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ABSTRACT
        A research study based largely on the published
literature and including interviews with an extensive selection of
librarians and library users, educationalists and employers, was made
of the function of the library in a college of advanced educations.
(CAE). The three main areas of investigation were use patterns,
collection analysis, and processing and service technology.
Conclusions were that the CAE's are making a genuine contribution to
diversity in tertiary education and will provide a viable alternative
to university education for those whose interest lies in technology.
Teaching methodology will require new attitudes to encourage
life-long learning -- teaching methods, and libraries must find their
place in this process and contribute positively to it. (AB)

THE FUNCTION OF THE LIBRARY IN A COLLEGE OF ADVANCED EDUCATION

Report of a research project conducted for the
Commonwealth Department of Education and Science on
the recommendation of the Commonwealth Advisory Committee
on Advanced Education

by

Harrison Bryan M.A., F.L.A.A.

Librarian, University of Sydney

and

Evelyn Lorna Hean B.A., A.L.A.A.

Librarian, Sydney Technical College

Sydney

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INTRODUCTION

The following pages comprise a report on The Function of
the Library in a College of Advanced Education.

This investigation was financed by a research grant made
by the Commonwealth Minister for Education and Science on
the recommendation of the Commonwealth Advisory Committee
on Advanced Education.

The Committee's recommendation followed a suggestion of
its Library Sub-Committee, which had requested me, as one
of the members, to design a project in this area and, if it
were approved, to supervise its conduct.

In the event, the investigation was most ably carried
out by Miss Lorna Hean B.A., A.L.A.A., Librarian of the
Sydney Technical College, who was granted twelve months'
special leave (November 1968-October 1969) by the New South
Wales Department of Technical Education for this purpose.

Miss Hean and I worked closely together on this project,
accommodation and other facilities for it being provided by
the University of Sydney in the Fisher Library. However, I
should like to make it completely clear that while I will-
ingly share responsibility for the conclusions reached and
the recommendations made in the report, the real work was
done by Miss Hean, my contribution being limited to discus-
sion, though this was quite extensive. Any credit to be
assigned is undoubtedly hers, any blame to be shouldered is
just as certainly mine.

As envisaged in the original design for the project, our
research was based largely on the published literature,
though this covered a wide range, as can be seen from the
bibliography included in our report. In addition, however,
Miss Hean secured interviews with an extensive selection
of librarians and library users, educationalists and
employers and, in addition to a thorough investigation of
the New South Wales scene, was able to inspect Colleges of
Advanced Education in South Australia and Victoria.

The Library Sub-Committee had expected, and Miss Hean
and I had hoped initially, to treat three main areas of
investigation, which could be described generally as use
patterns, collection analysis, and processing and service
technology. As the project developed, however, and in view
of the limited time at our disposal, we were forced to con-
centrate on some issues to the exclusion of others.

In particular, we have had to leave virtually untouched

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two questions in which the Library Sub-Committee was keenly interested. These are, first, the possibility or desirability of centralised or cooperative acquisition and cataloguing routines and, second, the mechanisation of processing and/or service operations, especially by computerisation. It might not be inappropriate to note, however, that the original design for the project included the following statement relating to these questions:

"It is likely that the study would lead only to fairly general conclusions in this area, since the one certain feature to emerge from a considerable amount of research and comment in this area in recent years, is that local circumstances of particular libraries exercise a dominant influence on the economics of such proposals."

We regret having had to omit this area of investigation but we do not regret any of the time we spent, though this was much in excess of our original estimates, on the introductory sections of our work.

Miss Hean and I would like to express our thanks to the University of Sydney for its hospitality to our work and to the New South Wales Department of Technical Education for facilitating it, to the many librarians and others who gave so freely of their time in demonstration and discussion and to Mrs I. Holmes, Miss P. Waugh and Mrs B. Douglas of the University of Sydney Library who coped cheerfully with the aggravations of typing, re-typing and copying.

Harrison Bryan
Librarian
University of Sydney.

CONTENTS

I THE CONCEPT OF THE COLLEGE OF ADVANCED EDUCATION

The function of the library in a college of advanced education depends essentially on the nature of the college of advanced education itself. An accurate concept of the C.A.E. was therefore considered to be a prerequisite to the present investigation.

Viewed retrospectively, there have been many changes and developments in the advanced education area during the twelve months of our research project (November, 1968, to October, 1969). Worthy of mention are the first award of degrees for the successful completion of a C.A.E. course, namely the Bachelor of Pharmacy degrees awarded by the Victoria Institute of Colleges to graduates of the Victorian College of Pharmacy; the inclusion of teacher education in the Canberra College of Advanced Education, and its inclusion as an integral part of the Mitchell College of Advanced Education, through the proposed absorption into this college in 1970 of the Bathurst Teachers' College; publication of the "Second Report of the Commonwealth Advisory Committee on Advanced Education"[1]; and the publication of the Sweeney[2] and Wiltshire[3] Reports, the former concerned with salaries of lecturers and senior lecturers in colleges of advanced education and the latter with academic awards in the colleges. Not all of these events have helped clarify the concept of "advanced education" and the role of the C.A.E.'s; in fact, some, as will be mentioned in the course of this report, appear to have clouded the issue. Perhaps this is inevitable, for the reason emphasised by the Wark Committee in its second report - "we are dealing with an evolving concept not susceptible to close definition"[4]. Nevertheless, a working definition is a necessity.

The starting point in our investigation was, therefore, a study of the "First Report of the Commonwealth Advisory Committee on Advanced Education"[5], to define "advanced education" and establish the special characteristics of the college of advanced education as an educational institution. The term "advanced education" is not self-explanatory. It could be thought to cover the whole area of tertiary (i.e. post secondary school) education, but has in fact been used as the term for "non-university tertiary education". This eliminates the university, but is otherwise no more self-explanatory, as can be seen from the following statement of

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Mr J. McCusker, Assistant Secretary, Advanced Education
Branch, Department of Education and Science, Canberra, and
Secretary of the Commonwealth Advisory Committee on Advan-
ced Education, regarding the newly coined terms "advanced
education" and "college of advanced education":

> "Whatever individual opinion on these terms might be
> it was a brave attempt to link a wide range of instit-
> utions under a heading which would express their core
> similarity, namely, that they are educational instit-
> utions teaching at the post secondary school level
> with a vocational bias and offering courses leading to
> professional competence in a range of disciplines. It
> is a term under which we can see the possibilities of
> a system embracing institutes of technology, agricul-
> tural colleges, paramedical colleges, conservatoria of
> music, art schools and so on. Clearly this area was
> being thought of as a system - albeit a loose system -
> which it was necessary to develop in its own right"[6].

But colleges of advanced education were not intended to
be just post secondary school educational institutions,
offering professional training, with a vocational bias.
Another element was to be distinguished, for in their educa-
tional programmes there was to be a "significant emphasis on
liberal studies"[7]. Mr McCusker refers, as does the Wark
Committee in its first report, to the statement of the then
Prime Minister, Sir Robert Menzies, in November, 1965:

> "What is envisaged is not merely improved arrangements
> for teaching technical subjects. An important part of
> the new concept is the encouragement of more liberal
> studies in these colleges, and the establishment of
> courses which will provide greater breadth in educa-
> tion for all students who take tertiary level training
> outside the universities"[8].

By definition of the Commonwealth Government, teacher
education was excluded from the field of advanced education.
The decision to leave the responsibility for teacher train-
ing entirely to the States appears to have been arbitrary
rather than logical. However, the terms of reference of
the Wark Committee clearly stated:

> "A teacher training college will not be eligible for
> assistance or for approval (from the Commonwealth) of
> any of its courses even if it conforms with the other
> criteria for a college of advanced education. Nor
> will a segment of an advanced education college which

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is concerned primarily with meeting the direct need of
teacher training be eligible"[9].

The Wark Committee was at pains to distinguish colleges
of advanced education from universities, as comparisons be-
tween the two types of tertiary institution would inevitably
be made. Six important differences in the colleges were
listed[10]:

(a) Students with somewhat different types of inter-
    ests;
(b) A greater concentration upon part-time studies
    associated with employment, especially in
    scientific fields;
(c) A more applied emphasis;
(d) A more direct and intimate relationship with
    industry and other relevant organizations;
(e) Far less attention to post-graduate training and
    research;
(f) A primary emphasis on teaching.

But the functions of the university itself have not been
clearly defined, so that comparison of the college of advan-
ced education with the university is not sufficient to es-
tablish the special functions of the college of advanced
education.

In general, we felt at this stage that the "raison-
d'être" of the college of advanced education could not be
fully comprehended by a study of the first Wark Report
alone. This feeling was strengthened by many confused and
at times conflicting expressions of opinion, both verbal
and written, amongst educationists and librarians; all
reflecting the lack of a clear, positive concept of the
C.A.E. In an article on "The Development of Colleges of
Advanced Education", the statement was made, "Adequate
finance, then, and the knowledge necessary to make use of
it are the means by which the proper development of these
new colleges is to be achieved". "But", it was pointed out,
"much of the value will be lost if the general public in
Australia is not made fully aware of the existence of this
genuine alternative to the university, and given every
encouragement to use it"[11]. Samples of varying verbal
expressions of opinion about colleges of advanced education
are statements that in ten years' time or even less there
will be no difference between colleges of advanced education
and universities (just as the English Colleges of Advanced
Technology turned into universities); and that when things
"shake down" the C.A.E.'s will turn out to be more like the

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United States junior or .community colleges and will thus
never be the equal of universities. Both these assertions
have of course already been countered, the first by the
Martin Committee, which insisted that colleges "resist the
temptation to copy the educational processes and curricula
of universities. The Committee's proposals envisage a
greater diversity of tertiary education in Australia, but
any hope of achieving this diversity would be nullified if
colleges attempted to transform themselves into universi-
ties"[12]; and by the Commonwealth Government, which expressed
a flat refusal to support courses leading to degrees or the
virtual conversion of C.A.E.'s into universities, and, in
the terms of reference it gave the Wark Committee, stated
that C.A.E. courses "provide on completion a standard of
attainment at diploma level (but not at degree level)"[13].
The second assertion is contrary to the following statement
of the Wark Committee: "We cannot too strongly emphasize
that a college of advanced education is not to be confused
with the type of college generally known in America as a
junior college"[14].
    Written expressions of opinion on colleges of advanced
education include the following:
    Dr L.N. Short, Director of the Educational Research
Unit, University of New South Wales, in commenting on the
Wark summary of the distinction between universities and
colleges of advanced education, says: "This summary...
provides little justification for the type of institution
advocated by the Committee. The real need in Australian
technical education is the institution which accepts stu-
dents who have completed a secondary education but not
necessarily to the standard required for matriculation, and
provides a sub-professional course with practical orienta-
tion but including adequate components of basic science and
general education"[15]. Again, Dr Short says, "We still
need to clarify the essential differences between the basic
(pass degree and diploma) work of the university and the
technical college and to establish the validity of the
differences"[16]; and "Although much has been written con-
cerning the special characteristics of colleges of advanced
education, particularly in comparison with the universities,
little of it is convincing and much amounts to little more
than a persistent reiteration of the assertion that they are
different. In the United Kingdom it was found that, under
similar circumstances, the differences were so insignificant
that the colleges quickly became universities. We need to
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clarify the roles of the respective institutions..."[17]. Dr
W. Stern, Senior Lecturer in Chemistry in the New South
Wales Institute of Technology, in an article on "The New
South Wales Institute of Technology", comments on the con-
fusion about the role of the college of advanced education.
He says, "A critic of the New South Wales Institute of
Technology has stated that it is regarded as a technical
college by the universities, regarded as a second-rate uni-
versity and a cheap source of labour by industry, and
completely disregarded by the general public"[18], and aptly
comments, "Such remarks illustrate the general ignorance as
to the true function of the Institute"[19].

We decided to go back and study again the Martin Report,
which reviewed the whole field of tertiary education and
made specific recommendations regarding diploma-awarding
technological (and other) institutions or colleges within
an Institute of Colleges. These diploma-awarding colleges
were subsequently referred to collectively as "colleges of
advanced education" and became the special concern of the
Wark Committee. The Martin Committee deplored "the over-
valuation of the social status of a university degree"[20]
and the "undue emphasis on university education"[21] in the
present system of tertiary education in Australia, and its
consequence - the weakness of non-university tertiary
institutions, which in turn prevents "the latent abilities
of many young Australians from being fully developed"[22].
It thought of the diploma-awarding colleges as:

(1) Widening the opportunities for tertiary education,
to meet community needs (especially the supply of young
people qualified in the technologies), and to satisfy the
aspirations of individuals according to their inclination
and capacity ("The known needs of the community for young
people trained for a wide range of occupations have led the
Committee to recommend the expansion, improvement, and
establishment of appropriate institutions to provide a
wider diversity of tertiary education"[23]);

(2) Assisting in the rationalization of tertiary educ-
ation, thereby relieving the strain on the universities and
protecting them from students who are not "of university
ability"[24], that is, who are "of a somewhat lower academic
capacity"[25], but elect or are urged to go to universities,
"due to the lack of other tertiary institutions of com-
parable status in the eyes of the community"[26].

