonso Asenjo recognized a need for a journal to address the needs of the growing field of neurosurgery. Having trained in neurosurgery under Tonnis in 1939, Asenjo had seen first-hand the positive impact of a dedicated neurosurgery journal. His further training and observerships in France, England, Sweden, Norway, Denmark, Italy, and the US underlined his belief that neurosurgery's growth was an international endeavor. Asenjo recognized that the world at war very much limited neurosurgeons' ability to travel (the classic *Wanderjahre* that many surgeons undertook to cross-fertilize the field throughout the continents). With the loss of *Zentralblatt*, Asenjo wrote several members of the Harvey Cushing Society in May of 1943, among whom was John Fulton's research assistant, Dr. Paul Bucy. In this proposal, Dr. Asenjo suggested that the society establish an international journal for neurosurgery and that John Fulton serve as its managing editor.⁶ Dr. Bucy's reply on June 19 of that year, which was forwarded to Dr. Fulton, agreed that one of the founding members of the Harvey Cushing Society would be ideal to lead the project.

John Fulton heartily embraced this initiative, but only a portion of it. He wholeheartedly agreed that there was a need for such a journal and that the Harvey Cushing Society was indeed ideally poised for such an initiative.¹⁰ By the 20th century, the focus of neurosurgery had clearly shifted from the United Kingdom and Europe to the US. Though Victor Horsley had brought about the birth of neurosurgery through his post as the first true neurosurgeon, his continued interest in other aspects of surgery, his heavy involvement in the First World War, and his lack of

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FIG. 4. Cover design of *Zentralblatt für Neurochirurgie*. Note that the members of its editorial board are listed on the cover.

a large cadre of students and trainees in the field reflected a situation in contradistinction to the growth of the field in the US. By 1920, organized neurosurgery was born in the US with Harvey Cushing establishing the Society of Neurological Surgeons. The success of this society and the continued growth of the field resulted in the emergence of numerous societies around the world. It was in this environment that the German Academy of Neurological Surgery founded the first true neurosurgical periodical in 1936, although it was temporarily halted in 1943.

Thus, Dr. Asenjo's 1943 recommendation came at a most opportune time. The folding of the only neurosurgical journal at that time, the limitation of scientific communication because of the war, and the growth of US neurosurgery's place on the international stage were critical in providing John Fulton the opportunity to bring the *JNS* to fruition.⁴¹

Heavily influenced by Charles Sherrington, John Fulton recognized the need for neurosurgery to be intimately linked with neurophysiology. His primate laboratory at Yale was designed to focus on replicating and studying the neurophysiology of neurosurgical diseases.¹⁰ His close friendship with Dr. Cushing developed through common

interests in neurophysiology and their mutual love of books and the history of medicine.³⁷ Fulton also saw the tremendous growth of neurophysiology when the discipline was matched with the new techniques developing in the field of neurological surgery. Finally, Fulton recognized that neurological surgery was experiencing the same explosive growth he noted in the field of neurophysiology. He saw the discipline in need of a repository for the growing body of knowledge, an archival medium to record the field's progress—it needed a home. His experience as the founding editor of the *Journal of Neurophysiology* in 1938 made Fulton well suited to bring the *JNS* to life.

Dr. Fulton also knew that he could not lead the publication of the *JNS*. Though he would help to greatly facilitate its birth, he recognized that the journal must be guided and grown by neurosurgeons. Thus, in 1943, he wrote the officers of the Harvey Cushing Society and proposed that the society sponsor the journal.⁷ He sparked the interest of Drs. Horrax, Spurling, Craig, and McKenzie.¹⁰ Along with Asenjo, they formed the first editorial board, with Dr. Horrax as the chairman. At the 12th Annual Meeting of the Harvey Cushing Society, held in New York City in 1943, the *JNS* was formed. The editorial board significantly reflected the mission of the nascent journal. These members respectively represented a well-respected direct successor of Cushing, a key figure in US Army medicine and neurosurgery, a key figure in US Navy medicine and neurosurgery, a leader in Canadian neurosurgery, and a leading neurosurgeon in South America.

