

SUBMISSION

39



William J. Fraser

B.Com PhD CPA AMusA

June 27, 2003.

Mr. Quinton Clements
The Enquiry Secretary
Joint Standing Committee on the National Capital and External Territories
Parliament House
CANBERRA ACT 2600

Dear Sir:

ENQUIRY INTO OPERATION OF THE NATIONAL CAPITAL AUTHORITY

I would like to make a submission to the abovementioned enquiry currently being held. My submission is attached. My concern about the operation of the National Capital Authority (NCA) stems from my engagement as an assistant carillonist to play the Canberra Carillon at Aspen Island. This occurred from December 1979 to June 2001. The Carillon was managed during much of this time by the National Capital Authority. Considerable management problems repeatedly occurred during this period which impacted adversely on the ability of carillonists to provide an effective carillon service to the public. My particular concerns are:

- The NCA should adopt proper procurement processes for the acquisition of carillon services to ensure that competent supplies are obtained, value for money is secured and the public interest is satisfied; and
- Proper terms and conditions of employment are required for carillonists.

It appears to me that the National Capital Authority operates too much as a "closed shop" with decisions being made by its personnel on the basis of inadequate information, or due to lack of proficiency in the subject matter being addressed. I would urge that the management of the National Capital Authority be subjected to much more public scrutiny than currently occurs, with a view to achieving considerably greater accountability to the Government and the public.

I ceased playing the carillon at that time as I consider it was not possible to continue due to the conditions of engagement being demanded by the National Capital Authority being unreasonable and dangerous for the carillonists.

Yours Sincerely,



William J. Fraser

ENQUIRY INTO OPERATION OF THE NATIONAL CAPITAL AUTHORITY

The Canberra carillon at Aspen Island, currently managed by the National Capital Authority, was a gift from the British Government, and opened on 26 April 1970. It is a distinctive feature of the city. There are only 2 carillons in Australia which are of sufficient size to be considered carillons by definition of professional societies, although many smaller bell establishments also exist.

My involvement with the carillon has been as a part-time carillonist, while my substantive work has been with the Commonwealth and ACT Governments, where I have now served for almost 43 years as an auditor and administrator. I was appointed Assistant Canberra Carillonist in December 1979. At that time, the carillon was played twice weekly, on Wednesday lunchtime and Sunday afternoon for 45 minutes. A team of 6 carillonists was engaged, operating under the supervision of the Canberra Carillonist, Mr. John Gordon. In addition, public inspections were held on Saturday afternoons from 1.00 pm to 4.00 pm and Sunday mornings from 9.00 am to 2.00 pm to enable the public to see the inner workings of the carillon. The public inspections were conducted by local charity groups, who collected a small admission fee, which they retained as part of their fund raising activities. The money was used to provide much needed public services by these groups. Carillonists like myself, occasionally attended during inspection times and played for the benefit of visitors.

At the time, the carillon was managed by the Parks and Gardens sections of the Commonwealth department responsible for running national facilities in Canberra. Soon thereafter, a carillon engineer named Timothy Hurd from America appeared on the scene, apparently having been invited by some of the carillonists as a prospective renovator of the carillon. Mr. Hurd furnished a report to the managing authority recommending among other things, that the public inspections be stopped, as visitors were damaging the carillon. The nature of such damage was never specified, however, much to the opposition of the charity groups, the inspections were terminated, I think about 1985. The public were not admitted again until some tentative arrangements were resumed in 2002. A vital, and popular link between the public, and the carillon, being a public facility, was unfortunately lost.

Contracting Out

Some time later, Mr. Gordon died, and in 1991, the management of the carillon was contracted to the Canberra School of Music, but by this time, the National Capital Authority had become the lessor. This arrangement fell apart in 1995, apparently due to the School of Music's non compliance with contractual arrangements, and management was then contracted out to Artsound, a local radio station. This resulted in a multiplicity of management problems, particularly with access to the carillon, carillonists need for professional development and provision of the necessary stores and supplies. This arrangement ceased in July 2000, when the National Capital Authority decided to manage the carillon themselves.

This exacerbated management problems even further, necessitating continuing representation by carillonists to the National Capital Authority to seek redress for numerous grievances. There was always a minimum of communication between the NCA and carillonists. Generally, the NCA ignored written communications from the carillonists, and telephone calls were seldom acknowledged. Scant opportunity was provided for carillonists to talk with the NCA personnel about carillon problems. For example, the NCA installed a burglar alarm at the carillon which was repeatedly activated when the carillonists went to practice. The NCA could not understand the need for carillonist attendance outside recital times, and seemed totally disinterested when attempts were made to explain practice requirements to them.