The Wark Committee phased out the Martin Committee's
idea of colleges of advanced education "offering courses

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pitched at a lower academic level"[27] and regarded C.A.E.
courses as being equal to, though different from, university
courses. Dr H.S. Williams, Director of the Western Austra-
lian Institute of Technology, and a member of the Wark
Committee, subsequently regretted the Martin Report's
"continual emphasis on ability differentials" and "little
attempt to bring to the fore the differentials in terms of
the motivations and interests of the students, and the
objectives and methods of the institutions"[28]. Presumably,
if an Australian Tertiary Education Commission had been set
up, replacing the Australian Universities Commission, as the
Martin Committee recommended, the framework for the whole
tertiary education area would have been clearly defined.
    The Martin Committee said, "Interviews with and sub-
missions from leaders in industry and commerce have impress-
ed the Committee with the importance of the training given
by technical institutions, the worth of their diplomates,
and the expanding need for them in industry and commerce.
The Committee has concluded that the rate of growth necess-
ary in this sphere should be greater than in any other
sphere of tertiary education"[29]. Moreover, the Wark
Committee stated that the ability of the colleges to "offer
professional level courses in their own right" "is already
well recognized by a wide range of employers and profess-
ional institutes"[30]. Despite this, we felt the need, at
this point, to investigate for our own personal enlighten-
ment, by further reading and direct contact, such questions
as the particular needs of industry, commerce and the
community for the diplomate product of the college of advan-
ced education; the meaning of "applied bias", as revealed by
actual course content; the feeling towards the diplomate of
professional bodies such as the Royal Australian Chemical
Institute and the Institution of Engineers, Australia; and
the reasons for the special emphasis on inclusion of liberal
studies in C.A.E. courses. The answers to these questions,
we felt, would help provide a basis for assessing the valid-
ity of the concept of the C.A.E. as "equal to, but different
from, the university". Is this latter real, or just an
expedient quibble?
    The situation in New South Wales is perhaps particularly
enlightening, where the technological diploma courses of
Sydney Technical College were taken over by the University
of Technology (later the University of New South Wales),
which was established in 1949. The diploma courses were
increased in length and altered in character - the
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proportion of basic to technological or applied subjects
studied increased - and finally became degree courses of the
University of New South Wales. The Department of Technical
Education then turned its attention to technician training,
and, after thorough investigation of the needs of industry
and commerce for "middle-level" personnel (to bridge the
gap between the technologist and the tradesman), and the
knowledge and skills required by such personnel, in the mid-
1950's introduced certificate courses to give sub-
professional training in various branches of engineering,
chemistry, biology, metallurgy, etc.   Dr H.S. Williams has
expressed the opinion that "... the emergence of technicians
and the recognition of the need to provide specific courses
for them may well prove to be historically the most signif-
icant phenomenon in technical education in the post-war
period, and lead to more rational use of our resources of
ability. It has indeed been suggested that what appears as
a shortage of professional personnel is, in fact, often
rather a shortage of the technicians who support their
efforts"[31]. Despite the availability of part-time, as well
as full-time, degree courses at the University of New South
Wales, and particularly the six-year part-time courses
leading to the award of Bachelor of Science in Technology,
the introduction of certificate courses by the Department
of Technical Education, expansion at the University of
Sydney and, later, the establishment of Macquarie Uni-
versity, the needs of industry and commerce were not fully
met, and the absence of the old diploma courses leading to
the Associateship of Sydney Technical College still left a
gap. As a result of representations and pressure from
business and industry, the Department of Technical Educa-
tion in 1964 re-introduced diploma courses in science and
architecture. In 1965 the New South Wales Institute of
Technology was established within the Department of Tech-
nical Education to provide tertiary courses with an applied
emphasis, different from, but complementary to, those of
the universities. In particular, its function was to pro-
vide, at tertiary levels, vocational education for manpower
engaged in professional, technical, administrative, distrib-
utive, rural and other occupations. Diploma courses in
various branches of engineering and in other fields such as
building and quantity surveying were then introduced. In
1967 the New South Wales Institute of Business Studies was
established and introduced a Commerce Diploma course. It
also took over and revised the Management and Public

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Administration Diploma courses of the Department of Technical Education. In 1969, the business studies sector was incorporated in the New South Wales Institute of Technology, which now comes under the jurisdiction of the newly created New South Wales Advanced Education Board, instead of the Department of Technical Education.

The first industrial contact made was Mr H.J. Brown, Technical Director of Philips Electrical Pty. Ltd., since he was known to have deplored the loss to industry of the diplomate-type of product when the University of Technology became the University of New South Wales, that is, virtually just another university, and lost the special characteristics of an Institute of Technology. He has had a wide experience over some thirty years in government organisations such as the C.S.I.R.O., and in industry, as well as in technical teaching, and was, in addition, vitally concerned with the organisation and planning of the University of Technology, being its first member of staff, Foundation Professor of Electrical Engineering and Assistant Director. Mr Brown re-affirmed that a void was left in industry by the cessation of the diploma courses of Sydney Technical College, and spoke of the disinclination of the university graduate (a) to go into business and industry at all; and (b) to go into any department other than research, if he does enter industry after his graduation. This disinclination is found in pass graduates generally, and even more in honours graduates and postgraduate students, and is evident in other parts of the world as well, particularly in Great Britain, and to some extent the United States. "...Graduates are tending to shy away from business and industry as a career. Too many want to remain at the Universities to do postgraduate work and to join the staff of the University, even if they do not eventually do so. Too many think only in terms of a job in research work, in a University or a Government laboratory. If they consider industry, it is almost wholly in terms of the research laboratory. This applies particularly to the brighter student"[32]. But industry needs only a very small proportion to go into research - its main needs are in design and production. It is in these areas - design, production, supervision of manufacturing - that industry needs the product of a diploma course that is sensitive to the requirements of industry and creates in its students a desire to work in industry for the economic benefit of the community. "...Industry

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only needs a small number for research. It needs a lot for
other work. In the electronics industry, which is very
research-minded, we find that only 15% of the total cost of
introducing a new product is spent on research, but 85%
goes on development, design, production and sales. There
is strong evidence for the belief that our manpower supply
is unbalanced - too few engineers relative to scientists -
and that it is wrongly deployed - too many in research
relative to development and production"[33]. "It is important
to remember that the creation of national wealth rests on
the conversion of raw materials of low intrinsic value into
marketable products, and this can be done only by industry.
At present the increasing national expenditure on research
and development is not leading to a proportionate increase
in wealth... We have plenty of knowledge from which to
invent and develop new products. But we seem to be lacking
the men who are capable of applying this knowledge and who
want to develop and design new products"[34]. "It took
genius but little time and money for Whinfield and Dickson
in 1941 to draw the first thread of terylene in the labor-
atory. But following that discovery it was 14 years and
some £20 million later that I.C.I. was able to make tery-
lene on a commercial scale, and it occupied a great number
of practical engineers and chemists not engaged in research.
Technology includes scientific research and is based on the
same logic, but it goes beyond the point of discovery to
the mastery of production. There is a big - and expensive-
difference. Discovery is not enough - development is not
enough; production and application must follow to produce
national wealth"[35].

In a public lecture on his recent visit to Australia,
Professor Derek J. de Solla Price, Avalon Professor of the
History of Science and Chairman of the Department of History
of Science and Medicine at Yale University, expressed the
opinion that Japan's production is such that if it had
Australia's natural resources it would by now probably be
as wealthy as the United States. Japan has shown in a
startling fashion what can be done by application of know-
ledge. Great Britain, on the reverse side, has shown what
happens to a nation's economy when there is a failure to
apply new knowledge to production. Mr H.J. Brown explains
it thus:

> "These two countries (Britain and Japan) spent in the
> 1960's on purely civil R. & D. (research and develop-
> ment) about the same percentage (1½%) of their G.N.P.

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> At the same time their production grew respectively
> 33% and 274%, whilst exports grew 37% and 377%. The
> barrier to innovation is not at the scientific but at
> the management level. We need more better educated men
> at every level of business and not just more research
> and development. This is where America and Japan have
> a different philosophy in the use of their graduates
> which has led to greater national wealth"[36].

Mr Brown considers that the essential difference between
the pass course in a university and the diploma course of an
institute of technology or college of advanced education
lies in the content of the course (a higher proportion of
basic to technological or applied subjects in the university
course) and in the attitude of mind generated in the student.
He considers further that students "of university ability"
will elect to go to colleges of advanced education because
of the practical bias of their courses. The distinctions
between universities and colleges of advanced education made
by the Wark Report are all meaningful and valid, and those
who say they are not, or that colleges of advanced education
should be concerned with sub-professional training, are
simply reflecting their own lack of industrial experience.
In order to continue to serve the purpose for which they are
required, colleges of advanced education must maintain the
closest possible links with industry. This may be accomp-
lished in a variety of ways - through prior industrial
experience of appointees to the full-time teaching staff;
through teaching staff going back and working in industry,
as is done in the United States, during vacations, and when
on sabbatical leave, instead of undertaking research at a
university; through teaching staff engaging in industrial
research; through extensive use of part-time lecturers from
industry; through active Course Advisory Committees, with
representatives from industry, whose advice is heeded; and
through part-time courses. Though full-time courses may be
introduced, Mr Brown thinks that part-time courses should
always be available too, not only because of the economic
necessity of some students, but because of the added contact
with industry.

Mr Brown's views were found to be reinforced and amplified
in other sources. Professor R.W.F. Tait, Professor of Chem-
ical Engineering at the University of Adelaide, stresses the
importance of generating in the student the right "attitude
of mind", and shows the same awareness as Mr Brown of the
pitfalls of university courses: " ... the emphasis on
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fundamental knowledge in our own courses must not be so
heavy that our graduates leave the university feeling that
the only worthwhile human activity is the furtherance of
fundamental knowledge...We may...turn out graduates who
believe that the only worthwhile objective is the design
and development of new plants. We must be careful at all
times to point out that the correct operation and improve-
ment of existing plants is an occupation calling for a con-
siderable degree of technical skill and in no way to be
regarded as less worthy of the engineer's attention than the
more glamorous research and development sides of the busi-
ness"[37]. Professor A.N. Hambly, Professor of Chemistry,
School of General Studies, Australian National University,
is outspoken: "One criticism that is frequently levelled at
our present courses is that they are increasingly biased
towards the research laboratory and away from the practice
of chemistry in industry. Whether God made man in His own
image or whether men make gods in their image, it is true
that lecturers and professors tend to mould students towards
an academic life"[38]. Mr H.J. Brown puts it this way: "...
In their undergraduate years students are brainwashed in
favour of pure academic work and are left in ignorance of
the needs of industry and the intellectual challenge of the
business and industrial world"[39]. The main reason for this
is the lack of industrial experience of members of the
University staff. "Few have held senior positions in busi-
ness or industry. Too many have travelled the narrow road
of graduate, postgraduate, research student, lecturer,
senior lecturer and perhaps reader and professor. The Uni-
versity is their whole life and they make little effort to
get to know the world outside"[40]. In contrast, Mr Brown
points out that in Eindhoven, Holland, the highest execu-
tives at Philips occupy professorial posts at the University
and spend two days a week there. In the field of architec-
tural education, Mr R. Thorne, lecturer in architecture at
the University of Sydney, comments on the same sort of
approach in the United States and on the Continent generally
as Mr Brown mentions in Eindhoven. In the architectural
schools in United States Universities and Technological
Institutes, most of the teachers have private clients or are
employed by a firm; and on the Continent, at Zurich Instit-
ute of Technology, as at many other European schools, pro-
fessors and teachers carry on their practices from offices
within the school[41].
    Professor C.E. Moorhouse, Professor of Electrical

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Engineering, University of Melbourne, speaks of "...the enormous difference between doing something in the sheltered atmosphere of the laboratory and doing it in the general hurly-burly of industry, or between doing something once, or when cost is no object and doing it regularly and reliably when cost is important"[42]. Mr J.A. Smithson, General Technical Manager of The Olympic Tyre and Rubber Co. Pty. Ltd., stresses the lack of preparedness of university graduates for industrial life. "...There are few graduates coming out from the universities who are ready for industrial work. They are not trained for the tempo or given any idea or encouragement of what industry offers them during their academic life. This is mainly because the professors and lecturers, being purists, project the shadow of themselves on their young, impressionable students and so reproduce their own image. The more highly intelligent students are influenced to a great extent by the ideals of their 'heroes'"[43].

"...At the age of 20 to 22 years is it not too late to train such people for positions in industry? I do not consider that it is, but I am well aware of just how difficult it can be to adapt to an industrial environment - especially after three, four or five years in an academic environment"[44]. Part-time courses with some daytime release (e.g. the equivalent of two half-days per week) and sandwich courses (say, two alternate sessions per year) overcome the problem of the student having to adapt later to an industrial environment. For this reason they are favoured in industry. Mr J.L. Stewart, Education Officer at the Colonial Sugar Refining Co. Ltd., in discussing the chemical education of non-graduate scientific workers for industry, at a symposium of the Chemical Education Division of the Royal Australian Chemical Institute at the Institute's Third National Convention, in Canberra in 1966, said that the orientation to industry should take place at the beginning rather than the end of courses[45]. Mr J. H. Kaye, Director of Personnel, Standard Telephones and Cables Pty. Ltd., and a member of the Wark Committee, believes very strongly in part-time courses, because the end-product is more mature in his approach and better able to handle people and communicate successfully with them. Mr B.E. Lloyd in his book "The Education of Professional Engineers in Australia" makes the point that "The graduate from a part-time course naturally finds his feet as a professional engineer much more readily than the graduate from a full-time course, and this is true of graduates from either universities or colleges"[46].

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In a paper presented at the Third National Convention of
the Royal Australian Chemical Institute in Canberra, 1966,
Sir Henry Somerset, Managing Director of Associated Pulp and
Paper Mills Ltd., and Chairman of Australian Titan Products
Pty. Ltd., endorses Mr Brown's statement about the lack of
graduates wishing to enter the "production side of industry".
"Here", he says, "there is a steady demand for chemists, in
the quantity sense perhaps B.Sc's and diplomates, rather
than Ph.D's...the B.Sc. has practically disappeared, except
in transit. These days such inducement is offered to them
to proceed to higher levels that few of them peel off at the
B.Sc. stage; they seem to go through and finally end up in a
university post, or something similar - certainly not in
industry. And yet we need them. The work is interesting"[47]
In a paper presented at one of the Chemical Education Sym-
posia at the same Convention, Mr L.W. Weikhardt, Research
and Executive Director of ICIANZ Ltd., said, "In a large
works the typical response of a senior manager to diplomates
and technical trainees is that they meet many needs admir-
ably, particularly in production and development work... In
some departments which lack glamour to graduates, the train-
ed diplomate plays a particularly important role.
     There is no doubt that industry will continue to require
diplomates"[48].
     The desire and need for diplomates in industry is also
confirmed by the Metal Trades Employers' Association, which
is known to be looking forward to the diplomate products of
the New South Wales Institute of Technology.
     Many of the views we have recorded were also expressed by
the mixed group of Victorian graduates and diplomates, be-
tween 24 and 26 years of age, whose attitudes towards their
academic training are reported by Mr L.R. Parker, of the
Australian Administrative Staff College, in "Training and
Work: a study in employment attitudes made in 1967 for the
Commonwealth Advisory Committee on Advanced Education"[49].
The members of this group all held vocationally directed
degrees and diplomas. Views expressed by them which are
relevant to our present investigation are quoted below[50].
They are significant as coming from the employee, rather
than the employer, group.
          "(c) They saw a tendency in universities to press more
          and more men on to higher degrees, even when the in-
          clinations of the student and his academic record
          suggested otherwise. They suggested that areas of
          research are often chosen 'merely to compete with

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overseas universities - instead of applying research to
problems of industry. We just keep guessing, year
after year'.
(d) They saw a tendency in universities to play down,
if not actually to denigrate, technical college studies
and to hold out the university degree as the only app-
ropriate training for the academic life or for entry to
commerce, government administration or industry.
(f) They agreed that there was a place for at least
two sorts of tertiary training in technological fields
- one to cater for the practically oriented man whose
interest was ultimately to hold an operating job in
industry, and another which was theoretically oriented
and prepared a man for research. The first would
stress the practice of a technology in an industrial or
commercial environment. The latter would lean to the
theoretical side, and would prepare people for the
intellectually and morally demanding task of pressing
back the boundaries of knowledge. As they saw it, both
sorts of persons were needed in the community, and they
both required tertiary training. They believed the
training institutions had not yet clarified what they
were setting out to do - or if they had, it had not
been made clear to their prospective students. An
influential chief engineer said:

> The universities have gone mad. If they believe
> they should only train research workers, they
> should say so, and send industry elsewhere for
> their operating graduates.

