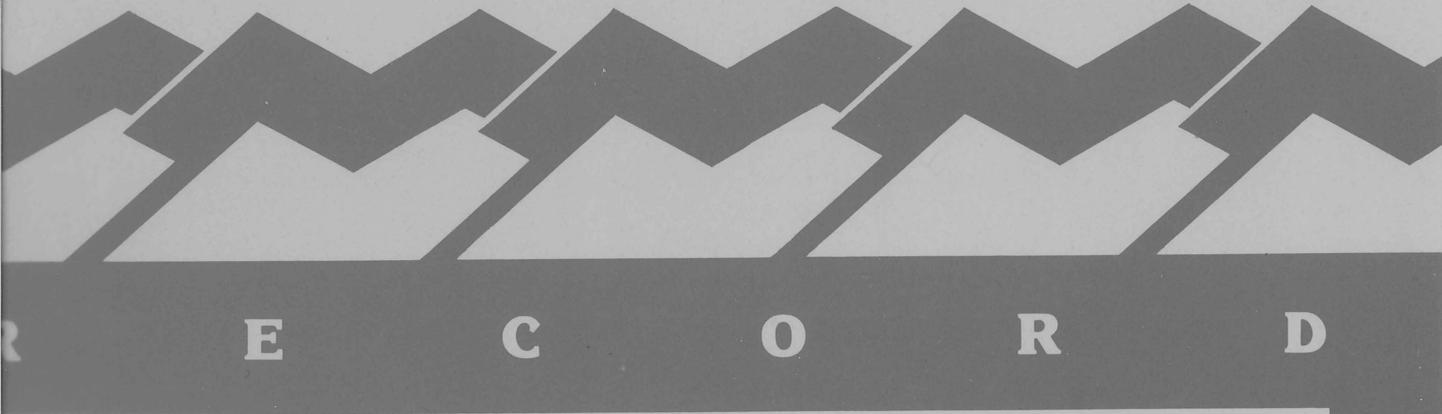


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PROPOSALS FOR THE RE-USE OF INVALID AND SUPERSEDED STRATIGRAPHIC NAMES IN AUSTRALIA

by

A.T. BRAKEL

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AND SUPERSEDED STRATIGRAPHIC NAMES
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PROPOSALS FOR THE RE-USE OF INVALID AND SUPERSEDED STRATIGRAPHIC NAMES IN AUSTRALIA

A.T. Brakel¹

INTRODUCTION

There are now estimated to be more than 7600 stratigraphic names in Australia (not counting variations on the same name) and the number of new names reserved continues to increase at an average rate of about 275 per annum. This rate is likely to increase now that a new emphasis on geological mapping is imminent, and that igneous and metamorphic provinces are being mapped in greater detail with the rock units therein being named. Finding available geographic names is already a problem in some areas, and getting approval for new geographic names can be a long drawn-out process sometimes exceeding 12 months, which is not suitable for geologists who have to write their reports to tight deadlines. Any way of easing the difficulty deserves consideration, and it is for this reason that the possible re-use of geographic names, which no longer serve a useful stratigraphic purpose, is being examined.

Names which have ceased to serve a useful purpose can be broadly classified into: A. those which are invalid, and B. those which are valid but have been superseded.

INVALID NAMES

These are names which are in breach of one or more of the rules of stratigraphic nomenclature, and were so at the time of publication.

A.1 MISSPELLINGS - names unintentionally introduced into the literature as a result of writers' or printers' errors.

Recommendation: These unintentional names can usually be re-used without difficulty. As noted by C. Gatehouse (written communication), "Confusion created by misspellings and misquotes is generally insignificant. Most workers realise if a publication misspells a previously defined stratigraphic name. Errors are made in all trades and professions. They tend to be identified and ignored, and the system is thus largely self-regulating." A misspelling is easily identified in the context in which it is used. When re-using a previous misspelling as a valid name in another context however, some care must be taken that no confusion will result, just as care is already taken in not proposing new

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names which are closely similar to existing ones. Thus "Merimbula" and "Maquarie" would not be used because of close similarity to "Merrimbula" and "Macquarie", but "Narmeener" as a misspelling of "Parmeener" can be used elsewhere without confusion.