Carillon Maintenance

Maintenance of the carillon always presented a problem as the carillon was manufactured overseas and there was no local agent. A possible source was Australia's only bell foundry, Bagot Bell foundries in Adelaide, which was already providing bell services to several installations in Canberra and other places, and was known to the carillonists. In 1998, the NCA appointed a man by the name of Terry McGee, apparently on a long term contract to provide maintenance for the carillon. Whether Mr. McGee had any qualifications or proficiency to provide such maintenance was not known to the carillonists and requests for provision of evidence of proficiency, whether from the carillonists, or later from the media in the midst of controversy, were repeatedly ignored. On appointment, Mr. McGee sent a flurry of emails to carillon authorities around the world seeking instructions as to how to perform maintenance, a copy of some are attached.

On 13 July 2000, the NCA closed the carillon on 4 days notice, so Mr. McGee could replace 10 counterweights on the larger bells with springs. This took until 14 September 2000 and cost \$65,000 according to a report in *The Canberra Times* on 14 September 2000, an amount which seemed excessive. The carillon was hastily reopened after much public protest and items in the local media, so that recitals could be provided for the Olympic celebrations. Despite these difficulties, the NCA later permitted Mr. McGee to undertake a "revoicing" of the carillon which commenced on 9 April 2001. This led to the carillon being shorn of its accustomed resonant bell sound, and replaced by a dull sound similar to someone hitting a piece of tin with a stick. An opinion obtained at the time from Bagot Bell foundries in Adelaide, copy attached, advised that the action taken was not revoicing but retoning and hence the unsatisfactory result was not surprising.

Carillon Director

Subsequently, the NCA decided it required a Carillon Director to manage the carillon and in early 2001, advertised the position. From 1 July 2001, the NCA engaged Mr. Timothy Hurd, then New Zealand carillonist in Wellington, to this position. Mr. Hurd was not required to give up his position in New Zealand, but make occasional forays to Canberra to manage the carillon. Mr. Hurd's selection was surprising, given that he had in the minds of many, incurred an ill reputation with the public due to the

cessation of public inspections many years before, as abovementioned. It also ignored the vast amount of musical talent readily available in Australia and the easy selection of a local person who could provide continuous attention to the carillon.

The other carillonists were required to sign what purported to be an employment contract, but was really an instrument ensuring the interests of the National Capital Authority were met, whilst offering little concessions to the needs of carillonists. I enclose a copy of this unfortunate document. Among other problems, it demanded that no compensation would be payable in the event of death or injury, notwithstanding the hazardous working environment, and required carillonists to provide their own professional indemnity, public liability and worker's compensation insurance, which I estimate would cost a carillonist around \$1200 per annum. Many of the carillonists are students or low income people who would have difficulty affording this sum. I consider that the NCA, if genuinely concerned about the carillon, could develop an enterprise agreement, and bear these costs in the interests of maintaining and promoting such a unique and distinctive public facility.

I refused to sign this instrument due to misgivings about its dangers, and was required to return my key. Another carillonist of international repute agreed to sign, but has since been displaced, for reasons which appear to have little to do with musical competency.

Better Management

It has been difficult in obtaining the necessary information to understand why the NCA took the action it did in many cases, due to poor communication between the NCA and carillonists. I also acknowledge many problems experienced in running so unusual a facility as a carillon. However I consider that deficiencies in management are evident, and my specific concerns are:

- The NCA should adopt proper processes in the acquisition of carillon services to ensure that competent services are obtained,
- Proper working terms and conditions are provided for carillonists.

Procurement of Carillon Services

It is appreciated that current legislation permits Chief Executives of Commonwealth agencies a good deal of flexibility in management of their organisations, however they should at all times, be expected to demonstrate that goods and services have been acquired in a manner that is economic, efficient and ethical. Indeed, carillon services are highly technical, and there should be no doubt as to the competence and suitability of persons engaged to provide services. If any organization such as the NCA lacks expertise, advice should be sought from competent authority. A transparent tendering process is necessary to ensure that all competent persons have opportunity to tender, and that an objective evaluation process operates. I would question whether the selection process for the services of Mr. McGee or Mr. Hurd as abovementioned, adequately satisfied these requirements.