There was a feeling among them, moreover, that people
chose courses for reasons that were irrelevant - a
degree because of the status if conferred, or a diploma
because they felt they could not cope with university
training, or because the cost appeared to be less."
    The detailed analysis and comparison of past and present
engineering courses in Australian universities and colleges
of advanced education (including institutes of technology
and the tertiary sectors of technical colleges) made by Mr
B.E. Lloyd in his book "The Education of Professional
Engineers in Australia" is very illuminating. It may be
remembered that the Martin Committee gave special attention
to the education of engineers in Australia. In terms of
duration of courses, Mr Lloyd makes the point that a 3-year
full-time course of 36 weeks (engineering course in a C.A.E)
is the equivalent of a 4-year full-time course of 26 weeks
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(engineering course in a university), both comprising
approximately 2,500 hours. Similarly, a 5-year part-time
course of 36 weeks (C.A.E.) is the equivalent of a 6-year
part-time course of 30 weeks (university). There is thus
equivalence between college and university courses in total
hours of duration, despite one less in the number of academ-
ic years in the college course. Speaking of the difference
in emphasis and approach of college from university courses,
Mr Lloyd says, "Courses in engineering offered by the coll-
eges are designed for students whose aptitudes and motiva-
tions are responsive to vocational incentives. Courses are
related more to the everyday practice of engineering rather
than to research and scholarship ; they are concerned more
with the application of knowledge rather than with the
development of knowledge...The university courses give more
emphasis to generalisations and abstractions..."[51]. In
actual subject content, university courses have more basic
science "to permit a more fundamental treatment of engin-
eering science and advanced engineering subjects"[52], while
college courses give greater emphasis to the practice of
engineering. Both university and college courses, however,
have similar proportions of engineering science and advan-
ced engineering, and colleges devote only slightly less
time to mathematics, on the average, than do universities.
"The high mathematics content indicates the common need for
mathematics as a tool for quantitative expression in all
courses"[53]. In most college courses there is a greater
emphasis on liberal studies. Mr Lloyd comments on the con-
siderably higher standard of the newly introduced engineer-
ing diploma courses of the New South Wales Institute of
Technology than the old diploma courses of Sydney Technical
College. Putting this in general terms, he says: "The
engineering student of today undergoes a very much more
rigorous educational experience than did students of earlier
days. The forces which have brought this about are increas-
ing standards of education generally within the community
and the tremendous advances in engineering knowledge, the
two having a cumulative effect. On the one hand, material
has been displaced downwards into the secondary education
period; students of today cover much of the mathematics and
science in their secondary courses previously taken in their
professional courses. On the other hand, the displacement
of engineering practice material and replacement of descrip-
tive matter has been accompanied by expansion and

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quantitative analytical treatment of engineering science
and advanced engineering studies"[54]. One is reminded of the
comment of the Wark Committee in its discussion of the diff-
erences between colleges of advanced education and univer-
sities. "While the university is likely to have a greater
theoretical content in its courses, it must be recognized
that if the diplomas are to provide an adequate education
for a changing world, they too must contain a substantial
measure of theory"[55]. Mr Lloyd points out the overlap be-
tween the colleges and universities. "Course content in
the two types of institution is influenced by the attitudes
and objectives underlying instruction. The universities are
concerned with the development of knowledge through research
while the colleges are concerned with the application of
knowledge and the development of professional skills. A
limited amount of applied research is carried out in some
colleges and all university courses include the development
of professional skills. There is an overlap between the two
bodies and neither has a monopoly in either sphere"[56].
Interestingly, he finds that the Australian college diploma
in engineering compares very favourably in standard of
attainment with the pass degree courses in the United King-
dom and the United States[57].
    Mr Lloyd helps set right misconceptions, such as the one
that college engineering courses are more "practical" than
those in universities. In actual fact, there is less speci-
fied laboratory work in many college courses, and less
emphasis on organised vacation experience. For example, the
Royal Melbourne Institute of Technology and other Victorian
Colleges have abolished the requirement of concurrent prac-
tical experience for their full-time engineering courses.
The actual meaning of "a more applied emphasis" in course
content is shown by Mr Lloyd's comparison of the electrical
engineering diploma course of the New South Wales Institute
of Technology with the corresponding B.Sc.(Tech.) course at
the University of New South Wales. The part-time diploma
course, which is of the same academic duration as the part-
time degree course (since 5 years of 36 weeks is equivalent
to 6 years of 30 weeks), has the same contact hours in
mathematics and chemistry, about half the physics, nearly
the same engineering science and about 150% of the engineer-
ing technology contact time. As Mr Lloyd truly points out,
"The contact time distribution reflects the emphasis upon
application of knowledge in the diploma course, but with a
firm base of mathematics and science"[58].
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The need for three-year full-time engineering college
courses (available also on a part-time basis), as well as
four-year full-time university courses, was well illustrated
by the situation in Adelaide, where in 1957 courses (of
three years full-time or approximately six years part-time)
leading to the degree of Bachelor of Technology were intro-
duced in nine different branches of applied science and
technology in what is now the South Australian Institute
of Technology. Staff of the Institute were responsible for
course teaching, but the degree was awarded by the Univer-
sity of Adelaide. In discussing the reasons for the intro-
duction of these B.Tech. courses, in addition to B.E.
courses, Mr D.W. Cox, of the Electronic Engineering Depart-
ment, South Australian Institute of Technology, and Mr D.C.
Pawsey, of the Electrical Engineering Department, The Uni-
versity of Adelaide, in an article entitled "Degree Courses
for the Engineer and Technologist", mention the need for a
shorter course with less rigorous requirements in the basic
sciences than the four-year full-time B.E. course. They
say further: "Differences in aptitude and inclination exist
in students of engineering. Some have the type of mind
which takes more readily to an academic study of the basic
physical sciences and their engineering applications. Others
have the type of mind which finds more interest in the
practical application of known techniques. The former feel
more at home in the B.E. course, the latter in the B.Tech.
course. Both types are required in industry. The latter
may be required in greater numbers than the former. It is
held that many technologists have been gained for industry
because of the availability of a degree course in technology
which makes less rigorous academic demands on the students
and which may be completed in a shorter time"[59]. The B.
Tech. course in Electronic Engineering was proved to be
meeting a need in industry by the increase in student enrol-
ments, from 30 in 1957 to 164 in 1964. About 60% of the
1964 students studied part-time, and of these a majority
were employed in the electronic industry. In their dis-
cussion of B.E. and B.Tech. courses, Mr Cox and Mr Pawsey
emphasise: "It should not be thought that the provision of
courses in both engineering and technology has as its aim
the separation of the more intelligent from the less intell-
igent students. The aim...is to separate those who show
greater academic ability from those who are more practical-
minded"[60]. "The provision of both an advanced science-based
course to equip engineers for research and development and a

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shorter course for more practically-minded students is...an efficient method of providing engineering graduates for the electronic industry"[61]. It should at this point be mentioned that the B.Tech. courses offered by the South Australian Institute of Technology are now disappearing and being replaced by Diploma (Dip.Tech.) courses (three years full-time), administered solely by the Institute and not connected in any way with the University of Adelaide.

In a paper entitled "Trends in Higher Technological Education and Developments in New South Wales", which appeared in the September, 1949, issue of the Journal of The Institution of Engineers, Australia, the content of most of which is, in some ways unhappily, as relevant today as it was then, Mr H.J. Brown makes the following sound observations: "When the training of scientists and technologists is under discussion, a question which usually arises concerns the demand in industry for this type of trained personnel. This approach to the problem would appear to be an entirely erroneous and unsound one. The law of supply and demand cannot be reversed to read the law of demand and supply. There was no general demand by the public for any of the new technological developments, such as the cinema, radio and television. From the supply of a few cinemas, radio and television sets, the demand arose. In the same way, industry cannot be expected suddenly to demand scientists and technologists. The supply of scientists and technologists must come first. As they permeate industry and their value is appreciated, so the demand will increase"[62]. In the same way, the supply of educational opportunities and facilities in the colleges of advanced education must precede the demand. Obviously, students' educational choices (between universities and non-university tertiary institutions) have in the past been influenced by the sub-standard accommodation and facilities for tertiary education in technical colleges. Because of this, the Wark Committee has stressed the importance of good sites and buildings, to help the public image of the colleges of advanced education. Mr L.W. Weickhardt of ICIANZ Ltd. believes that once the standard of diploma training is elevated by attention to staffing, buildings and equipment, additional numbers will be "attracted" to this form of non-university tertiary chemical training[63]. Even without these facilities, demand for diploma courses has been increasing. Dr H.S. Williams mentions the growth of demand for associateship courses in the Perth Technical College (now Western Australian Institute of
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Technology)[64]. The New South Wales Institute of Technology
has had to work on a quota system since its establishment,
because of lack of accommodation. In 1967, when the new
Commerce Diploma Course was first offered by the New South
Wales Institute of Business Studies, only 25% of the applic-
ants were able to be admitted. In Victoria, with its dual
State secondary education system of high schools oriented to
matriculation and the universities, and technical schools
oriented to technical college diploma courses, an increasing
number of high school students are transferring to the dip-
loma courses after matriculation. At the Royal Melbourne
Institute of Technology more now enter from high schools
than from technical schools [65]. Some idea of the strong
development of diploma courses in Victoria may be gained
from the fact that Victoria produces approximately 40% of
Australia's professional engineers, though only 28% of the
country's population is resident in Victoria - a situation
which Mr Lloyd attributes to the highly developed and decen-
tralised system of colleges of advanced education in that
State[66]. The number of diplomates admitted to Associateship
of the Royal Australian Chemical Institute in Victoria over
the four years preceding 1966 illustrates the same point, as
can be seen from the following dissection of R.A.C.I. Assoc-
iateships:

    61   hold R.M.I.T. Diploma.
    64   hold Diplomas from other Victorian technical
         colleges.
    69   are from Australian universities.
    45   are from other backgrounds (including overseas)[67].

The overlap between universities and colleges of advanced
education in fields of study is one of the causes of the
assertion that, given time, there will be no difference be-
tween colleges of advanced education and universities. But
universities are not a monopoly and quite clearly are not
satisfying all of the community's needs. The overlap is
not, in any case, significant, since it is the content and
approach of courses that is all important. Dr H.S. Williams
speaks of the extension of technical education into an
increasing variety of fields of study as one of the signifi-
cant changes of recent years. "No longer is the argument so
much on whether particular fields such as engineering
should be in the university or the technical college as it
was so few years ago. The difference is seen today in terms
of methods of approach rather than fields of study. The
need for a diversity of tertiary education is now more fully

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appreciated and was emphasized by the Martin Committee. It
has become increasingly common to find university and tech-
nical college courses operating in the same general field
but with differing emphasis, the university giving more
weight to the scholastic approach and research,with the
technical institutions concerning themselves more with the
application of knowledge and with teaching as their prime
function.

Technical education now reaches extensively into the
field of commerce and business, and into the community
services of health, education and welfare as well as the
more traditional fields of engineering and applied physical
sciences. Courses in technical institutions can now be
found in biological sciences, social sciences, social work,
educational administration, librarianship, art and design,
and many other such fields. Whilst any one institution is
unlikely to have all of these and some may have none, such
variety will be encouraged by the Martin Report and sub-
sequent Commonwealth Government action"[68]. Clearly there
is need for some kind of rationalisation. But this is
surely likely to occur naturally once other factors such as
accommodation and facilities are equal, that is, when
colleges of advanced education are as well equipped for
their own particular functions as universities are for their
different ones. Rationalisation is, in fact, already occur-
ring. For instance, the variation from State to State in
the field of medical technology mentioned by Mr B.E. Lloyd[69]
will have lessened considerably by 1970, when the New South
Wales Institute of Technology, as well as the South Aus-
tralian Institute of Technology, should be offering a dip-
loma course in medical technology. The process of ration-
alisation will be greatly facilitated in New South Wales by
the establishment, under the Higher Education Act, 1969, of
the Higher Education Authority, two of whose functions are
"to promote the most beneficial and effective relationship
between the universities and the colleges of advanced educ-
ation" and "to take...steps...to promote consistency between
the recommendations made to the Minister by the Advanced
Education Board and the Universities Board"[70]. Naturally,
the Australian Universities Commission and the Wark Commit-
tee are in favour of rationalisation, as can be seen from
the following statement[71] in the second Wark Report:

    "The Australian Universities Commission and this Comm-
    ittee agree that rationalisation of university and
    college courses is desirable and will endeavour to

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encourage it as much as possible. In time this may
lead to the transfer of some courses from one system
to the other. Both colleges and universities may be
expected to continue to conduct some courses in similar
areas - for example engineering - but with subtle dif-
ferences with respect to content, emphasis, approach
and purpose".

In the context of rationalisation, it is significant that
the establishment of colleges of advanced education has
already resulted indirectly in revisions and improvements to
existing certificate (technician) courses in most States.
In New South Wales, certificate courses were established and
designed specifically to provide training for technicians,
but in some States they were subordinated to, and prejudiced
by, professional level diploma courses. For example, in
Victoria the engineering certificate courses were made up of
subjects taken from stages of the diploma courses other than
the final year. Their lack of suitability for training
technicians has been shown by the small number who have
received certificate awards. In Queensland, South Australia,
Western Australia and Tasmania, engineering certificate
courses have now been revised to meet the specific require-
ments of technician training, and, where necessary, have
been completely separated from professional level training[72].

In States other than New South Wales, the diplomate or
associate of non-university tertiary institutions receives
the same recognition from professional bodies as the uni-
versity graduate, provided that the diploma course is of
true professional level. In Western Australia, for instance,
the diploma courses of Perth Technical College are sub-
professional, equivalent in standard to the certificate
courses in New South Wales. The professional level courses
lead to an Associateship of the Western Australian Institute
of Technology, which developed from Perth Technical College.
In New South Wales, the old Associatehip awards of Sydney
Technical College were similarly recognised by professional
bodies; and it is anticipated that the same will apply to
the terminal awards of the new diploma courses of the New
South Wales Institute of Technology. In the Institute's
1969 Handbook[73] it is announced that the Chemistry Strand of
the Science Diploma course has been accepted by the Royal
Australian Chemical Institute as meeting the minimum academ-
ic requirements for entry to corporate membership of the
Institute, and that the Chemistry/Biology Strand of the same
course is under consideration. It is also stated that the

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Board of Examiners of the Institution of Engineers, Austra-
lia, has considered the entrance requirements and structure
of the new diploma courses in Electrical, Electronic, Mech-
anical and Production Engineering and is likely to grant
these courses professional recognition in due course (that
is, after the conferring of the first terminal awards),
provided that the Institution is satisfied with certain
other factors, such as accommodation, facilities, quality of
academic staff, associated with the provision of the courses.
The Institution of Electronic and Radio Engineers, Australia,
is also known to anticipate being able to recognise the
diplomate of the Electronic Engineering Diploma Course.

Professional recognition, in the sense of admission to
membership of professional bodies, must not be regarded as
the be-all and end-all. Employing authorities are not
forced to employ only those who are accepted by professional
bodies. Dr H.S. Williams has pointed out that some courses
which satisfy community needs may not necessarily receive
recognition by professional bodies, but should, neverthe-
less, still be offered by colleges of advanced education,
just because of community requirements[74]. It is interesting
that the Australian Society of Accountants is now requiring
graduates and diplomates alike to pass a qualifying examina-
tion to gain Society membership[75]. The aim of this is to
distinguish those who wish to become professional account-
ants from those who use tertiary courses as a general
preparation for careers in commerce and administration.

