APPENDIX

A summary of the replies to the questionnaire on the proposed New Zealand Mathematics Society

79 replies to the questionnaire were received before Christmas. As it was inappropriate to use two of them the following analysis is based on the other 77.

The number of people giving the various answers to the questions is first given.

Question 2: Do you support the formation of a New Zealand Mathematics Society?

Yes	63
No	4
With qualifications	10

Would you wish to become a foundation member?

Yes	68
No	9

Question 3: Which name do you favour for the proposed organization?

Mathematics Society	60
Mathematics Institute	4
Mathematics Colloquium	3
Other	4
No answer or noncommittal	6

Question 4: Do you feel that the aims and membership clauses are

Too narrow	6
Too broad	2
About right	66
No answer or noncommittal	3

Question 5: Do you feel the fee suggested is

Too high	10
Too low	5
About right	60
No answer or noncommittal	2

Clearly the replies present a consensus of those who support the formation of a Society, wish to become foundation members, like the name Mathematics Society and feel that the membership and fees suggested are about right. Because there is such an overwhelming vote in this direction further analysis of the figures is probably superfluous but anyway we will summarize the questionnaires of those who wish to become foundation members of the proposed society. There were 68 such people and their answers to questions 3,4 and 5 were as follows.

Question 3:

Mathematics Society	56
Mathematics Institute	3
Mathematics Colloquium	2
Other	4
No answer or non committal	3

Question 4:

Too narrow	5
Too broad	1
About right	61
No answer or noncommittal	1

Question 5:

Too high	7
Too low	3
About right	57
No answer or noncommittal	1

Comments were given on a large number of replies, 77 appearing altogether. All of them are included in the following.

The two major questions facing us are: should there be a New Zealand Mathematics Society, and if so, what should it be like? I have gathered together the comments that seem to be about these questions. Then I have put the comments that more or less directly refer to one of the questions 3 to 5. Some comments could have been put in more than one place.

Should there be a New Zealand Mathematics Society?

The following negative comments about the formation of the Society were received, the first four from those who stated that they did not support the formation of the society.

No useful purpose would be served.

I feel that the present Colloquium can adequately handle all that we could reasonably expect a Society to do. The membership pool is just too small.

I am in no position to assess the need for encouragement of the proposed objects: Secondary teachers as such are well served by the N.Z. Mathematics Magazine and overseas journals in teaching method, content, approach, and new material suitable to secondary level (the writer is from the Department of Education)

The purpose of forming a Society should be to make possible some activity which does not exist at present. However the main purposes of the proposed Society seem to be the virtual take-over of the Colloquium and the actual takeover of the Mathematics Chronicle.

Bit of a storm in a teacup.

I have some doubts whether there are sufficient activities envisaged for the Society to really warrant its formation.

There are already many organizations for various groups of mathematicians e.g. Statistical Association, Operations Research Society, Computer Society. The formation of yet another Society could split mathematicians even further; if integrated locally with other Stats, OR, and Mathematical Associations

The main purpose would be the Annual Colloquium. This is functioning well in any case.

It will be important for the success of a national organisation that it became strong at branch level. If an attempt is made to become "one other" mathematics group at local level it is likely only to succeed in the 4 main centres or weaken the existing maths associations and computer societies at present working in smaller centres (e.g. Hamilton) so they too fold up. What I would like to see would be an attempt made to see if the maths associations could become sub groups of the main society similarly with the computer societies. A move such as this might necessitate another look at classes of membership.

If there is sufficient interest ... and its existence could preserve the fine spirit of the Colloquiums.

Provided Applied Mathematics is given an adequate recognition in the Society proceedings.

All the activities proposed for the Society seem to be covered in one way or another at present, except its proposed function as a pressure group on topics of general professional concern to Mathematicians. I feel that is is only the latter which gives any firm grounds for supporting the formation of a Mathematical Society. The annual Colloquium runs smoothly at present and I see no reason for changing the existing arrangements. I feel that the Colloquium should be independent of the Society, although the A.G.M. of the Society could possibly be held during the Colloquium.

I much prefer the suggestion of some type of joint Australian- N.Z. Mathematical Society .

The colloquium runs well at present. The creation of a permanent organisation with an interest in the Colloquium would not improve it and could lead to conflict. All other activities would be of a branch nature: there is nothing a branch could do that University Mathematics Departments or present Mathematical Associations could not do already, with less fuss and expense. Any constitution would need to take account of the geographically fragmented nature of the membership. The Council would need to be drawn from one area ((Auckland U Waikato) or (Wellington U P.N.) or Canterbury or Otago) with provision for cycling. The colloquium would still need to be run by a committee of the host university, regardless of the siting of the Council. Are there any issues on which the university or professional mathematicians would wish to make an agreed submission on which a consensus exists? Have the colloquia ever passed resolutions of this kind? Is there any other way of testing a consensus not open to the Colloquium. I would rather have no submissions made than submissions made in my name without a chance to influence them. On problems of the school/university interface (U.E., Bursaries Exam etc.), the Associations have membership from both sides and are much more likely to be capable of reaching sensible conclusions. If any national body is necessary a federation of the Associations would be a cheaper and easier way of going about it. This would also lead to more involvement by university staff in the Associations, which would be a good thing, rather than a withdrawal.

