Cadastral Surveys Within The Commonwealth

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One result of the Conference of Commonwealth Survey Officers in 1971 was a resolution that called for a publication “setting out techniques used for, and costs and efficiency of, marking, surveying and recording land parcels in the Commonwealth”. Emerging from the research project that was initiated in response to this recommendation is a book which attempts “to unravel some of the philosophic, methodological and technical problems of cadastral surveys” that form a “multi-million dollar industry in which great sums of money are wasted and much that should be done remains undone”. Mr. Dale, who was appointed senior research fellow in October 1972, finished his labours in the remarkably short time of three years. He has produced what is inadequately described as a report, though to most readers it will appear as a complete, authoritative and forceful textbook on what has hitherto been a neglected and frequently misunderstood field of study.

From the outset, the author insists that cadastral surveys are an aspect of land administration, and this is a central theme to which he returns on several occasions. With few exceptions, Mr. Dale tells us, the modern land surveyor remains outside the realm of land management and its associated areas of land use, planning and development. Instead, the surveyor offers a service which extends little beyond the measurement of boundaries and the portrayal of topographic features. Too often his concern is with the techniques of survey measurement and not with the identification and solution of problems for which his particular expertise is relevant, nor does he usually consider the environmental consequences of what he is doing. Three fundamental questions are posed by the author, who then tries to answer them in successive chapters. First, what are the minimum requirements of a cadastral survey system as defined by law (other than those laws, such as survey regulations, which have been written by surveyors) and by environmental and cost considerations? Second, what are the best technical methods for achieving the basic requirements of a cadastral system? Third, would an expansion of the cadastral activity and a marginal increase in expenditure produce any significant increase in the overall benefits? Mr. Dale starts by examining the nature of boundaries and the factors influencing the choice of one standard of survey rather than another. Next, he takes a detailed look at the methods of acquiring, processing and presenting cadastral information and identifies a number of costs and benefits. He then considers problems relating to the integration of survey information. The remaining chapters deal with general aspects of cadastral survey methods, survey administration and education and, finally, a summary of the cadastral systems now in use in a number of Commonwealth countries.

In pointing out that the Torrens system of registration guarantees title to land and not its boundaries, Mr. Dale offers a valuable corrective to the widespread but mistaken notion that boundaries can always be guaranteed in an absolute sense. Thus, the adoption of a "general", as opposed to a "fixed", boundary does not necessarily mean that the former is vague and uncertain, or that the latter is beyond dispute and not susceptible to subsequent alteration. Indeed, the selection of ideal boundary criteria arises from an assessment of legal requirements and economic factors, and is not used solely on survey regulations or on methods of monumentation. A cadastral system should be designed to be socially and politically acceptable and to inspire the confidence of those whom it serves. Instead of attempting to cover all eventualities, the aim of such a system is to be "more like an insurance policy giving the maximum cover at the minimum expense." The occasional need for boundary surveys of high precision does not imply that all citizens should be subjected to unnecessary cost, and a point must be found beyond which any further expenditure will produce no commensurate benefit. Insistence on such high standard of survey measurement as will completely prevent future boundary disputes, the author argues, is to overlook the needs of the majority. In this connection, there must be some justifiable relationship between the cost of survey and the value of the land, but the land surveyor, though trained to be a practical man, may be obsessed with apparent mathematical precision that often obscures considerations of common sense. As an example, one might point to reference plans in Ontario where the common appearance of several sets of measurements along the same line, all differing only slightly from each other, presents a jumble of figures that are confusing, if not incomprehensible, even to an intelligent administrator or layman. Title plans should be kept as simple as possible and purged of all extraneous information which, as necessary, can be separately recorded for those who need to understand and use it. Frequently, in his search for the nearest millimetre, the surveyor is "baffled by the magic of measurement" into thinking that the precision of his surveys is greater than is actually possible or socially useful. This is no mere matter of a surveyor's pride in his technical ability, for a cadastral record depends upon certainty for its success and it cannot work effectively if different values continue to appear for any one point or measurement.