Though the award of professional recognition should not
be allowed to become the only criterion of the worth of
courses, the fact of such recognition of existing diploma
courses in States other than New South Wales, and the near-
certainty of professional recognition of the new diploma
courses of the New South Wales Institute of Technology,
establishes beyond doubt that colleges of advanced education
are providing professional level courses. They cannot,
therefore, be compared with the United States junior or
community colleges rather than with universities, nor can
it be claimed that their main concern is with sub-profess-
ional training. The sub-professional courses are the
certificate courses, some of which may continue to be
offered as separate entities by the colleges of advanced
education, but, more probably, will remain with the
technical colleges from which the institutes of technology
or colleges of advanced education have in many cases devel-
oped. Mr B.E. Lloyd prophesied that "With the clarification
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of the role of colleges of advanced education in Australia
in providing tertiary professional level education, it can
be expected that education at sub-professional level will
also become better identified and appreciated"[76]. There is
clear evidence that this is indeed happening.

The prior existence of vocationally-oriented, profess-
ional level courses, with a different bias from university
courses in areas of subject overlap, and the need for the
much wider and stronger development of them in suitably
recognised and equipped institutions such as colleges of
advanced education are thus established beyond dispute.
Business and industry, and, in turn, the community, which
depends for its economic well-being on the successful
operation of business and industry, need the product of the
college of advanced education, whose training will have made
him aware of the challenges and opportunities in the world
of men and affairs, as opposed to the "ivory tower" of the
research laboratory. But he cannot make his proper contrib-
ution in the community if his training has been "vocational"
in the narrowest sense of the term; and this has been
increasingly recognised. Mr B.E. Lloyd says, "The greater
emphasis on general studies in most college courses (in
engineering), in contrast to most university courses, could
be interpreted as a further natural outcome of the different
aims of each, that is, because the college courses are more
concerned with application of knowledge, it could be inferr-
ed that graduates from them are more likely to be concerned
with human relationships than are university graduates"[77].
The Jackson Committee on Tertiary Education in Western
Australia came to the heart of the matter: "...Since tech-
nologists and professional men are immediately involved in
applying knowledge to and in human society, they need an
educational environment in touch as much with the humanities
and social sciences as with the technologies"[78]. Hence the
strong emphasis on liberal studies in colleges of advanced
education, to which the Wark Committee devotes special
attention in its first report, particularly in Chapter 8,
"Liberal Studies in Colleges of Advanced Education"[79]. Mr
R.E. Dunbar, former Director of The New South Wales Instit-
ute of Technology, in the Preface to the 1968 Handbook of
the Institute, stresses that the liberal studies component
of technological courses must be relevant and integrated.
"The Institute has...recognised the value of including sub-
ject material which may not be of direct vocational utility.
This material however does not constitute a selection of

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unrelated "humanities" subjects grafted on to a technical core, but rather that which has a meaningful relationship to the technical content of the syllabus and which is designed to widen the students' appreciation of the place that their own specialized professional field occupies in the broader social environment"[80]. The 1969 Prospectus of the South Australian Institute of Technology says of the programme of general studies electives in the courses leading to the award of the Diploma in Technology (Dip.Tech.), "General studies are intended to help students in self expression, and to relate professional studies to the social context in which the Diplomate will practise his profession"[81].

The importance of what might be broadly termed social competence, as an essential concomitant of professional competence, was emphasised in many ways by the group of employees (graduates and diplomates) and employers whose attitudes are recorded by Mr L.R. Parker. Qualities and abilities, the possession of which is stressed for the graduate/diplomate, include the ability to communicate, both orally and in writing, so that ideas may be transmitted to intelligent non-specialists; the ability to make decisions; and the development of "interpersonal skills"[82], the latter including an appreciation by the young graduate/ diplomate that, in his professional work, he will be an agent of change, to which he may encounter resistance. His social understanding must be sufficient to enable him to appreciate the reasons for this and to handle the situation with care and tact. Some theoretical background studies in group dynamics and mathematical statistics were suggested for inclusion in the later stages of academic courses, in preparation for the managerial, as distinct from the technical, aspects of the young professional's work.

The words of Mr H.J. Brown nearly twenty years ago are still startlingly relevant today:

"The study of technology to the highest level does not involve specialisation in the sense of narrowness. It is extremely unfortunate that the study of technology has incorrectly been assumed in some instances to mean something of a narrow character and unworthy of the term education. The modern view expressed in many quarters is that any course of training must include work on economics, business principles, industrial psychology, report writing and self expression, history and world affairs, industrial and labour relations, etc.

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These are not considered as additions to counter the
technological subjects, but as integral parts of any
course attempting to train men to take their place in
the community.
All too often in the past the benefits of education
have been sought and used for personal and private
profit, to the neglect of public and social service.
It is now realised that higher education must inspire
its graduates with high social aims as well as endow
them with specialised information and technical skills.
Teaching and learning must be invested with public
purpose. To have some insight into the values and
standards that men have found good in governing their
lives, to be able to define problems and bring to their
solution the habits of critical thinking, to be able to
communicate ideas clearly, to possess the ability to
deal with people in a friendly and considerate manner -
these, more commonly than we think, perhaps, are the
elements of vocational competence"[83].

It would appear that we are trying to accomplish now through
the colleges of advanced education what Mr Brown and others
set out to do through the University of Technology in Sydney
some twenty years ago - produce professionally trained men
and women endowed with vocational competence in its broadest
and therefore truest sense, that is, endowed with social
competence as well, and so able to make a worthwhile con-
tribution in the community either as leaders or members of a
team. In discussing the rise of the General Education Move-
ment in the United States, in his book entitled, "Univer-
sities: Commonwealth and American, a comparative study",
O.C. Carmichael says, "...the distinguishing characteristic
of 'general' education lies in its realistic, objective and
conscious approach to the problem of relating education to
life"[84]. One of its major purposes is "to insure that the
specialist has sufficient social understanding to make him
willing to face the responsibilities of decision-making and
effective in discharging them"[85]. It is surely just this
purpose that is to permeate the whole approach in courses
offered in colleges of advanced education.

Of the qualities needed and the opportunities offered in
the world of industry and commerce, Mr H.J. Brown says: "I
can assure you...that it is just as educative and even exhil-
arating to be developing systems and designing equipment to
meet the practical needs of society, to be organising pro-
duction within cost limits and time scales and solving the

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technical difficulties which arise in production, as it is
to be searching for new knowledge. Far too many academics
consider that to work as a chemist or physicist, or even as
an engineer, in industry is to prostitute one's training
and abilities. This is far from the truth. In most cases
it requires a great deal of hard work, far more knowledge
than academic training has supplied, and a wider range of
abilities in order to be successful in industry"[86].

Human resources are increasingly deplored as the bottle-
neck for progress, and there is mounting evidence of the
need to utilise every last bit of professional potential in
the community, as the range and level of professional abil-
ities required in the modern world continually increase.
This involves a matching increase in the diversity of educ-
ational opportunity and provision at the tertiary level, to
supplement and complement the contribution of the univer-
sities. It is for this purpose that the colleges of advan-
ced education have been established. Since they are provid-
ing tertiary professional training, they must clearly be
equal in quality to the universities, differing from them
sometimes in areas of study and always in the approach and
emphasis of their courses.

From our study we became convinced that the concept of
the college of advanced education as equal to, but different
from, the university is valid, and that it is realistic to
expect colleges to produce in sufficient numbers the new
end-product envisaged by the then Senator J.G. Gorton, Min-
ister for Education and Science, at the National Seminar on
Planning for Colleges of Advanced Education in Hobart in
November, 1967 - a liberally educated technologist, willing
and able to apply his tertiary education for the benefit of
his country as well as himself. Further, it appears that it
is in the non-university area that the greatest development
in tertiary education is needed, or, as Professor W.D.
Borrie has put it, from the demographer's as well as the
educationist's point-of-view:

> "In Australia there is a gap between the people leav-
> ing our schools, those going to our universities, and
> the growing number of people - 130,000 by 1976 if we
> continue as we are doing - left somewhere between
> schools and universities. This is the area in which
> I think technical training up to professional level is
> the real nub of our educational problem"[87].

Most of our investigation into the nature of advanced
education was made at the beginning of our project.
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Nevertheless, we were continually aware of developments
taking place in this educational area during the whole of
the year occupied by our project. Our initial conclusions
regarding the "raison-d'être" of the C.A.E.'s have been
substantially confirmed, and the difference in purpose,
approach and emphasis of C.A.E. from university courses has
been made more explicit and so has become more meaningful.
As we shall illustrate briefly, the six basic differences[88]
between colleges of advanced education and universities,
described in the first Wark Report, have been reinforced in
subsequent publications and in what is taking place in the
colleges themselves. On the other hand, the Wiltshire
Report, despite its very lucid exposition of "The Purpose
of Advanced Education"[89], appears to us, in its discussion
of the nature of courses in advanced education and its
recommendations for nomenclature of awards, to have added
to, if not actually generated, certain confusions.

The concept of advanced education as "equal to, but
different from" university education may well have suffered
from the over-simplification inherent in such conciseness.
The second Wark Report perhaps assesses the real situation
more sensitively and so more accurately when it says:

"Thus as part of the system of tertiary education the
colleges will need to match a number of characteristics
of the universities. For example, it is necessary to
place a similar emphasis on the responsibility of a
student for his own learning, for staff to have quali-
fications and experience of similar quality even though
of different nature, and for buildings and teaching
facilities to be of similar standards"[90].

The purpose of the colleges of advanced education and the
breadth of their responsibilities are expressed very clearly
in the second Wark Report:

"The purpose of the colleges is to train students so
that immediately after graduation they may play an
effective role in commerce, industry, the public ser-
vice or the arts. The universities also offer voca-
tional training but they have another function as well
- the discovery and expansion of knowledge. It is the
intention of the States and the Commonwealth, with
which we are in complete accord, to encourage the
colleges to place their emphasis on the application of
knowledge"[91].
"The colleges' involvement is with technology, which
may be defined as the application of knowledge to

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satisfy human need. The concerns of technology are
therefore as wide as those of human need, and embrace
the application of knowledge in the social sciences,
languages, art and design, as well as in the physical
and biological sciences and engineering"[92].

The Sweeney and Wiltshire Reports, as well as the second
Wark Report, all stress the need for maintenance of the
closest possible contact between the colleges and industry.
The word "industry" is well used throughout the second Wark
Report as a convenient short term to cover "primary and
manufacturing industry, commerce, government, and community
services"[93]. Such contact may be established and maintain-
ed in a variety of ways: through exchange of staff, "the
establishment of college councils with strong representa-
tion from industry and commerce, the use of advisory panels
at course and subject level, the encouragement of academic
staff in undertaking consulting work, the participation in
specific industrial research or surveys, and the arrange-
ment of conferences involving industry and commerce"[94]. The
Wark Committee goes so far as to say, "Evidence of effec-
tive outside contacts should be used in addition to evidence
of teaching ability when assessing potential of staff mem-
bers for promotion"[95].

The employer-employee group who participated in the
study in employment attitudes reported by Mr L.R. Parker
also stressed the need for close industrial contact. Among
their observations were these[96]:
    (a) Advisory boards of studies should be chaired by
    men from commerce or industry and the decision to con-
    vene the advisory board should not be left to the
    academic members.
    (b) The staff of colleges of advanced education
    should be actively encouraged to grapple with the
    problems of commerce and industry by engaging in paid
    consulting work. The teaching load should be arranged
    to make this possible.
    (c) Colleges of advanced education should ensure that
    close contact is maintained between their student
    counsellors and the executives in commerce and indus-
    try.
Already there are indications that requirements for
higher awards or degrees in C.A.E.'s will also help maintain
industrial contact. For example, candidates for the Diploma
of Master of Technology in Metallurgy at the South Austral-
ian Institute of Technology, in addition to possessing an
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acceptable Diploma or Degree, must normally have had at
least one year of professional experience following gradua-
tion. They must undertake a programme of formal study
(occupying one day a week for a year for a part-time stu-
dent) and also a major project (occupying two days a week
for a year for a part-time student). The project "will
deal with a problem of direct interest to the student's
employers, and will be carried out at his place of employ-
ment as well as in the Institute. Supervision will be
jointly undertaken by a member of the School's staff and a
senior member of the technical or production staff of the
student's Company"[97]. Similarly, the Victoria Institute of
Colleges, in its "Interim Statement on the Award of Higher
Degrees", announces its Council's support for research pro-
posals "which provide for some form of joint supervision of
the research, investigation or development project by rep-
resentatives of the college staff and of the relevant indus-
trial, commercial or professional field"[98], since "It is the
Council's desire that the research studies undertaken for
the award of higher degrees of the V.I.C. should result in a
strengthening of the relationship between the affiliated
colleges and industry, commerce and the professions"[99].

The Sweeney, Wiltshire and second Wark Reports all stress
the importance of good teaching; and in the study in employ-
ment attitudes reported by Mr L.R. Parker two recommenda-
tions[100] are made in regard to good teaching. These are:

(d) Each college of advanced education should include
a studies research unit charged with the task of ensur-
ing that the best educational techniques are being
practised.
(e) There should be a substantial salary loading to
recognize above average teaching skills in the staff of
colleges of advanced education.

One of the recommendations of the Conference on Planning
in Higher Education, held at the University of New England,
Armidale, in August, 1969, was "that immediate attention be
given by the universities and colleges to the question of
providing greater opportunities for transfer of students at
all levels"[101]. This is a matter of considerable importance,
to which attention has already been directed in some States.
The Wiltshire Committee recommends the establishment of a
national body designated the "Australian Council for Accred-
itation of Awards in Advanced Education", "to accredit
awards in advanced education"[102]. If this were set up, the
status of all C.A.E. terminal awards would become clear, and
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this would undoubtedly alleviate part of the problem of
transfer of students from C.A.E.'s to universities and vice
versa, as well as remove many unfortunate confusions in the
public mind. We are confident that this whole question of
status of courses and students in C.A.E.'s will, given a
little longer time, be satisfactorily resolved. We feel
sincerely that C.A.E.'s are making a valuable contribution
to diversity in tertiary education and are here to stay as
a genuine and viable alternative to university education.

The Wiltshire Report divides C.A.E. courses leading to a
first qualification into Categories A and B (the latter sub-
divided into B1 and B2), courses leading to a higher quali-
fication into Categories C (sub-divided into C1 and C2) and
D, and suggests the following nomenclature for terminal
awards:

Category A.	A bachelor's degree.
Category B1.	Advanced diploma in ...
Category B2.	Diploma in ...
Category C1.	Diploma in ...
Category C2.	No recommendation.
Category D.	Master's degree.