A.2 INCORRECTLY CITED NAMES - those in which the geographic part of a valid name is not given in full, or is added to, e.g. Augustus Sandstone instead of the correct Mount Augustus Sandstone; Mount Labouchere Formation instead of the correct Labouchere Formation. Present policy is not to allow duplication of the proper parts of geographic names in the same or adjacent states. Nevertheless, with the decline in the number of available geographic names this policy may eventually have to be eased, and the matter of incorrectly cited names will then become relevant. They are included for consideration in this paper in anticipation of this development.

Recommendation: When the policy changes regarding the duplication of the use of the proper part of a geographic name, re-use of these names can be treated in the same way as misspellings.

A.3 UNINTENTIONAL INFORMAL NAMES - those which have been cited informally in the literature unintentionally, by juxtaposing a geographic name and an uncapitalized lithological term, e.g. Nancy Hill tillite. These names are at present recorded by the Central Registry and are not available for further use.

Recommendation: Unintentional informal names are obvious as such from their context, and the geographic part of the name can be used formally for another unit without creating confusion.

A.4 INTENTIONAL INFORMAL NAMES - those which have been cited informally in the literature intentionally, e.g. Roadside Bore granite.

Recommendation: Caution is required in the re-use of now-disused intentionally informal names. If such a name has been little used in writing, no difficulty should result from re-use for another unit, but if the informal name has been used repeatedly so that in usage it has become a de facto formal name, then the name should not be used elsewhere until it has been replaced by a formal name and 25 years have elapsed since the informal name last appeared in print. An example of the latter would be if "Roadside Bore granite" were extensively cited in connection with isotopic dating, tectonic development of the region, etc. It will be up to the judgment of the SNC Subcommittee of the state or territory in which the re-use is proposed whether or not difficulty will result from such re-use. If the old usage was applied in an adjacent state or territory, the Subcommittee of that state or territory must be asked for approval as well.

The informal term "beds", in the past rendered formally as "Beds", should be treated as if it were a formal name and not eligible for re-use if it was defined as well as the circumstances permitted.

A.5 NAMES IN QUOTATION MARKS - these are not intended as formal names and are often quotations from unpublished material such as company reports, but are still recorded as new names by the Central Registry.

Recommendation: Names published only in quotation marks (and now no longer used) can be treated in the same way as intentional informal names, and be subject to the same rules of re-use.

A.6 NAMES PUBLISHED BY MENTION ONLY - those mentioned in map legends or in text, but never defined.

Recommendation: At one extreme is the unintentional introduction of a new name, mentioned casually in passing and never intended to be defined. An example is the use of "Stroud Beds" (NSW) in a 1957 Queensland 1:250 000 map explanatory notes, where the author was writing about rocks in Queensland and comparing them with the Carboniferous sequence in New South Wales. No other author has since used the term. There is no more difficulty in re-using such names than with category A.1 to A.5 names.

At the other extreme are names, particularly those used in geological map sheet legends, which were intended to be defined later but never were. If such a name has not been superseded by a validly defined name (or names), the name should be considered reserved for its published use and ineligible for re-use elsewhere, despite the fact that it is undefined, because it is still capable of being validly defined. This applies whether it is apparently disused or not. If the name has been superseded by a validly defined name (or names) the undefined name may be re-used elsewhere.

Between the two extremes are names for which a decision is less clear-cut. They may, for instance, be names which were intended to be defined later, and for want of adequate description there is uncertainty as to precisely which rocks they refer to. It will then be up to the judgment of the appropriate Subcommittee(s) whether the name should be considered reserved for its original usage, or whether re-usage is allowed. The Subcommittee(s) will have to take into consideration such factors as the number of times the name has been published, how long it has been disused, how widely known it is, whether enough details are known about it for it ever to be usable in its original sense, whether the unit is markedly different in lithology or age to the unit for which the new usage is proposed, etc.

A.7 NAMES NEVER DEFINED IN FULL - those published with a partial definition or description, but lacking one or more essential aspects of a valid definition, such as boundary criteria or the specification of a stratotype.

Recommendation: If not superseded by fully defined nomenclature, names in this category should be ineligible for re-use elsewhere, on the assumption (or knowledge) that they are still useful units, and that the details lacking in their definitions will eventually

be published.