Terms and Conditions of Employment

The carillon is a valuable and unique facility, and carillonists are in short supply. In order to ensure its continued operation, attractive terms and conditions should be provided for carillonists. The current instrument treats the carillonists as enemies to be controlled, rather than valuable resources to be encouraged.

A creditable employer-employee relationship needs to be established between the managing authority and the carillonists, rather than the matter be governed merely by a "one-sided" instrument. I would consider that, as carillonists have usually served for lengthy periods, an enterprise agreement should be developed which sets out obligations and responsibilities of all parties involved in operation of the carillon. This would prevent endless argument previously experienced, of who was responsible for the provision of particular services to the carillon, and the nature of the supplies to be provided.

On the employee side, employee benefits could be listed. Adequate communication between carillonist and the Authority will hopefully eliminate misunderstanding and relieve the acute atmosphere of mistrust which has unfortunately developed.

Instrument governing relationship between
NCA and Carillon contractors

[12-7-01]

[Print on National Capital Authority letterhead]

Carillon Services Contract

The National Capital Authority is prepared to engage you on a contract to provide services in relation to the National Carillon ("the Services") on the terms and conditions set out below and attached to this letter.

1. Provision of Services

1.1 The Services to be provided are described in the documents annexed to this agreement and initialled by the parties for the purpose of identification.

2. Timing

The Services shall be provided during the period of 11 months commencing on 1 August 2001

3. Specified Personnel

3.1 The Services shall be provided personally by the Contractor.

4. Fees

4.1 The fee payable by the Commonwealth for the Services is _____ per recital payable, subject to acceptance, 30 days from delivery of the Services and a correctly rendered invoice to the Commonwealth.

5. Payment

5.1 Invoices forwarded by the Contractor must be addressed to the Carillon Director and must include the following information:

- a. the title of the Services – “Carillon Services Contract”;
- b. contract number or purchase order number (if any) – “Brief No 2001/19.”

5.3 Fees and expenses will be invoiced on a monthly basis.

no supply
5.4 The due date for payment will be 30 days from delivery of the Services and a correctly rendered invoice to the Commonwealth.

for goods and services
5.5 The Commonwealth will be entitled, in addition to any other right it may have, to delay payment or any instalment of fees or allowances until the Contractor has completed to the satisfaction of the Commonwealth that part of the Services to which the payment relates.

5.6 The making of a payment is not acknowledgment of the satisfactory performance of the Services and is on account only.

5.7 The Commonwealth reserves the right to recover any overpayment and to deduct from any moneys payable to the Contractor under this Contract, any moneys payable by the Contractor to the Commonwealth under this Contract.

5.8 The amount paid by the Commonwealth as determined in accordance with clause 4 includes Goods and Services Tax (GST) for supplies made under this Contract which are taxable supplies within the meaning of A New Tax System (Goods and Services Tax) Act 1999 (the GST Act).

5.9 In relation to taxable supplies made under this Contract, the Contractor agrees to issue the Commonwealth with either:

- (a) a tax invoice in accordance with the GST Act; or
- (b) a document satisfying the minimum information requirements set out in GSTR 2000/3 to entitle a recipient of a taxable supply to claim an input tax credit without holding a tax invoice.

6. Project Officer

no provision for appeal
6.1 The person holding, occupying or performing the duties of Carillon Director will be the project officer with responsibility for supervision of the Contract on behalf of the Commonwealth and has authority to issue and receive any written notification under the Contract.

7. Terms and Conditions of Contract

7.1 The following attachments to this letter of offer will form part of this agreement:

- (a) Attachment A – General Conditions of Contract
- (b) Attachment B - Services
- (c) Attachment C – Special Conditions
- (d) Attachment D – Code of Conduct

8. Acceptance

8.1 A duplicate of the letter is enclosed with an endorsement that provides for notification of acceptance. If you agree to provide the Services as set out in and attached to this letter your acceptance must be notified by signing, dating and returning the enclosed duplicate letter to the Authority within 7 days. Receipt by the Authority of acceptance in writing of these terms and conditions will constitute the entire agreement for the provision of the Services.

Yours sincerely

Timothy Hurd QSM

Director, National Carillon

_____ agrees to provide the Services described in the above letter in accordance with the terms and conditions set out and attached to the letter.