It is stated that Category B will comprise the bulk of
the work of C.A.E.'s. From the description given, it
appears to us that courses in Category B1 are the normal,
professional diploma courses offered to date in C.A.E.'s,
and that to confer for their successful completion the
award of "Advanced Diploma in ..." will simply be confusing,
since these are the basic (three-year full-time or equiva-
lent part-time) diploma courses. We are surprised to find
the statement under Category B2 that "Many courses offered
by the colleges will have limited objectives and will be at
the sub-professional level"103, and that the terminal award
recommended for such courses is "Diploma in ...". We were
under the impression that sub-professional work was grad-
ually being phased out of the C.A.E.'s; for example in
Victoria, where the Wark Committee reports:

"An important feature of the triennium (1967-69) in
Victoria was the continuing effort to separate tertiary
from non-tertiary activities.
In most technical colleges in 1966, tertiary courses
were carried out side by side with non-tertiary (secon-
dary, trade and certificate) activities. Although
there is general agreement that tertiary work should be

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geographically separated from non-tertiary work and
that each should ultimately be placed under a separate
administration, there is in some instances no decision
with regard to the timing. It is the policy of the
Victoria Institute of Colleges to achieve separation
at the earliest possible opportunity"[104].

At first we found the courses in Category B2 somewhat
undefined, and wondered, for instance, how they would com-
pare with the post-certificate and higher certificate
courses currently being offered by the New South Wales
Department of Technical Education. We had noted the refer-
ence of the second Wark Report to higher technician courses
and its expressed belief that "the colleges must increasing-
ly concern themselves with these courses"[105], and wondered
whether these were the Category B2 courses of the Wiltshire
Report. Later in the latter Report we read that "the
matter of technician training below tertiary level lies out-
side the scope of the present Report"[106], and the recommen-
dation that the term "diploma" should be abandoned "unless
the course is mainly at the tertiary level"[107]. We consid-
er it both inept and confusing to use the terminal award of
"Diploma in..." for any course that is not wholly at the
tertiary, that is, professional level. We are aware, as the
Wiltshire Report mentions, that in some States there exist
a small number of Advanced Certificate courses which receive
support under the States Grants (Advanced Education) Act,
1967, though the post-certificate and higher certificate
courses of the New South Wales Department of Technical Edu-
cation do not receive such Commonwealth support. However,
we find both difficult and confusing the distinction between
technician training at tertiary level and below tertiary
level. To us the term "technician" implies sub-tertiary or
sub-professional, and we think that the Wiltshire recommen-
dations for the awards of "Diploma in..." and "Advanced
Diploma in..." will cause even greater confusion than exists
at present in the public mind.

It seems to us that there is now a definite intention to
include sub-professional as well as professional courses in
at least some C.A.E.'s, provided, presumably, that in them,
as the Wiltshire Report suggests, "the student reaches a
point which would be the equivalent of two years' full-time
study at tertiary level". Sub-professional courses are
clearly not "equal to, but different from" university
courses. However, their availability does not affect our
concept of the C.A.E., provided that, as seems certain, the

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preponderance of courses offered are at the professional
level. Moreover, we gather that the Wiltshire Report is
referring mainly to Category B1 (3-year full-time, or equiv-
alent part-time, courses) when it states that Category B
will comprise the bulk of the work of C.A.E.'s. The pur-
pose, approach and emphasis of education in the C.A.E.'s is
perfectly clear, and many of the means by which the special
objectives of advanced education may be kept in sight have
been made perfectly clear too. For courses that are genu-
inely "equal to, but different from" university courses, we
do not think it significant whether the terminal award be a
degree or a diploma. This is a subordinate issue. So far as
the role of the library in the C.A.E. is concerned, it is
the purpose, approach and emphasis of the courses, as
exemplified in the learning-teaching methodology employed,
that is important. Any difference in library provision for
the first award courses designated as Category A, B1, and
B2 is insignificant. In our opinion, it is quite wrong that
the Wiltshire Report mentions library facilities only for
courses in Category A.

2 LIBRARY IMPLICATIONS OF THE
COLLEGE OF ADVANCED EDUCATION

The college of advanced education is a tertiary
institution offering professional education comparable in
excellence with that of the university, but different in the
orientation of its courses, this difference reflecting the
occupational expectations of its students. Its products must
be trained and willing to assume responsibilty for the
development of the increasingly complex goods and services
required by society. The emphasis of the C.A.E. is thus on
the problems and needs of industry, commerce and society.
It has come into being because of the special need of the
times for technologists with a liberal education and a
substantial appreciation of the needs, aspirations and
expectations of human beings, as well as a high degree of
adaptability in a changing environment. Though the rate of
this change cannot be calculated, it is safe to assume, from
the experience of the last few decades alone, that it will
increase rather than decrease. The student's equipment for
his working life (say 40 years) must therefore include not
only the essential basic professional knowledge and skills
of today, but an ability to adapt and modify these in
changing circumstances, and above all, to continue learning
on his own, so that the knowledge he has gained in his
course will not quickly become out-of-date. He must be
given training that will help him to solve problems, make
decisions, successfully communicate with and handle people
in situations that cannot now be predicted. As with self-
learning, these abilities must be cultivated and developed
through the design of course structure and content conducive
to their attainment, not just hopefully expected as a by-
product of exposure to a course of education at tertiary
level. It is the special task of the C.A.E. to keep in
touch with the needs and actual conditions of industry,
commerce and society, and remove as far as possible the
barrier that so often exists between the tertiary graduate
and the working situation in which he later finds himself.
The diplomate of the C.A.E. should thus be able to make an
immediate, as well as a continuing, contribution in his
chosen profession and the larger community of which he forms
a part.
It is clear that the type of end-product envisaged by the
C.A.E. can be achieved only if there is a reduction in

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formal lectures and more time given to the student during
his course for independent work, both self-learning and
application of knowledge acquired. It is also clear that
such independent work cannot be attempted without access to
substantial library resources, and, equally, without profes-
sionally trained and experienced library staff who are able
to help the teacher and the student exploit the resources of
the library, and are enthusiastic in their desire to do so.
If the C.A.E. is to achieve its objectives, the library must
be equipped and ready to play as active a role with the
teaching staff and students, as teachers play with their
students.

The contribution of the library to the C.A.E. will thus
be:

1. to support teaching;
2. to participate in teaching by systematically
   helping both teachers and students to exploit as
   fully as possible the resources of the library and
   to be aware of sources of information, wherever and
   in whatever form they exist;
3. to make possible study, particularly individual
   study and self-learning;
4. to participate in the student's general education,
   by stimulating extra-curricular reading and
   activities.

The general specifications for the library to make its
proper contribution must include:

(a) books;
(b) a building;
(c) staff.

Books must include all printed material, e.g., monographs
and serials, and non-printed material, e.g., maps, music
scores, microforms, audio-visual material such as tapes,
records, films, and cards and tapes for computers.

The building must provide suitable housing for all types
of resource materials, i.e., non-printed as well as printed
material, and must permit the performance of the convention-
al, well recognised library functions of supporting teaching
and making study possible, as well as library participation
in teaching, which will perhaps be the special character-
istic of the C.A.E. library, or, at least, the library
function which needs to be developed at greatest depth.

Staff must include those needed to acquire, make avail-
able and look after all types of resource materials, and to
perform the conventional library functions as well as those
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associated with active library participation in teaching.

There is clearly a need to calculate some type of
standard requirement for each of the three components which
make up the library - books, building and staff. So far as
library support of the conventional type of teaching
programme (lecture plus assignment) in a tertiary institu-
tion is concerned, the experience of individual universities
and colleges as well as overseas standards can help provide
some guidelines. But the full integration of the library in
the teaching programme, resulting in active library partici-
pation in teaching, requires revolutionary thinking and the
formulation of entirely new standards for books, buildings
and staff.

In our project, we have considered carefully guidelines
or standards for books and staff, but not for buildings.

3 THE CRUCIAL IMPORTANCE OF THE LEARNING TEACHING PROCESS AND THE VITAL NEED TO DEFINE IT

The Wark Committee in its second report says, "Educational emphasis is increasingly on the learning rather than the teaching process."[108]. Undoubtedly the quality of the total learning-teaching process in the colleges of advanced education will be the critical factor in the achievement of the aims of advanced education.

Perhaps nowhere has the special role of advanced education been made more explicit than by Mr P. W. Hughes* when Acting Director General of Education in Hobart, in his comments on the basic paper relating to "The Role of Colleges of Advanced Education in Australian Adult Education", presented by Dr D. W. Crowley, Director of the Department of Adult Education in the University of Sydney, at the National Conference on Adult Education arranged by the Australian Association of Adult Education at the University of New England in August, 1968. It should be noted that "adult education" is used in the specific sense of community, extension education, a field that is categorically rejected for colleges of advanced education by the Wark Committee[109]. The fundamental educational approach of the C.A.E. is made clearest by Mr Hughes's attitude to refresher courses in C.A.E.'s. He says,

> "... For people who have grown up through the C.A.E. type of education as now conceived, refresher courses in terms of initial instruction should rarely be required. One of the basic aims of advanced education is to teach the techniques of information handling and develop an attitude favourable to sustained independent learning throughout life. Certainly refresher courses will facilitate sustained learning but the important thing is that the advanced education graduate will see continual growth of the store of information available to him as a normal and expected phenomenon with which he has been prepared to cope. But he will do this in selective fashion, absorbing the relevant and discarding the irrelevant until time or changed circumstances give it relevance to his endeavours.

*Mr Hughes is now Head of the School of Teacher Education, Canberra College of Advanced Education.

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For the person who has not had such an education, the
great contribution which advanced education can make is not
the type of refresher course which merely supplies more
information destined for early obsolescence but courses in
information handling of fundamental nature and of enduring
validity"[110].

Interestingly, Dr Crowley makes a point of mentioning
the conference syndicate's rejection of Mr Hughes's con-
tention that there would be little need to retrain the
graduates of the C.A.E.'s, mainly on the grounds that tech-
nological change is now so rapid that educational qualifi-
cations are out-dated within a few years. The fact that
they are is one of the strongest arguments for the education-
al approach of the C.A.E.'s.   Perhaps what Dr Crowley and
the syndicate too were really expressing was misgivings about
the peculiarly difficult task of developing in the student
adaptability and the capacity for self-learning for the rest
of his life. "My impression from teaching experience at all
levels", says Dr Crowley, "is that the proportion of the
population which can adapt previous teaching to new circum-
stances is relatively small. Few can think for themselves
to this extent: most people have to be shown or taught the
modifications that become necessary in changed conditions"[111].
Mr Hughes's reply would undoubtedly be that such people
have not had the benefit of "advanced education", and that
it is the special task of C.A.E.'s to design courses whose
structure, content and approach are conducive to the attain-
ment of the abilities associated with self-learning and
social as well as vocational competence, abilities which
must be carefully and patiently cultivated, over a period
of time.

The challenge to the C.A.E.'s is enormous, if they are to
produce the type of end-product that is envisaged and is so
badly needed in the increasingly complex world of to-day.
The concept of advanced education demands a revolution in
the conventional learning-teaching process. This in turn
will demand a revolution in the contribution of the library,
which is part of the learning-teaching process.

For the library to function adequately as part of the
learning-teaching process in the college of advanced
education, it is necessary for the other parts of the process
to be clearly understood. This means defining the education-
al objectives of the institution, or, in current terminology,
producing its educational specifications. This is critic-
ally bound up with teaching method. The Wark Committee in

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in its first report stressed the importance of good teach-
ing, stating that "quality in teaching should be regarded as
of paramount importance"[112]; that in qualifications and
selection of staff the teaching element should predomin-
ate[113]; and that "the staff should have studied quite deeply
the methods of communication both to and from the
student"[114]. Moreover, it commended the in-service teacher
training programmes for newly appointed lecturers in some
States. In its second report, it re-iterated its stress on
good teaching. "We would encourage and support the develop-
ment by colleges of means whereby staff members could
improve their knowledge and skills as teachers, and receive
adequate recognition in terms of quality of performance"[115].
Later in the second report it says:
    "The teaching function of the colleges is of primary
    importance. It is therefore highly desirable that all
    lecturers receive training in educational methods.
    Some colleges insist that new professional staff without
    previous teaching experience undertake an appropriate
    course before commencing teaching. This is a practice
    to which other colleges might give serious consideration,
    possibly in combination with one another. Refresher
    training in educational methods for experienced staff is
    also necessary if they are to keep up to date and become
    competent in modern techniques and approaches to teach-
    ing and learning"[116].
However, even the colleges which make provision for some
form of teacher training do not appear to be taking the
lead in investigating and developing the sort of teaching
methodology that will produce the type of professional man
the Wark Committee envisages - one who not only possesses a
knowledge of his subject but who can think for himself and
act upon the results of his thinking. Though there is
undoubted use in colleges of advanced education of seminars
and assignments requiring varying degrees of independent
work on the part of students, particularly by individual
lecturers, there is no evidence of an overall change in
educational policy regarding teaching method. This still
remains basically that of lecture plus assignment, which in
the universities, with their problem of increasing numbers
of students, has thrown intolerable strains on libraries and
resulted in the provision of "closed reserve collections",
which are massively used by undergraduate students, in all
too many cases to the exclusion of almost everything else in
the library. And this in the guise of education!
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Changes in teaching methods are implemented by individual
teachers. If C.A.E. lecturers in their student days at
universities have themselves had no experience of anything
other than conventional teaching (that is, the lecture plus
assignment method), and if their horizons are not later
broadened by study of other teaching methods more suited to
producing the professional man or woman equipped for life-
long self-learning, who is so badly needed in the increasing-
ly complex world of today, how can they be expected to do
other than follow the only method that is familiar to them,
thus perpetuating practices that are no longer adequate now,
if indeed they ever were? Luella Snyder, in her report on
the use of library resources by university students, pro-
duced as part of the Inter-University Program in Teacher
Education conducted at Cornell University, Syracuse Univer-
sity, the University of Rochester, and the State University
of New York at Buffalo, says:

"The attitudes, knowledge, and skills that they (pros-
pective teachers) develop as students at the university
will determine those they will be able to foster in
their own students. "We teach as we were taught" is a
cliché, to be sure, but like many clichés it contains
a solid core of truth. The kind of teaching students
experience undoubtedly affects the kind of teaching
they will do"[117].

The Queensland Institute of Technology, Capricornia, has
set up a twelve-year Educational Research Programme entitled
SAIL (Sustained Adaptable Independent Learning) to evaluate
educational objectives and methods. But isolated efforts
are not enough. Every C.A.E. needs a "studies research
unit"[118], charged with the responsibility of continuously
reviewing and evaluating the educational objectives of the
institution, the methods being used for their accomplishment
and the degree of success achieved. And even this is not
enough. Something else is needed in all C.A.E.'s, perhaps
an in-service teacher training programme in each that inclu-
des study of teaching method, the main purpose of which is
to encourage and equip the student to continue "self-learn-
ing" for the rest of his life. In any such training pro-
gramme a study of the potentialities and uses of library re-
sources would necessarily form a major and continuing strand.
To quote again from Luella Snyder's report:

"Another target group, and quite possibly the most diff-
icult to reach, is the university faculty. How many
faculty members are thoroughly familiar with the serv-
ices of the library? How many are familiar with

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a broad range of resources to which they can direct
their students? How many regularly review the holdings
in their own and related fields or consult with the
librarians about the problems students may have in
completing papers and projects? How many know how to
make good use of library resources themselves?
Librarians report that members of the faculty do not
always use the library skillfully. If they themselves
have inadequate skills, can they foster skills in their
students? If their attitude is one that discounts the
contribution of the library, will their students have
any higher opinion of it? Do they teach for today
only, with no thought of preparing students to continue
to learn even when they are no longer in a formal
learning situation?"[119]

Professor Ernest Roe, Professor of Education at the
University of Papua and New Guinea, is strong in his condem-
nation of the failure of educators to make adequate use of
the library as a teaching instrument. He says:

"It is transparent that educators have a sorry record
in using the library as a teaching instrument. There
are, of course, outstanding exceptions to this general-
ization, but these are mostly cases of individual
teachers in well-favored institutions which are known
for lively and imaginative personnel. At the univer-
sity level the situation is particularly bad. Here,
faculty members may be highly competent at using the
academic library for conducting research and pursuing
individual study, but many are incompetent, indeed
uninterested, in using this same range of tools in
their teaching"[120].