Monumentation is stated to be the single most important aspect of cadastral survey for title purposes. Unfortunately, after drawing a somewhat artificial distinction between a monument and a beacon, Mr. Dale uses both expressions almost indiscriminately throughout the text, and especially in his description of monumentation by beacons where the inclusion of the word markstone adds a further and unnecessary complication. Canadian land surveyors, well accustomed to making ties from monuments to the corners of walls or buildings, may find it puzzling to be told that such physical features are rarely used in urban areas as a reference from which the actual boundary line may be fixed. In his less than satisfactory treatment of boundary descriptions the author differentiates between a metes description and a metes and bounds description, by giving what purports to be a Canadian example of the former in which the location of the boundaries is clearly governed by iron posts. In fact, this is a metes and bounds description, the bounds of which are the posts themselves whose actual position, if proved to be in situ, qualifies the given measurements by making them more or less, even if this is not so stated in the actual wording of the description. It is simply not true to say that this description is entirely dependent on measurement for the identification of the parcel. On the other hand, Mr. Dale surely goes too far in suggesting that the definition of boundaries in terms of coordinates, rather than monuments, is "contrary to common law". Although the courts will probably always prefer to use the existence of original monuments as proof of the true position of a boundary, coordinates, like other kinds of measurement, are a type of evidence which is nowhere declared to be inadmissible but whose weight and cogency depend upon the circumstances of the particular case.

Examination of the multi-purpose cadastre is subsumed under the heading of integrated surveys, a phrase to which the author ascribes various meanings, including the introduction of a coordin-
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ate referencing system, the aggregation by specialists from different disciplines of their particular information and findings into a common result, and the collection, collation and presentation of all information which refers to attributes of land. It is in this latter approach that the land surveyor is eminently suited to play a vital role, by ensuring that all relevant land data can be given a correct geographical identity. The growing pressure for all types of improved land information for the benefit of human activities, almost all of which take place within individual parcels, compels the need for the cadastral map as the framework within which the required knowledge can be stored. Yet land surveyors have traditionally shown little interest in the problems of mapping features other than boundaries and the physical objects depicted on topographical maps, and this has tended toward the creation by different organizations of their own data banks for such specific information requirements as land use and ownership, population densities, housing conditions, underground municipal services, and so on. Excessive concentration on the mathematical aspects of his work may inhibit the surveyor from realizing his full potential as the logical coordinator and supplier of basic information without which no orderly use and development of land can exist in modern society. While there will always be a requirement to mark property boundaries with monuments, the increasingly high cost of this activity indicates that with little additional effort and expense it can produce land information to satisfy the widest group of users. It is this tremendous challenge that bequests the land surveyor in the direction of greater professional fulfilment and responsibility.

An irritating air of apology permeates the preface, where it is said that the completion of the project on time was more important than the acceptance of minor deficiencies. Statements to the effect that the draft of the text had to be ready "for better or worse" by a specified date, together with the implication that any publication is better than none at all, are scarcely helpful. Nor is it necessary to emphasize that the book contains views to which some readers may take exception. What is needed are reliable information and thoughtful conclusions, and Mr. Dale has presented a wealth of practical experience. The author is to be congratulated on producing a work which seems destined to become required reading for those who are in any way interested in cadastral surveys. He recognizes that a cadastral system is not to be confined to the narrow requirements of title registration but must provide the framework for the acquisition, availability and manipulation of multipurpose land information. This represents the greatest challenge now facing the land surveyor, the measure of whose professional ability and fortitude will be tested by response to the new and exciting opportunities that lie within his grasp. Mr. Dale's arguments for a new and critical analysis of traditional ideas and methods, which are certain to provoke discussion and controversy within the profession, should ensure that his book will deserve and find a valued place in the library of every surveyor.