Signed for and on behalf of the Contractor, by:

Name:

Title:

Date:

Attachments:

- A. General Conditions of Contract
- B. Services
- C. Special Conditions
- D. Code of Conduct

GENERAL CONDITIONS OF CONTRACT

1. Interpretation

1.1 In these Conditions:

- a. 'the Authority' means the National Capital Authority.
- b. 'the Commonwealth' means the Commonwealth of Australia;
- c. 'the Contract' means the contract under which the Services are to be provided to the Commonwealth including these general conditions;
- d. 'Contract Material' means all material brought or required to be brought into existence as part of, or for the purposes of performing the Services including, but not limited to, documents, equipment, information and data stored by any means, but does not include music compositions or music recordings produced by the Contractor;
- e. 'the Contractor' means the party who by the Contract undertakes to provide the Services;
- f. 'the Services' means the Services to be performed under the Contract.

1.2 A word importing a gender includes every other gender. The singular includes the plural and vice versa. A reference to a clause includes a reference to a subclause of that clause. A reference to a 'dollar' or '\$' means the monetary unit, or currency, of Australia.

2. Variation of Agreement

2.1 Any variation to the Contract is not binding unless it is in writing and signed by the parties.

3. Contract Material

3.1 The title to and ownership of intellectual property (including copyright) in all Contract Material will vest upon its creation in the Commonwealth.

3.2 On the expiration or earlier termination of the Contract, the Contractor must deliver to the Authority all Contract Material.

3.3 The Contractor must ensure that the Contract Material is used, copied, supplied or reproduced only for the purposes of the Contract.

4. Disclosure of Information

4.1 The Contractor, its employees or agents must not make public any information or material acquired or produced in connection with or by the performance of the Services without prior approval in writing of the Authority. In giving written approval, the Commonwealth may impose such terms and conditions as it sees fit.

Inconsistent with d. done

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The conditions do not formally set information how NCA but this could be used if anything gets into the newspaper - the defendant allows to the Minister or other person might be intended to refer to working to the Minister or other person or other person's complaint

5. Conflict of Interest

5.1 The Contractor warrants that, at the date of entering into the Contract, no conflict of interest exists or is likely to arise in the performance of its obligations under the Contract. If, during the term of the Contract, a conflict or risk of conflict of interest arises, the Contractor undertakes to notify the Authority immediately in writing of that conflict or risk.

6. Compliance with Commonwealth Policies

6.1 The Contractor must, when using the Commonwealth's premises or facilities, comply with all reasonable directions and the Authority's procedures relating to Occupational Health and Safety (OH&S) and security in effect at those premises, or in regard to those facilities (including the Commonwealth's smoke free work place policy), as notified by the Commonwealth or as might reasonably be inferred from the use to which the facilities are being put.

7. Negation of Employment, Partnership and Agency

7.1 The Contractor must not represent itself as being an employee, partner or agent of the Commonwealth.

7.2 The Contractor will not by virtue of this Contract be or for any purpose deemed to be an employee, partner or agent of the Commonwealth.

8. Termination of Contract

8.1 The Commonwealth may, at any time by written notice, terminate this Contract in whole or in part. If this Contract is so terminated, the Commonwealth will be liable only for:

- a. payments under the payment provisions of the Contract for Services rendered before the effective date of termination; and
- b. subject to clauses 8.2 and 8.3, any reasonable costs incurred by the Contractor and directly attributable to the termination of this Contract.

8.2 Upon receipt of a notice of termination the Contractor must:

- a. stop work as specified in the notice;
- b. take all available steps to minimise loss resulting from that termination and to protect Commonwealth Material and the Contract Deliverables; and
- c. continue work on any part of the Services not affected by the notice.

8.3 In the event of a partial termination the Commonwealth's liability to pay the Contract price, in the absence of any agreement to the contrary, will abate proportionately to the reduction in the Services.

8.4 The Commonwealth will not be liable to pay compensation in any amount which would, in addition to any amounts paid or due, or becoming due, be greater than the contract price payable to the Contractor under this Contract.

9. Default

9.1 If the Contractor fails within 14 days after receipt of written notice, to remedy any default in the performance of the following obligations, namely:

*not defined
This would prevent payment of ANY compensation*

*not about playing for other roles
Not meant to be consulted*

- a. to commence or to proceed at the rate of progress strictly in accordance with the Contract; or
- b. to perform or observe the terms and conditions of the Contract,

the Commonwealth may, by written notice, terminate the Contract and recover from the Contractor any loss or damage suffered by the Commonwealth.