If the name has been superseded by fully defined nomenclature, the partially defined name may be re-used elsewhere if the appropriate SNC Subcommittee(s) agree that no confusion will result.

A.8 NAMES NOT DERIVED FROM A VALID GEOGRAPHIC LOCALITY - those named after an incorrect rendering of a geographic locality, or a locality which has never existed, e.g. Showgrounds Sandstone, Neranleigh beds.

Recommendation: Most of these names are in normal use. They should be treated in a way similar to intentional informal names, and be subject to similar rules of re-use.

A.9 NAMES LACKING PRIORITY - those which are invalid because the geographic component of the name has already been used for another published unit.

Recommendation: The question of re-use of these names does not arise, because of the existence of valid units which already bear the same names, and therefore have priority.

PROCEDURES FOR RE-USE

The procedure for the re-use of a category A.1 to A.3 name can follow the same route as the definition of any new unit. On being informed by Central Registry that a proposed name has already been recorded, an author may re-use it if it falls into one of the categories A.1 to A.3, provided (s)he includes in the definition card and published definition the earlier usage of the name, why it was invalid, and shows that no possibility of confusion could arise from re-use in the new context. The local SNC Subcommittee would assess this when it examines the definition card and approves or disapproves it. Whether or not a category A.1 to A.3 name can be re-used in the same geological province will depend on whether or not it will cause confusion.

The procedure for the re-use of a category A.4 to A.8 name can be the same as for an A.1 to A.3 name, but because of the greater chance of a proposal being rejected, authors would be advised to seek the opinion of the local SNC Subcommittee before preparing names and definitions for publications. In some cases another Subcommittee will also be required to give an opinion.

DISCUSSION

There are so many combinations of possibilities with invalid names that they cannot all be considered here. Rather than attempt to lay down hard and fast rules for each conceivable eventuality, it is preferable to leave approval for the re-use of names to the judgment of the local SNC Subcommittee. The first consideration in each case must be whether or not the proposed re-use will create

any difficulties. In addition, the following general guidelines are proposed for invalid names: (1) names which have been introduced into the literature unintentionally may be re-used; (2) names which have been superseded by valid names may be re-used if not widely known; (3) disused names which are informal or used in quotation marks may be re-used if not widely known; (4) partly defined names and those published intentionally by mention may not be re-used if they have not been superseded by valid nomenclature; and (5) the term "beds", if defined as well as possible, is a valid name and not covered by any of the foregoing guidelines for invalid names.

SUPERSEDED NAMES

These are validly defined names which have fallen into disuse because they represent a superseded concept, or have been replaced by another name.

The re-use of superseded but validly defined names is a controversial question. One school of thought believes that while names can be declared "forgotten" and replaced by another name, the "forgotten" name should not be re-used for other than the concept it originally represented, however remote this possibility may be. This is the case with zoological names, and the same ought to hold in stratigraphic nomenclature. Opposed to this is the belief that when a name represents a concept that has been proved to be geologically invalid, there is no possibility of its re-use in its original sense, e.g. if a defined unit is found to contain a major unconformity. And if a later name represents exactly the same concept as a "forgotten" name, the latter is best kept "forgotten" for all time and the name made available for re-use elsewhere in a way that will not cause confusion. The shortage of available names will become so acute in some areas that no potentially usable name should be kept unavailable. The situation in stratigraphy differs from that in zoology in that zoologists have an unlimited supply of names to call on, but stratigraphers do not.

The present author is of the latter persuasion, and accordingly presents for consideration a set of proposals for the formal abandonment and re-use of superseded names. An important aspect is that a validly defined name, being more firmly established than any invalid name, requires a higher degree of protection, so that rules governing any re-use of a valid name must therefore be tighter.

B.1 NAMES WHICH HAVE BEEN REPLACED BY ANOTHER NAME, EVEN THOUGH BOTH EARLY AND LATER NAMES REFER TO THE SAME GEOLOGICAL CONCEPT.

An example is Fletcher's Gully Granite (N.T.), which has been replaced by Allia Creek Granite. Both refer to the same intrusion. The earlier name in this case pre-dates the Stratigraphic Code and was therefore never properly defined in terms of the Code. There may be instances of properly defined names being replaced in the same way, such as when a large organization ignores a previous name to promote another one, and by overwhelming publishing power causes

the first name to become disused and "forgotten".