Norman Beswick makes the same point about the subject-
tutor in a British university. "...All too frequently, the
subject-tutor - himself conservatively educated and interest-
ed primarily in his discipline rather than in the wider
perspectives of education - proceeds in his work with
nothing but a long list of recommended books, thus requiring
of the student little more than the ability to use the
author catalog or to see a title on a shelf"[121]. Thus,
though the undergraduate undoubtedly reads widely and does
very hard and able thinking through discussing and debating
during his course, "when he comes to the place where he must
turn his attention to an alien subject field, he is, like
his subject-tutor before him, bewildered and lost. In this
process he may achieve his Bachelor's degree without even
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handling a bibliography, a periodical index, or an abstracting journal"[122]. Yet, says Norman Beswick, "it would take only a minor adjustment in teaching method to see that an undergraduate learned to discover, as well as to read, think, and debate. Such points need to be quietly programmed into a succession of courses"[123]. The experience of Patricia Knapp as Project Director of the Monteith College Library Experiment is particularly relevant and informative. Monteith College was established in 1959 as an experimental college of Wayne State University, Detroit, with three principal objectives: general education, independent study and the provision of the atmosphere of a small college. Apart from office buildings and a small student center, it has no separate physical premises; the students use lecture rooms and other facilities of Wayne State University, including of course the libraries of the University. In April 1960, Wayne State University entered into a contract with the United States Office of Education to conduct at Monteith College a research project aimed at developing a more vital relationship between the library and college teaching, or, in Mrs Knapp's own words "an experiment in coordination between the library and teaching staff to change student use of the library"[124]. Based on the incontrovertible premise that "Traditional college instruction fails to exploit fully the library resources available for it and that the average college student's experiences with the library constitute a limited and fairly insignificant part of his education"[125], the ultimate objective of the project was "to stimulate and guide students in developing sophisticated understanding of the library and increasing competence in its use"[126], the term "library" referring not to any specific library, but signifying "the vast, complicated network through which society attempts to organize its records"[127]. Patricia Knapp had always been convinced that "Competence in library use, like competence in reading, is clearly not a skill to be acquired once and for all at any one given level in any one given course. It is, rather, a complex of knowledge, skills, and attitudes which must be developed over a period of time through repeated and varied experiences in the use of library resources"[128].

To carry out the pilot project, certain appointments were made: a research director, half-time (Mrs Patricia Knapp, who was executive secretary for Monteith College in the other half of her time, having previously been Assistant Librarian of Wayne State University); a research

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analyst, half-time; a project librarian, full-time; a
research assistant, a secretary, and a number of students,
mainly Wayne graduates, who, under the supervision of the
project librarian, acted chiefly as bibliographic assist-
ants to the faculty. The research director, research
analyst and project librarian participated with the teach-
ing staff in their planning of College courses. During the
time-span of the project, 1960-62 the College student enrol-
ment ranged from 300 to 700, and the faculty size from 15
to 30.

Although many individual imaginative library assignments
have been devised elsewhere, the Monteith project was new
in that it provided a systematic series of assignments, ten
in number, covering the students' three broad areas of
subject interest - social sciences, humanities and natural
sciences - and extending through the whole of the students'
four-year course.

It would appear that the Monteith Library Project was
carried out under as nearly ideal conditions, that is, in
as nearly controlled an environment, as could ever be
achieved - a new college of general education, committed to
independent study, a small student enrolment, new faculty,
small in number, engaged in planning new courses. Yet
Patricia Knapp stresses throughout her report on the
project the crucial importance of the attitude of teaching
staff. If they thought the library assignments valuable,
their students did also, and vice versa. It was envisaged
that six years would be needed to implement and appraise
the library programme devised during the pilot project.
The first year would be devoted to "planning, preparing,
and pretesting assignments and instruments for gathering
data on the operation and effectiveness of the program"[129],
with students enrolled in the College during that year
being used for one trial run of the sequence. "The next
four years would be needed to enable one entering class to
experience the entire sequence, as developed in the pretest
year. The sixth year would be devoted to analysis and
reporting"[130]. It is a shock to learn that this programme
was never implemented, for reasons not entirely known, but
involving change of teaching staff at Monteith College
and consequent lack of support for the programme. Patricia
Knapp made available her report on the pilot project in
1964 (later published by Scarecrow Press in 1966), and in
1965 became Associate Professor of Library Science at
Wayne State University.
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In view of the eventual failure of the library programme, some of Patricia Knapp's thinking expressed in 1956 is particularly interesting.

"Competence in the use of the library is ... a complex of knowledge, skills, and attitudes not to be acquired in any one course but functionally related to the content of many. It should, therefore, be integrated into the total curriculum. But it cannot be so integrated until the faculty as a whole is ready to recognise the validity of its claim and to implement this recognition through regularly established procedures of curriculum development. Logically, then, the faculty as a body, or through its appropriate committees, must implement the objective. It is probably true, on the other hand, that at present the college librarian is more conscious of the inadequacy of present instruction than is any other member of the faculty. Furthermore, he has the advantage of a broad perspective on the whole curriculum.
For these reasons, the librarian should accept the responsibility of initiating the program, remaining constantly aware, at the same time, that ultimate implementation must come through the teaching faculty. In other words, the librarian must convince the faculty that library instruction is necessary; he must educate the faculty on the potential role of the library and assist it in planning instruction. And he must do all this with consummate skill and tact"[131].

In 1969 it should surely no longer be necessary for the librarian to don kid gloves and undertake the delicate task of convincing the teaching staff that the library has a vital contribution to make to the educational programme of the college. The learning-teaching process should by now be recognised as seriously inadequate without the library's contribution. There is need for continuous communication and cooperation of the closest kind between what Luella Snyder has called "library-minded educators" and "education-minded librarians"[132], with the aim of increasing the effectiveness of the learning-teaching methodology; but the recognition that the library is an indispensable part of the educational process should in 1969 be complete. There has, in fact, been a growing awareness over the last decade of the potential of the library; the problem is now perhaps rather a "how-to-do-it" one, how to integrate the library into the educational programme; and the requirements for doing it

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have not yet been thought through, let alone faced.

Thoughts of Patricia Knapp's expressed recently are also interesting, particularly as we know they are the result of mature, if in part rather bitter, experience.

"Since the major implication (of certain studies by librarians on college students' use of the library) seems to be that the faculty, or the course is the key to students' reading or use of the library, some academic librarians have devoted major efforts toward attempts to persuade the faculty to increase the library's involvement in their instruction. My own experience with an attempt of this sort has convinced me that it has great potential but that it can achieve significant results only at considerable cost. It requires more staff and better staff, librarians who have real understanding of the educational process and boundless perseverance and commitment. And it requires much better knowledge than we have at present of the function of the library, that is, the organized records of society, in the teaching-learning process"[133].

One other example of the importance of teaching methodology and the attitude of teaching staff is worthy of mention. Lee Sutton, Librarian of Parsons College, Iowa (a four-year, coeducational, private, liberal arts college) reports[134] how he convinced the Deans and faculty senate of the advantages of library-oriented study, and it was agreed that term papers or equivalent library projects should be included in all upper division courses and selected courses in the core. But the scheme came to grief, because most of the faculty members had had no experience of this method of teaching in their own undergraduate days, and so were unable to use it themselves. Lee Sutton emphasises the need for faculty understanding and involvement in devising courses "down to the lowest instructor"[135].

The ultimate in library integration into the college is the concept of the "library-college" in the United States, where the distinction between faculty and librarians disappears, all faculty being librarians and all librarians faculty. It should be remembered, however, that a library-college is by definition small, with a maximum student enrolment of perhaps 500 and a faculty size of about 30. Though there is as yet no general agreement on how far the total library-college concept is desirable and practicable, there is increasing agreement by both educators and librarians on the need for close association between the classroom

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and the library. While it is not suggested that we should
attempt in Australia to go "all the way" with the library-
college idea or that the degree of detail in Patricia
Knapp's approach is necessarily required, it is strongly
suggested that much current talk about the library playing
an active role in colleges of advanced education is mere
lip-service to an idea that, except in isolated areas, has
to date received only the most superficial consideration
from administrators and teaching staff. Not even a start
has been made on thinking through the implications in
teaching methodology, and in quality and quantity of library
staff required. It is not simply unrealistic, but a posit-
ive disservice to overworked librarians, who have tried in
so many piecemeal ways to increase the library's contribu-
tion to the teaching programme, to stress the importance of
the library and to talk enthusiastically of opportunities
for experimentation and challenges for librarians, without
at the same time stressing the accompanying cost. The
total challenge is of course much deeper and involves the
entire learning-teaching methodology in colleges of advanced
education, with their special responsibility to develop the
type of adaptable, professional end-product needed in the
community of today.

The Wark Committee has recommended that at least $100,000,
that is, one-quarter of the sum of $400,000 requested from
the Commonwealth Government for the 1970-72 triennium for
research and investigation into problems of advanced educa-
tion, be devoted to "an integrated project on educational
technology"[136]. In more than one place in its second report,
it names investigation of educational technology as first
priority for the 1970-72 triennium. Study of the applica-
tion of recent developments in educational technology to the
Australian scene will include "multi-media methods of pres-
entation" and "comparative studies of the effectiveness and
costs of various teaching and learning processes"[137]. The
Wark Committee's concern with the learning-teaching process
in C.A.E.'s is abundantly clear. Nevertheless, we wonder
whether the proposed integrated project on educational
technology will tend to be concerned with techniques rather
than concepts, so that the basic philosophy and objectives
of advanced education may not be probed in sufficient depth.
Since the special challenge to the C.A.E.'s lies in the
learning-teaching process, we recommend to the Wark Commit-
tee that it give consideration to the formation of a Sub-
Committee on the Learning-Teaching Process, which would

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collaborate with its Library Sub-Committee.

Many C.A.E. administrators feel that their libraries should play a vital role in their colleges, though they are not quite sure how this is to be accomplished. Librarians share the same feelings and uncertainties. There is a concern on the part of some C.A.E. administrators that libraries should house non-book as well as book materials and be re-named "resource materials centres" (or some variant of this) to signify that their collections have been so expanded. Undoubtedly libraries should provide resource materials in whatever physical form they exist, though why a change of name to American terminology (which not all Americans themselves applaud!) should be necessary is not at all clear. The term "library" can surely cover all resource materials, whatever their physical form. There is undoubtedly a feeling that the inclusion of a wider range of resource materials will result in a more enlightened learning-teaching process. But this is not necessarily so. Professor Roe points out the grave pitfalls of such an assumption from his observation of "expanded libraries" in schools in the United States. He says:

> "The emphasis in IMC's (Instructional Materials Centers) can be on directed activity, on instruction organized by teachers and librarians down to the last detail, with minimal development toward self-instruction and self-direction by the individual student.
> It is possible for these library complexes, with their wide range of educational materials, to give an illusion of freedom; the very variety plus the silence or absence of the continually talking teacher make learning appear independent. A highly organized materials center...can be as restrictive in terms of the student's ultimate capacity for education as the teacher lecturing from a single textbook.
> Thus, educators can pay lip-service to modern ideas and methods...But do the physical plant, the organization, the change from classroom activity, in themselves guarantee that a significant educational advance is being made?"[138]

Professor Roe's observations simply stress that it is the educational method, or the use made of educational media, that is all important. Non-book materials do not have greater intrinsic value as media of communication and education than book materials, so cannot of themselves better equip the student for "lifelong self-education"[139].

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The same sort of warning is sounded in the report on a
study undertaken by the Historical Evaluation and Research
Organization (HERO) in the United States, "to develop a
research program for the design development of modern coll-
ege libraries"[140]. In the course of the study, eight
learning centers, "four organizationally integrated learn-
ing centers" and four "informal learning centers", were
visited. All such centers are "dedicated to the objective
of fostering independent study and encouraging individual
progress"[141]. Yet, in the very institutions that are ded-
icated to promoting independent study, the very real danger
exists that such independent study is, in actual fact, being
inhibited, for "the procedures for making materials avail-
able to students were such, at least in some instances, that
students could be easily satisfied with the specific mater-
ials made available to them by their professors, and were
given little incentive to look elsewhere for other sources
of information or ideas. This would suggest that there is
a danger that unimaginative adoption of the learning-center
approach will lead to spoon-fed education. This possibility
and its dangers should be explored, and antidotes developed
which will encourage teachers and students to seek explora-
tion in all available resources, book and non-book"[142]. It
is a strange, but, nevertheless, undoubted fact that the
very reverse of what is aimed at may, in fact, be taking
place, a situation which emphasises the vital need for
depth of understanding of the learning-teaching process.

It is difficult to assess the role of the library in a
total learning-teaching process that has not yet itself been
clearly defined, since the library is an integral part of
the process, and its function is essentially dependent on
the other parts of the whole. The attitude of the teacher
to the library, his knowledge of library resources and his
understanding of the contribution the library can make to
the educational process are critical factors. Undoubtedly
the quality and quantity of available library resources,
and, perhaps even more, the behaviour of library staff, as
shown in their desire and ability, or otherwise, to inte-
grate the library into the educational programme, influence
the attitude of the teacher. It is because of this that so
many librarians in educational institutions have sought not
only to develop better collections of resource materials,
but, in every possible way, within the limits of staff re-
sources, and sometimes beyond them, to increase the active
role of the library in the educational programme, by

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providing assistance in library use to students on a class
or group basis, through such media as orientation tours,
films, slides, detailed lectures on sources of information
in specific subject fields. Valuble as these contributions
are, they are likely to remain as brave, sporadic efforts
with interested teachers until the learning-teaching pro-
cess requires, as an essential ingredient of its methodology,
systematic contributions from the library that are much less
superficial in nature.