The first issue of the first volume was published several months thereafter in January 1944 (but mailed in March), three months after Fulton's letter of September 27, 1943, to Charles C. Thomas, requesting that he publish the *JNS*. The editorial board chair, Gilbert Horrax, introduced the *JNS* and its purpose to its readers with Louise Eisenhardt as its managing editor (1944–1965).¹⁷ The first issue contained historical content on Harvey Cushing's contributions, the use of thrombin and fibrinogen in neurosurgery, case reports, and technical articles on such innovations as the lucite calvarium and the perforator and ball burr.¹⁸ The reader is encouraged to review the articles presented in the first landmark volumes of the *JNS*, which tell the story of what the *JNS* would do for years to come.

At that time, the editorial board welcomed all “types of neurosurgical and neurophysiological experience based on human material” as well as book reviews and “possibly reviews of general literature.”¹⁷ Such phraseology certainly recapitulates the original purpose of the scientific journal as it developed in the 17th century. Though the articles of the first issue were from US contributors, the editorial board assured that this was secondary to a minor delay in receiving the international submissions. Thus, since its inception, the *JNS* has truly been international in scope and interested in preserving historical roots while providing a forum for the field's future. Annual subscriptions to the *JNS* seemed to grow quickly (annual subscription rate of \$6.50 for members of the society, \$7.50 for nonmembers in the US and for residents of Canada and Latin America, and \$8.00 for international subscribers), with over 550 subscriptions by July 1944.^{2,10} By 1970, subscribers rose to

6010, of whom 4700 were not members of the American Association of Neurological Surgeons (AANS).¹⁶

The Growth of the *Journal*

Many of the traditions under which the *JNS* is published have their origins in Dr. Fulton's suggestions and the first editorial board's policies.¹⁰ It is no wonder that Dr. Spurling, one of the founding editors of the *JNS*, stated that John Fulton "fathered the *Journal of Neurosurgery*."⁷ The *JNS* is the only journal in the field of neurological surgery that is exclusively published by the society.³⁸ Printed by Charles C Thomas Publisher, the *Journal* grew substantially in its early years. At approximately 550 pages per volume, the submissions soon outgrew the publication schedule. Initially published bimonthly, the editorial board agreed to increase the pagination to almost 700 pages annually. Despite these efforts, publication of accepted articles lagged by almost two years. Despite the many attempts to arrive at a solution with Charles C Thomas Publisher, the editorial board, led by Dr. Bucy, decided to pass printing of the *JNS* to George Banta Company Inc., with Dr. Bucy as director of publications. With a significant surplus of funds, the *JNS* continued to grow substantially. In part, the resolution to the tremendous backlog of accepted manuscripts was to increase the pagination to 1134. This helped to resolve the issue in the short term, but by 1962, the *Journal* began publishing monthly with each 12-issue volume over 1100 pages. By 1965, the *Journal* began publishing two volumes annually to accommodate the numerous submissions.^{7,39}

According to the December 12, 1977, minutes of the editorial board, another important decision was made to help the growth of the *JNS*. Again, adequate space for the numerous accepted manuscripts was at a premium. In order to help control costs and help advertisers, the page size was enlarged to match the "standard" journal dimensions, help reduce the number of pages per issue (reducing costs), and accommodate the advertisers who no longer needed to create custom-sized ads for the *Journal*.

Since that time, additional changes have taken place to promote the growth of the *JNS*. Over the years, the *Journal* has included special historical articles, various supplements on neurosurgical education, and important comments and editorials.^{28,38,42} In 1996, a topic-based periodical that was free to the public was launched. As an online-only publication, the AANS's *Neurosurgical Focus* took full advantage of the digital age while also providing contemporary concepts in neurological surgery to the world's readership. It remains a shining example of the JNS Publishing Group's (incorporated in 2006) selfless devotion to the mission of education and a vital source of information to those who cannot afford subscriptions. It represents a publisher's goal to contribute to the improvement of global neurosurgery.