There might be some conflict of interest with Mathematical Associations but this should be capable of resolution.

If all the society did was confirm minutes and elect officers it would not be worthwhile. But given our geographical situation and lack of mathematical strength can we do much more than this?

Provided no journal is contemplated.

I would oppose the formation of a society with aims narrower than those stated.

Although I give the proposed Society my full support I have doubts that there is enough mathematical strength in N.Z. to make a serious Mathematical Society possible.

If there is a New Zealand Mathematics Society what should it be like and what should it do?

What should it be like?

The "Society" should provide policy statements for government in the teaching and applying of mathematics, should take a special interest in looking after graduates in mathematics as regards jobs, pay etc and in assessing likely demand.

A definite need for the aims to be broad and general so that it will enable mathematicians from all walks of life to participate and exchange ideas.

Recognition that the active pursuit of mathematical research and mathematical scholarship is at the heart of its activities.

A broad base of membership is needed to ensure membership numbers are large enought to support the objectives. It is a mistake to limit membership to those whose interests are primarily in research. A leaven of interest in applications in necessary.

Should give expression to activities of mathematicians at all levels. I did not like the suggested "degree of rejection" of school maths teachers as a group. The society could get involved in, and contribute to, developments in this area. There is, after all, no national Maths Association - only regional ones; I get the impression that the proposed Society will appeal to exactly the same people as the Colloquia do now - i.e. the University teachers. And fair enough. If they (sorry, you) want a N.Z. Society, good on you and it'll be valuable to "the rest of us" - but we would have a voyeur's interest only. You mention "other topics". This is of vital interest to "you" but its also of vital interest to graduates in Maths, Engineering etc., Technicians, Employers, School teachers, Teachers of Technicians etc, - who work in all sorts of fields: engineering, OR, statistics, applied research of all sorts, even business! If Maths in N.Z. is to be (kept) healthy, it involves all these people. If the Society is for the Colloquium clietele - fair enough. It'll have valuable comments on "other activities". It would probably not be of interest to me. If the Society is to involve technician tutors and applied Math. workers, it would need broader aims. However, there is likely to be little need or support for a broader outfit - as there are numerous professional bodies for them already.

I feel that the need in New Zealand is for the promotion of mathematical research and that a Society should concentrate on this.

Although the aims are broadly based, stating that "The objects of the Society are to promote the development application and dissemination of mathematical knowledge ..." yet the statement in paragraph 8 (Relation to Mathematical Associations) seems to narrow this objective when it says "The Society is envisaged primarily as a scholarly society ...". One presumes that with a scholarly society the concern will be rather with pure research and with dissemination through a scholarly journal. Yet immediately following the statement of aims, it is claimed that a rather broad base for the Society is envisaged. I would prefer to see a broadly based society, since to me the word "mathematics" covers a very wide range of interests. Scholarly research is very important, as is dissemination at all levels - primary, secondary, tertiary, university extension, and to the general public, and as is the use made of mathematical techniques by people working in other disciplines such as the social and natural sciences. Mathematics will certainly develop in pure academic fields, and in a scholarly atmosphere, and will then be disseminated "downwards", but I believe that this development will be greatly accelerated if those responsible for such development were in close touch with those actually disseminating the subject matter, and with those making use of the research techniques which have been developed, and so the needs, and the difficulties met with in dissemination and application, will then flow "upwards". Thus, some at least of the scholarly research will be aimed at the solution of problems met with in our everyday life. This has been noticeable in the field of statistics where research and practice have gone hand in hand to a large extent, and theories have been developed largely as a result of problems met with in practice. For example, recent theoretical developments in the field of multivariate analysis have to a great extent been made because, with the coming of computerisation, statisticians are able to handle enormous quantities of data, and various theories and techniques have been developed to meet this new situation. If the above is accepted as a brief description of the word "mathematics", and if the Society is to cover these aspects, then membership would need to be such that anyone who does research in mathematics, or who disseminates mathematics, or who uses mathematics, would be permitted to be a member. The only criterion which should operate is whether a person has a genuine interest in mathematics. The word "genuine" would be difficult to define, but this could be left to the decision of a sub'committee which would consider each application individually. A further reason for having a broadly based membership is that the Society will be the only national organisation of mathematicians in New Zealand, and when it makes any statement it will be speaking for mathematicians as a whole, or will certainly be though to do so. In my opinion it would be very worthwhile to have such a society at the national level, but it would need to represent all those groups who "develop, apply, and disseminate" mathematics.