As our project has progressed, our realisation that the
library cannot be studied in isolation from teaching method-
ology has been sharpened. Many possibilities of library use
can be suggested and many topics for experimentation out-
lined; and the hope has been expressed by many that the
library can be integrated into the teaching programme. In
actual fact, the library is an integral part of the teach-
ing programme. If its resources are poor and its activi-
ties slight, and if teachers' knowledge and use of it are
inadequate, whether or not its resources and activities are
sub-standard, the efficacy of teaching method, and so of
the total learning-teaching process, will suffer according-
ly. For this reason, we are categorically opposed at this
stage to user studies of the type carried out by the Uni-
versity Grants Committee in England on undergraduate use of
libraries[143], and at Birmingham[144], Leeds[145] and Southamp-
ton[146] Universities. We consider that much more substantial
library provision is required and much hard thinking needs
to be done about the total learning-teaching process before
user studies in C.A.E. libraries will be meaningful and
their results informative. In this regard, we are strongly
in agreement with the views expressed by Dr D.J. Urquhart,
Director of the National Lending Library for Science and
Technology. In a paper on "The Library User and his Needs",
presented at a conference of the Society for Research into
Higher Education on the subject "Research into Library
Services in Higher Education" (held at the University of
London on Nov. 3, 1967) Dr Urquhart says:

> "In any investigation we must be aware of confusing
> what users think they want with what they actually
> need. The necessity for this approach is reinforced
> by the evidence we have about the users' ignorance of
> the tools which are intended to act as guides to
> scientific literature. Some information surveys, to
> my mind, are like asking a population which had never
> heard of V.C. 10's or Queen Mary's, how they would like

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to cross the Atlantic. Such surveys could, of course,
measure the ignorance factor. However, this is so high
that exact measurement is really unnecessary - you only
have to organise a course on the use of scientific
literature to realise this.
This brings me into another group of projects which are
usually a waste of time - the so-called "market resear-
ch" type of project. In their extreme form, these pro-
jects collect users' notions about some hypothetical
services. It is like saying "suppose you could cross
the Atlantic by rocket, would you travel that way?"
Indeed, some of the market research projects I have
seen about possible services would cost more to carry
out than to provide the hypothetical services. This,
of course, is a form of madness. It is far better to
provide a service and see what really happens. I
appreciate this may not sound as "academic" as market
research, but it is far more reliable"[147].

Dr. Urquhart is speaking of the information requirements of
the research worker, but his remarks are equally applicable
to those of the student and teacher in any educational
institution. His sound commonsense is further revealed in
his reminder that "a research project is no substitute for
thinking"[148].

    At this point it seems timely to state that, though we
are aware of the increasing and very proper stress being
laid on knowledge itself, as distinct from the many differ-
ent physical forms in which it is available, we still envis-
age the C.A.E. library as recognisably a library; nor do we
think that to plan for a "conventional", though modern,
library is to bury one's head in the sand and plan for what
will be an anachronism by the end of the century. We do not
see as reality in this country the predictions of William J.
Quinly, Director, Educational Media Center, Florida State
University, Tallahassee:

        "Before the turn of the present century, it is possible
        that the local or institutional library as we know it
        now will no longer exist. It will have become a swit-
        ching center on a vast information network and will be
        capable of providing a hard copy computer printout of
        any document, of receiving and transmitting both audio
        and video signals. The library of the future will be
        located in a building which incorporates a large area
        for sophisticated computers, flashing lights and remote
        terminal stations with a smaller room for citizens who
        still enjoy the inherent pleasures of browsing through
                                                              49

bookstacks"[149].

We find more acceptable the suggestions of C. Walter
Stone, Director of Libraries, University of Pittsburgh, who,
in an article entitled "The Library Function Redefined"
says: "...the library of the future,as the author sees it,
will be composed of printed materials and computer storage
units with a broad range of new media in between. And a
guess is that for a long time to come most patrons will
prefer hard copy over other forms for home reading or view-
ing"[150]. Mr Stone stresses the increasing importance of the
library function, as distinct from the library as a physical
institution, and says, "In contemplating the library func-
tion, the concepts of media will give way to a greater con-
cern for knowledge as such - its assessment, storage, re-
trieval and rapid transmission"[151]. But, after the fashion
of Professor Ernest Roe, he looks beneath the surface and
issues a much-needed warning about regard for the worth of
knowledge being stored and subsequently retrieved, as
opposed to an excessive concern for the ability and means
to retrieve it.

"'Massaged' by the words of Marshall McLuhan, the current
media mania among professional educators has been given far
more attention and credence than careful study and assess-
ment. And multi-media "pie in the sky" is a fantasy shared
by too many audio-visual enthusiasts; that is, promises
advanced for national communication networks involving
satellite-relay transmission say nothing at all about the
worth of that which eventually is to be transmitted. Educ-
ational communication jobs have been inflated in terms of
both job descriptions and salaries far beyond any real im-
portance they have or the abilities of those available to
fill them"[152].

We are encouraged in our attitude to the library and
books by the HERO report of a "Study to Develop a Research
Program for the Design Development of Modern College
Libraries". In the proposed research programme, it is
clearly stated that:
    "There will be no thought in this library that compu-
    ters and automation have displaced, or will soon dis-
    place, the book. Books are expected to be as impor-
    tant to education and to the library as they ever have
    been"[153].

However, new means of electronic communication and trans-
mission are looked forward to as eventually giving direct or
indirect access to books in other libraries, thus perhaps
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making possible the pooling of resources, or of specialisa-
tion, and avoiding the need for the individual library to
purchase rarely used materials. An interesting suggestion,
and one which is being increasingly adopted, relates to the
recommended use of prescribed texts that may be purchased
by students in paperback form. "Professors will be encour-
aged to use paperback books for their courses, and to re-
quire students to purchase such books, to reduce or elimin-
ate the requirement for placing texts on reserved shelves in
the library"[154]. We heartily endorse this suggestion, as
far as the availability of suitable paperback texts make it
practicable.

We feel there is too much indiscriminate, ill-considered
talk, in the name of forward thinking, which suggests that
the library as we know it today is a soon-to-vanish phenom-
enon, and that such superficial thinking will not help the
establishment of functional C.A.E. libraries. It is neces-
sary to remove the many confusions in thinking about
national and regional schemes for storage and retrieval of
knowledge, as proposed in the United States, and the uses
to be made of recorded knowledge in an educational instit-
ution such as the C.A.E., whose predominant interest is the
teaching of students. So much that has been written about
storage and retrieval of information is geared to the needs
of the research worker, whose interests are often special-
ised, sometimes narrowly so, but in any case are explicit
and specific. The C.A.E. student has not yet closely de-
fined his interests or formulated the questions he needs to
ask.

The C.A.E., with its emphasis on the baccalaureate stu-
dent, whose education is at this stage still vocationally
general rather than specialised, needs a library that, in
its coverage, is somewhere between the university under-
graduate library and the research collection. R. B. Downs[155],
as quoted by V. W. Clapp and R. T. Jordan, distinguishes four
stages in the progress of a collection - the general collec-
tion, the well-rounded reference collection, the fundamental
research collection, and the comprehensive and specialized
research collection. C.A.E. libraries should never need to
go beyond stage three of this process of collection develop-
ment, and in some cases stage three itself would be entered
with caution. Requirements encroaching on stage four should
be able to be met through arranged access to university
library collections. It may well be that at the general
stage of learning that is the preoccupation of the C.A.E.,
the library that favours "hard copy" and lends itself to

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"browsing" in the widest sense of the term will make the
greatest contribution to the learning-teaching process. It
is a mistake to attribute the interests and needs of resear-
ch to those of more general education. The interests of the
part-time student, who has so much less time than his full-
time counterpart to spend actually in the library, must be
carefully watched. He needs generous library borrowing
privileges and access to material in a conveniently "borrow-
able" physical form. Hours of library opening must be ex-
tended as long as possible to give the part-time student
maximum opportunity for access to, and use of, his library.
This is not to say that the library should not be expanded
into a genuine resource materials centre, in terms of coll-
ection coverage, or that provision should not be made
initially, in the physical building, by such means as
installation of sufficient conduit for electrical wiring
and appropriate outlets, to enable the fullest possible use
to be made of audio-visual material and automated carrels,
as developments occur and the need arises. It is tremen-
dously important, in any planning, for possible future
developments to be taken into account and the way left open
and simple for their implementation. It is equally impor-
tant, however, for their effect on all types of students -
full-time, part-time and external - to be considered and
evaluated prior to such implementation.

    We stress again that the type of use made of the library
will depend on the teaching method employed, and that a
study of the total learning-teaching process, of which the
library is an integral part, needs to be made. When this is
done, it may well be found that the library of today, with
its emphasis on material in the printed form, is the most
educationally suited to the needs of the C.A.E. student.
It may, of course, happen, as C. Walter Stone predicts[156],
that scientific and technical journals will cease to be
published in their present printed form and their contents
will be stored on computer tape or disc pack and printed out
only on demand. Users of this material will need to have
their ideas marshalled and their questions formulated much
more precisely than at present, and the browsing value will
be eliminated. Should we, however, at this stage, ourselves
deliberately eliminate this value? Should we not rather
first study carefully the educational implications?

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4 THE MAIN OBJECTIVE OF THE LIBRARY: TO CONTRIBUTE POSITIVELY TO THE LEARNING-TEACHING PROCESS

It seems to us of vital importance that librarians in
C.A.E.'s should gain the deepest understanding of the goals
of advanced education and remain acutely sensitive to them.
Only in this way will their libraries have a chance of play-
ing their proper part in the learning-teaching process, and
helping develop the liberally educated technologist who can
think for himself, and, by reason of his ability to continue
learning on his own, adapt to changing conditions. The task
is one of tremendous difficulty and challenge, for the aims
of advanced education, if able to be fulfilled, will clearly
make on the library demands in breadth and depth of a kind
that have not been encountered elsewhere. It is obvious
that greatly expanded library collections will be required;
that many seminar-type rooms, as well as much individual
accommodation, will need to be provided in the library; and
that in the reader services' area there will have to be an
enhanced activity amounting to a revolution, that will come
into being only as a result of heavy investment in profess-
ional staff who are capable of participating with teachers
in the learning-teaching process. Such participation may
involve anything from written assistance for an external
student to face-to-face help for an oral student; from
orientation tours of the library for students or teaching
staff to detailed instruction, on an individual or group
basis, in sources of information in specific subject areas,
the latter occupying, as required, one or two hours, or so
much time per week for perhaps a term. As indicated earlier,
part-time students will need special consideration, since
they will always be the business of C.A.E.'s. In the
rationalisation of tertiary education that must surely occur
as the C.A.E.'s become established, universities may well
"shed" some of their part-time students to C.A.E.'s; but
C.A.E.'s, however much their full-time enrolments may
increase, must always provide an avenue for part-time study.
Part-time students proceeding to the same terminal award as
full-time students clearly need access to library collec-
tions with the same range of titles. Though their rate of
assimilation is slower, there is no difference in the qual-
ity of collection they require. They do, however, need more

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liberal duplication of titles to give them greater oppor-
tunities for borrowing. In addition to the most generous
hours of library opening, they need swift stack service and
professional help promptly and efficiently given. They have
no time to wait in "closed reserve" queues; nor can they
afford the time to learn by trial and error. So they must
be given instruction in library use and sources of informa-
tion, if they are to have any chance of using the library
effectively. External students, who can rarely visit the
library at all, need even greater professional help, and
this must be given in writing, a much more exacting and
time-consuming process than by word of mouth in face-to-
face contact.
    Inevitably there will be the temptation, initially at
least, for C.A.E. libraries to "copy" university libraries,
a very different thing from examining, and learning from,
them. We deplore the provision in university libraries of
closed reserve and/or multiple copy collections and, in
some cases, accompanying reading rooms, which all too often
become "the library" for the student. In universities, the
teaching method is still basically the conventional one of
lecture plus assignment, which, aggravated by large lecture
classes, has become such a burden for libraries. We realise
that the closed reserve collection and reading room is a
desperate attempt on the part of the university library to
cope with the prevailing teaching method in the university.
Needless to say, intense dependence of the student on a
narrow range of information can make little contribution to
the breadth of outlook, which, it is hoped, will be a
characteristic of the professional product of advanced
education. We cannot imagine this restrictive method of
teaching being adopted in C.A.E.'s. Nevertheless, college
librarians should be aware of the serious educational dis-
advantages of establishing closed reserve collections and
reading rooms, and should not accept their provision as in
any way essential to the process of tertiary education.
    The "reserve book system" comes under heavy fire in the
editorial of the April 1, 1969, issue of LIBRARY JOURNAL.
In a discussion of why the library is now a target of stu-
dent attack, reference is made to Harvie Branscomb's declar-
ation over 20 years ago of his desire "to chronicle the
imminent demise of the reserve book system". The announce-
ment would, however, he said, be premature. The point is
made in the editorial that "It is still premature. The
reserve system still flourishes both architecturally in new

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college library buildings and in library collections. It is
only one of many typical features of college libraries that
have always frustrated students. It is a crutch supporting
a weak and fallacious system of instruction that students
have finally begun to question. Its pedagogic justification
comes from a tradition of higher education that includes
such dubious foundation stones as the lecture-textbook
method, the concept of 'in loco parentis', faculty promotion
through publication, and a class structure based on rank,
tenure, or year of matriculation. The pyramid has the
college president at the top and the undergraduate at the
bottom. Librarians appear to be at a level not far above
the graduate student"[157].

Because the main objective of the library is to make a
positive contribution to the learning-teaching process, of
a magnitude not yet witnessed, and because of the enormous
challenge of accomplishing this, we view with grave mis-
givings any diversion, in the initial stages of library
development, from the main objective. There are already
too many suggestions of additional activities that the
library might assume before it has even found its proper
place in the learning-teaching process of the college itself.
The proposal that the library should become a resource
materials centre in the sense of producing, as well as
housing, non-printed material is surely one of these. In
this case, the library would have to assume responsibility
for the educational quality and suitability of its produc-
tions, for it must be remembered that extra activities bring
extra responsibilities, a fact, regrettably, that is not
always recognised, let alone faced. The suggested provision
of an information service to industry, with all the mission-
ary work that this implies, particularly in relation to
small firms, is surely another doubtful area of activity at
this stage. Would not missionary work of the type envisaged
be better done, initially, amongst staff and students of the
C.A.E.'s themselves? As has already been pointed out, coll-
eges of advanced education will maintain the closest poss-
ible links with industry in a variety of ways: through
part-time, including sandwich, courses; through prior indus-
trial experience of appointees to the full-time teaching
staff; through teaching staff engaging in industrial re-
search; through use of part-time lecturers from industry,
particularly in specialist areas; through active Course
Advisory Committees, with representatives from industry,
whose advice is heeded; and perhaps through teaching staff

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going back and working in industry, as is done in the United
States, during vacations, and when on sabbatical leave, in-
stead of undertaking research at a university. These points
of contact will make increasing indirect demands on the
library, and service to industry could well develop gradu-
ally and naturally out of this. Any direct library service
offered to industry in the early stages of C.A.E. develop-
ment must in no way conflict with service to college stu-
dents and staff. If it does, then, despite possible imme-
diate gains to industry, in the longer term industry itself
will suffer from the poorer quality of the diplomate prod-
uct of the C.A.E. It is of crucial importance to industry,
to the nation's productivity and consequent wealth, and to
us as members of the community that the diplomate should be
of first quality.