Recommendation: These names can be made available for re-use provided it can be demonstrated that the name has not been used in a publication for a period of at least 25 years (except for passing mentions in histories of investigations). The SNC Subcommittee of the state or territory in which the re-use of the name is proposed, and the Subcommittee of the state or territory in which the superseded name was originally used, must both agree that the superseded name is "forgotten" and that re-use will pose no difficulties. The SNC Federal Convener must then publish notification of the proposed abandonment of the old name, and a call for objections, in the Australian Journal of Earth Sciences or another publication approved by the Geological Society of Australia. Any objections must be considered by the Subcommittee(s) and the Federal Convener, who then make a final decision on approval. If again approved, or if no objections are received, the name is declared officially "abandoned" and made available for re-use. The declaration of abandonment must be published in the same publication as the call for objections.

A superseded name approved for re-use may not be used again in the geological province in which it is originally used, and if used in an immediately adjoining province the new unit must not be the same age as the old unit, and the lithology must be markedly different, e.g. volcanics as opposed to sediments. A geological province is defined as a broad-scale feature, such as a basin, block, or fold belt, e.g. Cooper Basin, Pine Creek Geosyncline, Gascoyne Province, Lachlan Fold Belt, Rocky Cape Block. Subdivisions of these, or very small inliers and basins, are not considered provinces for this purpose, e.g. Merlinleigh Sub-basin, Kalgoorlie Subprovince, Comet Platform, Lovelle Depression, Roma Shelf, Ullawarra Synclinorium, Molong Geanticline, Melbourne Trough, Frome Embayment, Mt Bright Inlier, Goodin Dome, Leigh Creek Basin.

B.2 NAMES ABANDONED BECAUSE OF CORRELATION WITH ANOTHER NAME WHICH HAS PRIORITY. As mapping in a region moves into the synthesis phase, locally applied names become redundant when correlated with those in another area. An example of this process occurred when the Illawarra Coal Measures were traced around to the western Sydney Basin and proved to be physically continuous with the Lithgow Coal Measures, leading to the latter name being abandoned. Another example is the case of two local Triassic unit names defined in isolated plateaus in the northern Bowen Basin, the Carborough Sandstone and Teviot Formation, which have now been correlated with units to the south and replaced by Expedition Sandstone and Moolayember Formation respectively.

Recommendation: Permission to abandon and re-use these names can be granted subject to the same conditions and procedures as for category B.1 names.

B.3 NAMES WHICH WERE ABANDONED BECAUSE OF HIERARCHICAL CHANGES, HAD SHORT CURRENCY, AND ARE NOW FORGOTTEN. In areas in which the full hierarchy of stratigraphic nomenclature has been used, further

subdivision would require an existing unit to be dropped. An example is the Singleton Supergroup (NSW) in which the full hierarchy of names from member to supergroup has been used. If, say, a subgroup in this region were to be divided into two or more subgroups, the original subgroup name would probably have to be abandoned in favour of the new ones. If the original name had not been used a great deal and had been in existence for only a short time (about a decade and a half so far in this case), it would be forgotten with the passage of time.

Recommendation: These names can be abandoned and re-used according to similar conditions and procedures as for category B.1 names, but special attention must be given to the possibility that further hierarchical changes may lead to the name being required again for the original concept. Unless this possibility is non-existent, or at least very remote, the name should not be abandoned. The period of absence from publications should be at least 50 years instead of 25 years.

B.4 NAMES WHICH WERE ABANDONED BECAUSE OF HIERARCHICAL CHANGES, HAD LONG CURRENCY AND/OR ARE STILL WIDELY KNOWN. Similar to the previous case, except that the abandoned name is still widely known for various reasons in the state within which it was used. These reasons may be that the name was current for a long time, that it played a key role in the development of geological thought in its region, that it was used in a research paper which continues to be cited, etc.

Recommendation: No re-use of these names can be permitted.