I do not see why schoolteachers should be singled out in paragraph 2 as especially likely to be ineligible. There seems to be a suggestion that mathematical research is an activity which is somehow superior to the dissemination or application of established knowledge. This is dangerous, both for University training in mathematics and for mathematics itself. Far too many young men and women of moderate ability have in the name of research been drawn into the pursuit of what can only be described as the pursuit of mathematical trivia - the filling out of minor corners of established theories in a manner that makes for no real advance of knowledge. Such people would in many cases be better and more happily engaged in applying their knowledge, and mightin the process find some stimulus to the development of genuinely new ideas. It is vital that the Society preserves a balance in such matters, even if its influence in education is to extend no further than University mathematics education. In other areas

of education the Society cannot expect its voice to carry any weight at all unless it adequately represents the total spectrum of mathematical activities in New Zealand. If it cultivates a mathematical purity which Newton and Gauss never knew its comments will have about as much right to be heard as those of the Society of Engineers. Similar considerations apply if the Society is at any time to represent the Mathematical fraternity to Government as the Institute of Mathematica and its Applications has occasionally in the U.K. I find it odd that the incursions of mathematics into other areas of knowledge do not feature at all apart from the mention of applications in the aims in paragraph 1. Not only does it ill behove us to imagine that we can without great loss cut ourselves off from the inspiration which the great mathematicians of the past found in problems from Physics and Astronomy and elsewhere. I believe that the often very unsatisfactory use of mathematics in newer applied areas out to be of concern to us. Or is the proving of new theorems so important that their endeavours must proceed without critical mathematical comment? At the very least one would hope for encouragement for those individuals who are willing to fish in such muddy waters.

I believe a proper relationship to the present Maths Colloquium and to the Maths Chronicle is essential to the success of the society, if formed.

If the Society is formed, I would prefer the present Colloquium (largely unchanged in character) to be titled the "Annual Colloquium of the N.Z. Math Society",

It seems to me essential that close links be forged with the Royal Society (N.Z.) and the local Mathematical Associations especially.

While agreeing that no aspirations to publishing a journal other than the Mathematical Chronicle are warantable at present - ultimately the Society should be prepared to take this in hand.

I would prefer a little less emphasis on the scholastic or academic leanings of the society. I suspect the greater strength of amthematics in New Zealand is on the Applied side. There ismore poential policital interest on this side and such a society could play the fole of "learned mouth piece", defend the place of mathematicians in science industry and the community in general.

My interest in seeing the formation of a N.Z. Maths. Society lies in the fact that I am Sec/Chairman of the Mathematical Models group of the N.Z. Hydrological Society and that while my own personal interests probably do not measure up to the standards for useful would be membership those of some of the other members certainly do. Formation of a Maths. Society would lead to improved communications between hydrologists and mathematicians.

What should it do?

Adequate editorial association with Australian M.S. (i.e.journal) and some particiaption in A.M.S. Math. Research Institute cycle.

Liason and co-ordination with other N.Z. Societies in related fields such as N.Z. Stat. Ass., Operational Research Society of N.Z., etc.

I think the main activity should be to have, instead of conferences as in USA, single visitors from one centre to another. The object is the same: to stimulate research. I would like people to get on with this job without

waiting for a society. I remember well my trip to another University on first arriving back in this country. I was told no-one was interested in my field and given a beer. Will a Society help this?

I hope someone can draw up names of those who would agree to make trips in New Zealand.

More regular than annual fraternization between members and updating of training for those in disciplines that have evolved from or in parallel to mathematics - e.g. courses for physicists, statisticans, OR and computer people.

I'd like to see 5 year surveys of math.s graduates with a view to (1) assessing adequacy of curriculum w.r.t industry, (2) how many and what sort we lose overseas.

It is important that the N.Z. MS encourage visits, seminars etc by N.Z. mathematicians to other centres within N.Z. - even in Australia. So often contacts made at Colloquium fade into nothing. Also make effort to "catch" eminent overseas mathematicians en route to Asia or Australia or returning therefrom, and get them to put N.Z. on their stopover maps.

Should be an associate membership for "semi-mathematicians". The society should provide policy statements for government in the teaching and applying of mathematics, should take a special interest in looking after graduates in mathematics as regards jobs, pay etc and in accessing likely demand. The "aims" is general enough as stated. However one gets the impression that the society will degenerate into a cosy group of academics (with DSIR people grudgingly accepted) with very little relevance to the country, to students or to anything.

Summer schools.