It is sometimes underestimated how a journal's existence can bring about a sea change in the practice of medicine and surgery. As discussed above, early scientific journals brought about a sense of cohesion with respect to how new knowledge would be evaluated, disseminated, and archived so that a body of knowledge could grow to become a specific entity or discipline. Surgery of the spine

and pediatric neurosurgery represent examples of how the development of a unique home for a particular body of knowledge helped to define the discipline. The 1980s was a time in which complex spine surgery was practiced almost exclusively by orthopedic surgeons. It was the work of several neurosurgeons prescient in understanding the need for neurosurgery to be heavily involved in complex surgery of the spine that propelled efforts to become more active in all aspects of spine surgery. The movement to grow complex spine surgery began with many parallel efforts as delineated in Dr. Dunsker's 2001 AANS Presidential Address.¹² Among the many important recommendations discussed and made at that time was the establishment of a home for research and scholarship that focused on the spine, a platform such as *JNS: Spine*. In retrospect, Dr. Dunsker believes that the birth of *JNS: Spine* was a key factor in bringing about the tremendous growth of spine surgery within the field of neurosurgery (S. B. Dunsker, personal communication, 2019). Thus, as neurosurgeons embraced the need to grow in the field of spine surgery, the number of spine-related submissions to and publications in the *JNS* increased. *JNS: Spine*, though initially a supplement to the *JNS* in 1999, became an independent journal in 2004. Contemporaneously, as the volume of pediatric neurosurgery submissions increased, another supplement, *JNS: Pediatrics*, was begun in 2004 and became an independent journal in 2008.³⁵

The Look of the *Journal*

Fulton was very much involved in all aspects of the *Journal's* look. The publisher Charles C. Thomas agreed to provide a portion of his allotment of paper (which was tightly controlled by the government during World War II) toward printing the *Journal*. Fulton wished to publish the cover in blue, but since that would have looked quite similar to the *Journal of Neurophysiology*, Fulton agreed to the now-iconic beige cover, with articles published in a single-column format (Fig. 5).¹⁰ The title font by my analysis seems to be a Monotype Lydian Cursive Regular font (though unconfirmed). As mentioned above, the Harvey Cushing Society signed George Banta Company Inc. as the printing agency in 1959. With the change in the publishing company, the cover design and title font changed. Just prior to becoming a monthly publication, the *Journal* was reformatted to a two-column text model.

In July 1970, Editor in Chief Henry L. Heyl announced several modifications to the *Journal's* look, which included a cover illustration for material relevant to that specific issue.¹⁶ He also introduced a change in the title page of each article, that is, an abstract of the article, again harkening back to the original purpose of journals—to provide cogent summaries of original work for the reader.

The *Journal* has also reflected key issues of the times through its cover illustrations (M. Weiss, T. G. Paik, personal communications, 2019). The first illustrated cover reflected an artistic piece of Dr. Cushing's, published on the centennial of his birthday. The *Journal's* appearance (and content) continues to evolve online as well as in print in order to accommodate the readership and provide valuable information in a most efficient manner.³³

FIG. 5. Cover of *Journal of Neurosurgery*, Volume 1, Issue 1, 1944. © 1944 AANS. Figure is available in color online only.

FIG. 6. Cover of Dr. Eisenhardt's green notebook, which contained the materials for the first issues of the *Journal*. Courtesy of Dr. T. G. Pait. Figure is available in color online only.

The Editors of the *Journal*

The success of the *Journal* was not just the result of the near-ideal circumstances that existed at the time of its initial publication. The hiatus of the only neurosurgical journal at the time and World War II clearly magnified the loss of valuable information exchange across the continents, but circumstances alone were insufficient for success. The people involved then and those recruited thereafter have been instrumental in the ultimate birth and growth of the *Journal*. In addition to the many board members and subsequent advisory boards that defined the *Journal's* mission and vision, the editors in chief have interpreted and executed them to near-flawless levels. Most importantly, the *Journal* has always been and will always be an “Editorial Board Journal” and not an “Editor’s Journal.”³⁶

Nonetheless, the editor of any journal leaves a significant footprint and legacy. Each editor who succeeds the former has the responsibility of furthering the legacy that is unique to the individual. This is most evident in the lineage of editors of the *Journal*. At the behest of the first editorial board and Dr. Fulton, Dr. Louise Eisenhardt was