B.5 NAMES WHICH WERE ABANDONED BECAUSE THE UNITS ARE GEOLOGICALLY INVALID, HAD SHORT CURRENCY, AND ARE NOW FORGOTTEN. Advances in knowledge may show that a defined unit is no longer tenable for geological reasons, e.g. the discovery of a major unconformity within it, or the finding of a previously unrecognized fault in the type section such that a large part of the section can be shown to belong to another unit of greatly differing age. Names of such units which have short currency in the literature before being replaced by new names are eventually forgotten.

Recommendation: Permission to abandon and re-use these names can be granted subject to the same conditions and procedures as for category B.1 names.

B.6 NAMES WHICH WERE ABANDONED BECAUSE THE UNITS ARE GEOLOGICALLY INVALID, HAD LONG CURRENCY, AND/OR ARE STILL WIDELY KNOWN. These are similar to the previous case, except that the abandoned name is still widely known in the state within which it was used. An example is the Nullagine Formation, long established in the pre-1960 literature of Western Australia, but which systematic mapping has shown to contain 3 or more major unconformities. The name has been replaced by Mount Bruce Supergroup, Wyloo Group, Bresnahan Group, Yeneena Group, Bangemall Group, and several others. In this case the old name is of such historical importance that it will be remembered for a very long time, even after a 25

year period of absence from the literature.

Recommendation: No re-use of these names can be permitted.

PROCEDURES FOR RE-USE

Figure 1 is a flow chart of the proposed procedure. Both Subcommittees and the Federal Convener must be kept fully informed of every decision made along the way.

DISCUSSION

The question of the re-use of superseded, validly defined names is not as complex as for invalid names, because there is no doubt of an author's intention and there are no degrees of partial definition. This is fortunate, because it allows stricter rules to be applied, as is appropriate for units of properly defined status. The procedure proposed for abandoning a name involves the Subcommittee of the territory/state in which the name would be re-used, the Subcommittee of the territory/state in which the name was originally applied, and the Federal Convener, as well as publication of the proposal and a call for objections. This will ensure that no name is abandoned lightly or in ignorance of pertinent facts. Inevitably the procedure will be time-consuming, but the matter is of too great a consequence to be conducted in haste. The difficulty in obtaining permission to re-use an old valid name will act as a brake on any tendency to over-use the system, and will help ensure that this option is the last one to be considered.

CONCLUSIONS

In many areas of Australia there is an acknowledged problem in finding suitable geographic names for use in stratigraphic names, and with time the situation will become more acute. The problem is made worse than it need be by the large number of invalid and superseded names which, though now useless in their original application, have been locked away forever from any possible re-use. This paper has put forward proposals to remedy this.

The overriding consideration in all cases is that re-use of a name must not cause any confusion. This will be judged by the Subcommittee to which the application for re-use is made, and in the case of the re-use of superseded validly defined names and some invalid names, will also be judged by the Subcommittee of the state/territory in which the name was originally used (if this is different from the first Subcommittee). The onus will be on any worker seeking to re-use a name to prove that his/her proposal will not create any problems.

Invalid names may be re-used in the appropriate circumstances, except for some intentional informal names, some unsuperseded