10. Applicable Law

10.1 The Contract will be governed and construed in accordance with the law for the time being in force in the Australian Capital Territory.

10.2 The Contractor must ensure that the work done under the Contract complies with the laws from time to time in force in the State or Territory in which the Services, or any part thereof, are to be carried out.

11. Indemnity and Insurance

11.1 Subject to the provisions of this Contract, the Contractor must at all times indemnify and hold harmless the Commonwealth, its officers, employees and agents (in this clause referred to as 'those indemnified') from and against any loss (including legal costs and expenses on a solicitor/own client basis) or liability, reasonably incurred or suffered by any of those indemnified arising from any claim, suit, demand, action or proceeding by any person against any of those indemnified where such loss or liability was caused by any act or omission of the Contractor, its officers, employees, agents or subcontractors in connection with this Contract.

11.2 The Contractor's liability to indemnify the Commonwealth under clause 11 will be reduced proportionally to the extent that any act or omission of the Commonwealth or its officers, employees or agents contributed to the loss or liability.

11.3 The Contractor must indemnify the Commonwealth against liability of the Commonwealth for death of, or injury to the Contractor on work undertaken pursuant to the Contract, except to the extent that death or injury results from any act or omission on the part of the Commonwealth or any person acting through the Commonwealth.

11.4 When required by the Commonwealth, the Contractor must effect and maintain insurance in the joint names of the Contractor and the Commonwealth, in relation to the Contractor's obligations under clause 11.

11.5 Wherever requested, the Contractor must provide the Commonwealth with a copy of any insurance policy effected in accordance with clause 11, and a certificate of currency.

11.6 The indemnities referred to in this clause 11 will survive the expiration or termination of this Contract.

for how long?

ATTACHMENT B

SERVICES

The Contractor shall provide the following services in relation to the National Carillon: *

- (1) Perform on the Carillon in accordance with the roster determined by the Carillon Director.
 - (2) Perform on the Carillon for supplementary occasions and events as determined and scheduled by the Carillon Director
 - (3) Contribute to promotion of the Carillon in accordance with strategic plans and other such liaison work as may be, from time to time, determined by the Carillon Director and the Authority.
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ATTACHMENT C

SPECIAL CONDITIONS

1. The Contractor shall be available when reasonably required for consultation with the Carillon Director.
- 11 2. The Contractor shall undertake a minimum of 52 hours of tuition per annum with the Carillon Director.
3. The Contractor shall comply with the Code of Conduct set out in Attachment D.
4. The Contractor shall participate in regular performance reviews in relation to performance of the Contractor's obligations under the Contract.
5. Unless otherwise agreed by the Authority, the Contractor shall not be entitled to access to or perform on the Carillon except for the purposes of this Agreement.

What happens if
Set sub not able
to perform. No
provision for that.

CODE OF CONDUCT

The Contractor shall comply with the following Code of Conduct.

The Contractor shall, in the performance of his/her obligations under the Contract:

- (a) behave honestly and with integrity;
- (b) act with care and diligence;
- (c) treat everyone with respect and courtesy, and without harassment;
- (d) comply with all applicable Australian laws;
- (e) comply with any lawful and reasonable direction given by someone in the employment of or contractual partnership with the Authority who has authority of give direction;
- (f) maintain appropriate confidentiality about dealings that the Contractor may have with the Authority;
- (g) disclose, and take all reasonable steps to avoid, any conflict of interest (real or apparent) in connection with undertaking service provision;
- (h) use Commonwealth resources in a proper manner;
- (i) not provide false or misleading information in response to a request for information that is made for official purposes in connection with service provision;
- (j) not make use of inside information, or their duties, status, power or authority in order to gain, or seek to gain, a benefit or advantage for the service provider or for any other person; and
- (k) at all times behave in a way that upholds the integrity and good reputation of the Authority.

Author: Terry McGee <terry.mcgee@netinfo.com.AU@prdnnet.polaroid.com> at INET
Date: 6/28/98 1:58 PM
Priority: Normal
BCC: LEE B LEACH at -NOR2PO1
TO: gcnat@purpletape.cs.uchicago.EDU@prdnnet.polaroid.com at INET
Subject: Introduction

Hello

Just a short note to introduce myself as a new member of this list. I have been engaged to carry out routine maintenance and to advise on the need for refurbishment of the National Carillon in Canberra, Australia.