named the founding managing editor.¹¹ For the next 21 years, Dr. Eisenhardt, a neuropathologist who was most instrumental in several books central to the growth of neurosurgery, established and led the *Journal's* production.¹⁴ Every manuscript was reviewed by the board and read and proofed by her. She kept meticulous notes of the *Journal's* production in a carefully maintained notebook (T. G. Pait, personal communication, 2019; Fig. 6). When Dr. Eisenhardt fell ill, the responsibility of editing the *JNS* was given to Dr. Henry L. Heyl (editor, 1965–1975), a skilled neurosurgeon who was no longer able to operate because of the effects of treatment for a malignancy.^{1,30} The subsequent editors are a testament to the tremendous, talented pool of neurosurgeons produced through the great training traditions. Dr. Henry G. Schwartz (editor, 1975–1985), Dr. William F. Collins Jr. (editor, 1985–1989), Dr. Thoralf M. Sundt Jr. (editor, 1989–1992), Dr. John A. Jane Sr. (editor, 1992–2013), and Dr. James T. Rutka (editor, 2013–present) have served and continue to serve selflessly for the greater benefit of the *Journal* (Fig. 7).^{9,15,23,34,40,42} To describe in detail each editor's many professional accomplishments and their respective contributions to the *Journal's* direction far exceeds the scope of this work.

FIG. 7. Editors of the *JNS*, from left to right: Henry G. Schwartz (1975–1985), James T. Rutka (2013–present), John A. Jane Sr. (1992–2013), Henry L. Heyl (1965–1975), Louise Eisenhardt (1944–1965), William F. Collins Jr. (1985–1989), Thoralf M. Sundt Jr. (1989–1992). Original photo collage by Grove Design, as modified by Stacey Krumholtz. © 2019 AANS. Figure is available in color online only.

Conclusions

The American Board of Medical Specialties (ABMS) has many requirements to recognize a field as a specialized discipline in medicine or surgery. Among the many requirements, the ABMS notes that published journals dedicated to the discipline help to define it as distinct. Neurosurgical knowledge was initially disseminated through textbook chapters and monographs, proceedings of a society's meeting, or a university-based publication such as a bulletin. The exchange of this information across the country and around the world was limited. As more and more surgeons became dedicated to the treatment of lesions of the central nervous system, the need to exchange ideas and learn from each other grew. Dr. Harvey Cushing was instrumental in bringing the foundational leaders of neurosurgery together. With that came a desire to create a specific medium into which all contributions could be dedicated to this young field. It was clear that this could only grow with an international collaborative effort. Thus, during one of the most challenging times the world has faced, this endeavor was of sufficient importance to merit attention and resources. The *JNS* was born to bring the field together through its literature as the discipline had begun to germinate through societies. In effect, it can be argued that one could not exist without the other, that each depended on the other for its existence and growth.

Though there are many journals dedicated to the field of neurosurgery, and though the original *Zentralblatt* was reborn and exists to this day (as the *Journal of Neurological Surgery Part A: Central European Neurosurgery*), the *JNS* has been a central part of the field's growth through

its contributors, its editors, and its longevity. Indeed, perusing the titles from Volume 1, Issue 1 to the present, one can map the growth and development of neurosurgery—its many successes as well as its many challenges. It retells the growth of trauma neurosurgery from bedside, to laboratory, and back to bedside. It tells of the growth of vascular neurosurgery, the birth of the still-growing field of endovascular surgery, the rebirth of functional neurosurgery and neuromodulation, the science of epilepsy and stereotaxy, and, of course, the development of spine surgery and pediatric surgery. Throughout its history, the *Journal* has never forgotten the vital importance of anatomy to the surgeon and has published and produced some of the most elegant and beautiful works in the field.

The *Journal* is not just about the science of neurosurgery. Throughout the *Journal's* life, the editorial board has not forgotten to chart the history of the field, the schools of neurosurgery, the development of neurosurgery throughout the continents, and neither has it forgotten to educate the neurosurgeons of the future by publishing original works vital to the growth of the field that were published *before* 1940 as was done by the “Neurosurgical Classics” installments between the years of 1962 and 1965.

The *Journal* has been the instrument through which the field would disseminate the proceedings of organized neurosurgery and present the direction in which future neurosurgeons would be educated. It has served as a sounding board for opinions about the publications contained within its pages, about books of relevance to neurosurgeons, and about forwarding intellectual discourse for the challenging and complex problems within our field, within medicine, and within society.

In short, the *JNS* is our tool of communication with colleagues and other specialists throughout the world, it is an archive for our field, it is the repository of our history, and it is our lens to the future. The *Journal* has helped to bring definition to a field that was in need of it globally. It will remain the journal that will continue to define our field for years to come.

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Correspondence

Charles J. Prestigiacomo: University of Cincinnati College of Medicine, Cincinnati, OH. presticj@uc.edu.