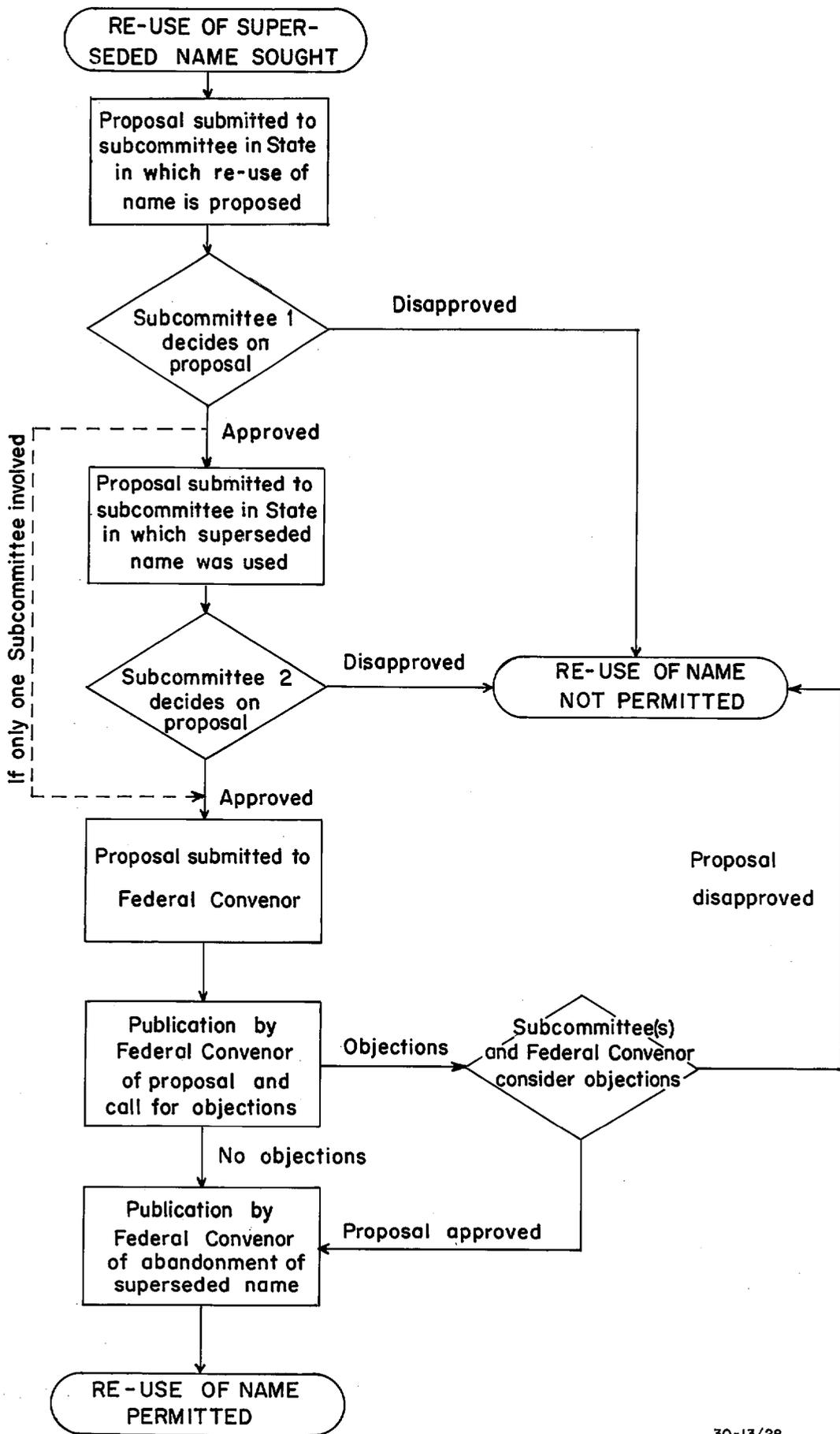


Figure 1. Flow chart of proposed procedure for the re-use of superseded validly defined stratigraphic names

formal names published only by mention or not derived from a valid geographic locality, and all un-superseded partly defined formal names. The approval procedure for re-use would be similar to the existing procedure for approving definitions of new names. Invalid names cover such a wide spectrum of possibilities that instead of trying to take a strictly legalistic approach by laying down hard and fast rules for each contingency, it is better to take a discretionary path by providing guidelines and allowing Subcommittees to judge each case on its merits. This course follows more closely the spirit of the International Stratigraphic Guide, and the flexibility it offers will serve the science better in an area where it is difficult to foresee every conceivable circumstance that may eventuate.

More rigorous rules are required for any abandonment and re-use of superseded validly defined names, and can be applied because the number of possibilities are fewer and more clear-cut. Long-currency or widely known names disused because of hierarchical changes or because the units are geologically invalid cannot be allowed re-use, but other superseded names may be re-used if they have been absent from the literature for at least 25 years, or in the case of short-currency names disused because of hierarchical changes, for at least 50 years. The approval procedure for re-use would involve the state/territory Subcommittees, the Federal Convener, and publication of a call for objections.

ACKNOWLEDGMENTS

This document has benefitted from discussion and suggestions provided by members of the Australian Stratigraphic Nomenclature Committee. Its publication and dissemination has been authorized by that Committee.

Mr C. Modrak and Mrs Ilona Toth obtained the statistics on the number of names in the Central Register of Stratigraphic Names.

Figure 1 was drafted by Peter Brown of the BMR Cartography Unit.