The National Carillon was a gift from the British people to Canberra, some 28 or so years ago. It is a Taylor instrument and is the responsibility of the National Capital Authority, a department of the Australian federal government. The NCA has engaged ArtSound, a community-based arts and music organisation, to manage the musical programs of the instrument and ArtSound has engaged me on the maintenance front.

I would be interested to meet, via this list, other people who are responsible for maintenance and refurbishment of a carillon. As a newcomer to the carillon field, I'm also keen to know of companies which can supply materials for carillon upkeep.

On a very basic note, I am aware that the "standards" for carillon claviers has changed since our instrument was made - baton spacing more narrow, range extended at the treble end - that sort of thing. Is there a document which sets out current "standards" for carillons and if so where can it be obtained. If not, what is the practical alternative to a set of standards?

Please feel free to contact me on or off list.

Terry

Terry McGee & Associates

61 Calder Crescent, Holder ACT 2611 Australia
Phone 61 (0)2 6288 8006, Fax 61 (0)2 6287 4263
Email: terry.mcgee@netinfo.com.au
<http://users.netinfo.com.au/~terry.mcgee>

- flutes & piccolos for Irish music, Irish pipes
- harpsichord family and flutes for early music
- woodwind and brass repairs & rebuilding
- broadcasting and recording, ArtSound Studios
- Australian Irish music group, Ballyhooley
- maintenance, National Carillon Canberra

with the assistance of the ACT Government through its Cultural Council

*Email from Terry McGee, appointed to maintain the
Carillon, seeking instructions as to how to perform maintenance.*

From: Terry McGee <t.mcgee@dynamite.com.au>
To: Purple Tape <gcna@purpletape.cs.uchicago.edu>
Date: Wednesday, December 23, 1998 8:08 AM
Subject: Re: Seasonal Greetings

At 20:53 19/12/98 +0100, Adrian Patrick Gebruers wrote:
>To all Carillonneurs and Carillon Aficionados:
>The Season's greetings to everyone!

Thanks from Down Under, Adrian and happy festive season all. Yes, even down here, Christmas is celebrated, even though Santa hasn't the benefit of gravity when climbing down chimneys. Did I ever tell you guys that our bells hang upwards here in Australia? Oh well, another time.

>Here in Ireland, we dare to hope that yet another step has been taken towards the goal of total >and permanent peace.

Amen to that.

Terry

Terry McGee
61 Calder Crescent, Holder ACT 2611 Australia
Phone +61 (0)2 6288 8006, Fax +61 (0)2 6287 4263
mailto: t.mcgee@dynamite.com.au
<http://www2.dynamite.com.au/t.mcgee>

E mail from Terry McGee to Irish bell founder.

Opinion from Bagot Bellfoundries
Adelaide
Concerning carillon "revoicing"

Bill Fraser

From: "ABC" <abc@gate-keeper.com>
To: "ABC" <abc@gate-keeper.com>
Cc: "<" <fraserw@dynamite.com.au>
Sent: Friday, 11 May 2001 2:49
Subject: Re: Canberra carillon

> From: ABC <abc@gate-keeper.com>
> To: <Unknown>
> Subject: Canberra carillon
> Date: Friday, 11 May 2001 14:02

> Message: Bill, I have received your e-mail of 1st may about the tonal
> condition of the carillon following recent
> "maintenance". Unfortunately, the
> present situation illustrates only too well the dictum that "a little
> knowledge is a dangerous thing"
> The "revoicer's" description of the work is ill-informed and
> illogical. For
> one thing, working on the clapper shape is not the generally
> understood meaning of revoicing, or voicing, which is something different
> altogether. What he has done is allied to re-"toning", which is the study
> of, and adjustment of, metal hardnesses. In this, any work hardening the
> clapper contact points needs to be measured carefully (in terms of
> Brinell
> hardness), and if necessary the clappers re-annealed (the clapper
> balls, that
> is), then the hardnesses would be re-measured. This is what is necessary to
> put the task on a correct and rational basis. It is not achieved by ad hoc
> grinding of the clapper surfaces. I would need to embark on a major
> inspection of the clappers in order to tell whether re-toning is
> necessary
> at this time.
> In the matter of re-voicing as properly understood, this is important in
> the
> upper-register (smaller) bells, which are usually suspended on one central
> bolt only. Voicing of bells requires a deep and thorough understanding of
> bell vibrations. Briefly, the bells may have to be rotated to achieve
> best-voiced position.
> From: Hervey Bagot (Technical Director, Bagot Bellfoundries, Adelaide)