(1) Relation to the Mathematical Associations: The Math. Associations are faced at present with the need to have some national committee to co-ordinate appropriate affairs. Such as activity may be suitable handled by the N.Z. Math Society (2). Act as a clearing house for a possible interchange scheme of N.Z. Mathematics Staff between universities. This is a proposal to enable two lecturers from different N.Z. University Maths Depts. to exchange their jobs (perhaps houses) for a year, say, with the approval of the Heads of Departments, without affecting their leave entitlements in any way.

Summer schools or courses.

The organisation of summer schools with the aim of self teaching in some advanced topics.

Summer schools which would cover a narrower range of subjects at a greater depth than the present colloquium would be a useful activity.

The first priority, in my opinion, is to negotiate a working relationship with the Australian Math. Society over their Journals, Summer Research Inst., and meetings. We should not ignore Professor Neumann's offer.

The local branches would foster an interchange of ideas amongthe tertiary institutions.

Possibility of an appointed Australian member to the proposed N.Z. Math. Society Council and vice versa, should be investigated.

Arranging charter flights to International Congresses should be one of the functions of the Society (group fares are lower).

The organization of specialist summer schools/ seminars for (small) groups of members, of a more expository nature than the Colloquium and on a single chosen topic. I have in mind the sort of activity undertaken in the U.K. by the Inst. of Math. and its Applications. See inside cover of their Bulletin Vol 9 No. 4 April 1973. New Zealand Mathematicians often seem to be more isolated from their colleagues in N.Z. than from the outside world, and such activity would represent the more efficient use of a scarce resource - mathematical expertise.

Organisation of lectures/talks/seminars at non-university centres (perhaps in co-operation with Departments of University Extension or Extramural Studies).

Divulge to members what Nat. Committee for Mathematics recommends.

Comments on the answers to questions 3,4 and 5(which have not appeared yet in this report) were as follows:

Question 3:

The only other name suggested was Mathematical Society instead of Mathematics Society by three people who apparently thought the suffix -al was preferable grammatically. A few people pointed out that New Zealand Mathematics Society was what they wanted, not simply Mathematics Society. One person without preferences stated that the title preferred depends on the aims of the organization. One person who preferred "other" did not put what other name he preferred.

Question 4:

Membership should not be limited.

The suggested wording is quite compatible with the (narrowly) professional character that I should like the society to have.

However they should be interpreted in a sufficiently narrow way to ensure that membership is dominated by people with genuine interests in mathematical scholarship.

If numbers of members were adequate to ensure viability I would prefer a slightly narrower definition of aims and membership but I regard this question as not being critical.

Attitude to school teachers insulting.

Membership elegibility seem vague and may lend itself for arbitrary and inequitable enforcement. Who will decide when an applicant is "good enough" and what criteria will be used?

Question 5:

Obviously the fee will depend on the scale of activity.

Could be higher if and when tax deductions are allowed again.

Would be perfectly happy to see fee reduced from $5.00 to $3.00 and keep Colloquium financially independent of Society (this would keep total cost to

individuals unchanged, and avoid offending annual Colloquium attenders who want no link with Society).

For purposes of travel costs from city to city in N.Z. $5.00 is not enough. The money will have to come from departments. I can't see correspondence costs being as high as this.

How can you set a fee without knowing what it will be spent on? Apart from the $2.00 to be paid to the Colloquium, no indication is given of what the remaining $3.00 is needed for. I feel that fees for attending the Colloquium should be paid directly to the Colloquium, and that 50 cents would more than suffice for stationary and postage.

It is not really clear to me what the money will go to, but with a maximum potential membership of about 150 this gives an income of $750/year which seems too little to do anything much at all.

The colloquium should be separatley funded. Unless the proposed society is very small only a minority will attend any particular Colloquium. You the lists of the last 3 colloquia. How many people attended all three?

I feel that a fee of $7.00 or $8.00 should still be most acceptable, or $10.00 per person would enable the Society to achieve a greater level of activity - perhaps fly speakers to other centres for example.

Mathematics Colloquium should be self supporting and not subsidised by the Society, i.e. members not attending should not necessarily finance a large portion of the costs.

Too high unless some sort of publication (e.g. a Bulletin) is supplied

Possibly too high - depends on the subsidy to the colloquium.

It is impossible to comment on the fee without considering estimates for running expenses of the Society.

Too high because, exclusive of any journal costs, unless to build up a publication fund. Ordinary running expenses would not be anywhere near $3.00 a head.

$10.00 seems better to me.

Fee should be high enough to accummulate some reserve.

About right provided reciprocal membership rights are negotiated with other math. societies.

Adjustment as circumstances require.

No strong feelings - I am happy to pay what it costs.

Exclude Colloquium expenses.

And finally, only one comment remains.

After the Society has been operating for a few years another questionnaire should be sent around to all members to see whether it is indeed serving any useful purpose, or if further changes should be made. The executive Council should report a summary of all of its activities to all members.

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