5 THE NEED FOR DEVELOPMENT OF NEW ATTITUDES

The swing in emphasis from teaching to learning in the educational process "will place a higher premium on the professional ability of librarians"[158], and require the closest collaboration between administrators, teachers and librarians as fellow educators. This, in turn, will necessitate the development of new attitudes. There must be commitment by them all to the contribution of the library to the education of students, the most important objective of which is to help them learn how to learn. "Facts change, like national enemies, and the memory of them is unreliable and often unnecessary, but the experience of learning never loses its value in individual life"[159].

"...Educators and librarians", says Professor Roe, "must ...be brought together in new alliances... . To be successful, these common efforts will have to be genuine partnerships which start on the supposition that librarians are interested in (1) influencing methods of instruction, (2) initiating demands for materials, and (3) seeing that the collection is used. When positive commitments such as these are made, questions concerning the librarian's educational responsibilities will be answered easily and often quite naturally"[160]. Expressed differently, by Charles E. Chapman, President of Cuyahoga Community College, there must be, on the part of both librarians and teachers, a "willing extension" of their "primary professional competence and responsibility into allied areas - faculty to library and vice versa. The intent here is not to meddle but, rather, a planned integration of the parts which, hopefully, will result in a smoother, more efficient, and more economical library"[161]. "The strength of a community college", he continues, "may very well be measured in terms of how willing and to what extent these two groups (librarians and faculty) correlate their activities"[162]. For "community college" we would like to substitute "college of advanced education".

There will be a need for librarians in C.A.E.'s to participate with teachers in teacher training programmes, particularly those librarians engaged in the professional areas of reader services' work, who will be actively assisting teachers in the training of their students for self-learning, as well as helping the students themselves

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individually. The desirability, by reason of substantial
benefit, has been expressed for junior college librarians
to attend "the same kinds of courses, seminars, or instit-
utes which are conducted for the junior college teacher,
because junior college librarians are junior college teach-
ers, and the problems of the teachers are the problems of
the librarians"[163]. Again, we would substitute "college of
advanced education" for "junior college".

Louis Shores, perhaps the founder and certainly the great
advocate of the Library-College concept, in an article en-
titled "The Junior College Impact on Academic Librarian-
ship"[164], says that if he were to return to academic
librarianship today, he would devote himself to educational
innovation. It is to the junior colleges that he looks for
the lead in such innovation. In providing higher education
for all, they must be specially concerned with the individ-
ual differences of students. This, Louis Shores feels
confident, will lead increasingly to the acceptance of
independent study as the new learning mode, with all its
implications of depth of library use. This, in turn, he
believes will have its impact on college and university
libraries as well. Since C.A.E.'s are widening the range
and diversity of higher education available in Australia,
they may well take the same sort of lead in educational
innovation as the junior colleges in the United States.
Indeed, it is hoped that the learning-teaching process will
be one of their chief concerns. Because of the type of
education offered in the junior colleges in the United
States, the need to cater for individual differences is
much greater than in the C.A.E.'s in Australia. The special
need of the C.A.E.'s is to equip their students with the
ability to continue self-learning for the rest of their
lives, because of the rate of change in the field of tech-
nology, which is the primary concern of the C.A.E.'s.

The educational potential of the library is as yet
largely unexplored, a fact that is being increasingly
recognised. In a paper on "The Development of the New
Campus (Junior) College Library", Charles E. Chapman said,
"This opportunity that librarians have to assist students in
acquiring a lifelong habit of learning through use of the
library is, in my judgment, one of the most potentially
productive, untapped resources on college campuses today.
It is one area in which the community college could effect
revolutionary changes"[165]. For "community college" we
would, once more, like to insert "C.A.E.". Again,
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Professor Ernest Roe says:

> "There is currently much emphasis in schools, colleges,
> and universities on 'independent study'. Yet, with all
> the connotations this euphonious sounding phrase brings
> to mind, the main educational instrument for realizing
> such a concept has scarcely begun to get into the act.
> That instrument is, of course, the library; and while
> I...acknowledge many exceptions to my statement, I
> repeat that the gap between libraries and education has
> barely started to close"[166].

If C.A.E.'s are to achieve the goals of advanced education,
the gap between libraries and education will have to be
completely closed.

In a paper on "Education for Junior College Librarian-
ship", Norman E. Tanis, Director of the Library at Kansas
State College, Pittsburg, has made the following observa-
tions, which are as pertinent to university and college
libraries and librarians as to the junior college field:

> "Society thinks too often of the junior college library
> as a fact factory or a vending machine or supermarket;
> librarians think too much of themselves as dispensers
> of prepackaged goods. Seen in this light, the ideal
> junior college library, like the ideal supermarket or
> vending machine, turns out packaged goods untouched by
> human hands. Librarians are not expected to reason
> why; they are not expected to deal creatively with the
> students that come into their libraries. Junior college
> librarians, as well as college librarians, have been
> too much concerned with the product (that is, the book
> or the audio-visual material, sound tape, or record),
> and not nearly enough concerned with the process that a
> student goes through to gain information in the
> library"[167].

The remarks quoted above reflect so much of the thinking
expressed in current library and educational literature.
There is a change in emphasis from the library product to
"the most important single factor of library service"[168] -
the library user; the use that is being made and, more
important still, could and should be made of the product,
and the educational role of librarians in ensuring that such
use is in fact made. The swing is away from "collecting,
organizing, and administering, as ends in themselves"[169].
Ralph S. Emerick, Director of the Library, Stephens College,
expresses it thus:

> "I think each of us must agree that our motivating

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principle must always be the enrichment of the instruc-
tional program of the institution we serve and the en-
richment of the educational process of the students we
teach. I emphasize the concept of teaching as a
natural function of the college librarian. We should
not merely maintain research facilities; we should not
be so concerned with the acquisition and cataloguing of
materials that we fail in our obligation of service to
the faculty and students"[170].

He then goes further, to give some idea of the magnitude of
what may be required in terms of library materials and
staff:

"In the process of supplying materials and services to
our public, we may well build a small empire. Library
resource materials cannot be purchased without an ade-
quate budget, and the students cannot be taught to make
the best use of these materials without adequate
library personnel"[171].

The time has come for librarians to cease to fear the charge
of "empire-building". What is needed is the recognition by
all educators that, if the library is to make its proper
contribution to the educational process, it _must_ build a
small empire.

In a report of the Planning Conference on INTREX, the
Information Transfer Experiments at the Massachusetts
Institute of Technology, the educational problems of the
(university) library are stated. They are grouped into
three parts, with significant suggestions of their relative
importance, thus:

"There is, first, the problem of teaching students how
to use the library efficiently, a task that may grow in
magnitude as the information retrieval system grows in
complexity. Second, the library must provide the
traditional back-up for the conventional lecture
courses, providing the texts, the reserve books, the
special readings, etc. Third, and in many respects
most significant of all, the library should foster in
its users the desire to continue their education beyond
the classroom, perhaps even beyond graduation, by self-
directed explorations of the library's collections"[172].

To quote again from Norman E. Tanis:

"...The library should not content itself with merely
accumulating materials for the student to use. Educa-
tion is more than the mere transmission of knowledge.
The library has another role in today's college

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education; it must assist the new and healthy ferment
which is producing novel approaches to curriculum, new
applications of communications media, and the re-
examination and re-definition of the teacher's job and
his training. All this is now taking place in some
community colleges. The librarian can promote this kind
of thinking (directed at ensuring better teaching and
better learning) by acquiring materials which will en-
able the innovators to proceed effectively"[173].

Provided that suitable financial investment is made in
staff, it will be in the reader services' area that the dis-
tinctive role of the library in the C.A.E.'s will be mani-
fest. A university librarian has observed that one of the
recent dramatic changes in Australian university libraries
has been the pouring of staff into the reader services'
area. The concern of Australian university libraries about
reader education is of recent origin, but is increasing.
The C.A.E. libraries, because of the teaching aims of the
C.A.E.'s themselves, should at this stage outstrip the uni-
versity libraries in the depth and consistency of their
integration in the educational programme. However, until
the total learning-teaching process is properly defined and
studied, not only by administrators and teachers, but by
librarians too, all of the many ways in which the library
may make its contribution to the educational process will
not become clear. Nevertheless, the aims of advanced
education are explicit, and librarians must strive, to the
best of their understanding and ability, to establish
libraries and recruit staffs that will be capable of assum-
ing far greater than conventional roles. Unless they do
this, they will not be able to participate with teachers in
a meaningful study and application of the learning-teaching
process.

In conclusion, we stress again that the integration of
the library in the educational programme of the C.A.E.'s
will require the closest collaboration between administra-
tors, teachers and librarians as fellow educators, and that
this will not be achieved unless there are changes in the
attitudes of all three groups of educators.

6 SPECIFICATIONS FOR THE COLLEGE OF ADVANCED EDUCATION LIBRARY

BOOKS, i.e. COLLECTION SIZE

We decided to examine existing standards or guidelines
for minumum size of library collections in overseas univer-
sities and other tertiary institutions comparable with coll-
eges of advanced education. We also examined the guidelines
produced for Victorian college libraries, and the targets,
scheduled for early accomplishment, for all C.A.E. libraries,
published in the second Wark Report. However, we are of the
firm opinion that all these guides have been based, either
consciously or unconsciously, on meeting the library book-
stock requirements of what we have called the conventional
teaching method (that is, lecture plus assignment). Since
it is hoped that the approach in the C.A.E.'s will be quite
different, it must be realised that considerable, as yet
unassessed, enrichment of suggested guidelines may be needed
to enable the library to contribute positively to the
learning-teaching process.

None of the standards or guidelines which we examined
include guides for non-book material. While we believe that
the library should provide resource materials in whatever
physical form they exist, we feel that there has as yet been
too little experience with audio-visual and other non-book
material for guidelines to be able to be suggested. Only as
a result of experimentation in individual colleges and
studies in the field of educational technology, such as
those being accorded first priority by the Wark Committee in
the 1970-72 triennium, will it be possible to develop mean-
ingful standards for non-book material. We do, however,
recommend a study of the recently published "Guidelines for
Audio-Visual Services in Academic Libraries", prepared and
published by the Audio-Visual Committee of the Association
of College and Research Libraries and a subcommittee of the
American Library Association's Audio-Visual Committee. These
do not contain quantitative standards, since "these will
vary with each institution depending on the extent of that
institution's involvement in an audio-visual program"[174];
or, in other words, the use of audio-visual material, like
that of printed material, will depend essentially on the
learning-teaching process in the educational institution.

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Nevertheless, they are helpful, well-reasoned guidelines, which should, as they purport to do, "assist librarians to recognize and develop their audio-visual responsibilities and to incorporate the newer media within the traditional concepts of library service"[175].

The standards or guidelines which we examined are listed below:

1. Standards for College Libraries, adopted in 1959 by the Association of College and Research Libraries of the American Library Association[176]. <u>Note</u>. Standards for Junior College Libraries, adopted a year later by the same body, have little relevance, because of the lower academic level of these colleges. Junior or community colleges conduct either two-year terminal courses of the semi-professional or the technician type, or provide the first two years of a four-year university or college course of baccalaureate standard.

2. The Clapp-Jordan formula for estimating the size for liminal adequacy of the collections of senior college and university libraries[177].

3. The University of California, Davis, refinement and modification of the Clapp-Jordan formula[178].

4. Libraries in the new polytechnics, a guide to planning requirements approved by the (British) Council for National Academic Awards in July, 1968[179].

5. Guide to Canadian University Library standards; report, 1961-1964, of the University Library Standards Committee, Canadian Association of College and University Libraries[180].

6. Guidelines for college libraries, with particular reference to libraries in the colleges of advanced education affiliated with the Victoria Institute of Colleges[181].

7. Standards for bookstock, staff and seating capacity[182] given in the chapter on "Libraries in Colleges of Advanced Education" in the second Wark Report.

1. Standards for College Libraries.

These recommend a minimum of 50,000 volumes, for up to 600 students; with an additional 10,000 volumes for every additional 200 students. Once a size of 300,000 volumes is reached, the growth rate may slow down. Part-time and extension students are to be equated into full-time student figures, though no formula is given for this. It should be noted that these standards are now 10 years old.

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2. Clapp-Jordan formula for senior college and university
   libraries.

This assumes a basic collection of 50,750 volumes, inclu-
ding 35,000 book and 250 periodical titles, irrespective of
student numbers or any other factor. It then adds on addi-
tional titles and/or volumes for six variables, as shown in
Table 1.

TABLE 1

FORMULA FOR ESTIMATING THE SIZE FOR LIMINAL ADEQUACY
OF THE COLLECTIONS OF SENIOR COLLEGE AND UNIVERSITY LIBRARIES

| | BOOKS | | PERIODICALS | | DOCU-MENTS | TOTAL |
	Titles	Volumes	Titles	Volumes	Volumes	Volumes
To a basic collection, viz.:						
1. Undergraduate library	35,000	42,000	250	3,750	5,000	50,750
Add for each of the following as indicated:						
2. Faculty member (full time equivalent)	50	60	1	15	25	100
3. Student (graduate or undergraduate in full time equivalents)	....	10	....	1	1	12
4. Undergraduate in honors or independent study programs	10	12	....	....	....	12
5. Field of undergraduate concentration — "major" subject field	200	240	3	45	50	335
6. Field of graduate concentration — Master's work or equivalent	2,000	2,400	10	150	500	3,050
7. Field of graduate concentration — Doctoral work or equivalent	15,000	18,000	100	1,500	5,000	24,500

It is to be noted that increases in student enrolment
call only for duplication of books and periodicals, not for
additional titles.

Clapp and Jordan acknowledge that they have included in
their formula only the six variables that can be "most eas-
ily and meaningfully measured"[184]. They do, however, iden-
tify other variables, the combined effect of which constit-
ute the controlling factors in each institution. The full
list is worthy of thought[185] (see below):

1) The student body - size, composition (graduate or
undergraduate, full-time or part-time, resident or
nonresident, etc.), scholastic aptitude, socio-economic
and intellectual background.
2) The faculty - size, involvement in research,
"library-mindedness", etc.
3) The curriculum - number of departments of instruc-
tion, number of courses, proportion of laboratory to

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literature courses, number of undergraduate "majors",
number of fields of masters' and doctors' degrees,
number of professional schools, etc.

4) Methods of instruction - extent and use of text-
books, reading assigned and independent study, honors
work, etc.

5) Availability of suitable places for study on the
campus.

6) Geography of the campus - proximity to metropoli-
tan areas, to other large libraries, etc.

7) The intellectual climate - inducements and dis-
tractions to study, etc.

As already indicated, we consider "methods of instruc-
tion" to be critically important.

It is stated that the total collection figure reached
can be a realistic minimum only if all volumes are care-
fully chosen for their intended purpose and "the weeding
program is as active and realistic in relation to needs as
is the program of acquisition"[185]. The weakness of the
Clapp-Jordan formula is that it provides for increases in
the library's holdings only through the operation of six
variables and ignores what may be called the natural growth
rate, caused by the increasing number of publications in so
many fields of knowledge. Is one to assume (as seems un-
likely) that the natural growth rate is exactly balanced by
the weeding programme? Despite this criticism, the Clapp-
Jordan approach is sound in requiring a basic collection,
irrespective of student enrolments or any other factor, and
thoughtful in the number and range of variables that it
lists as requiring additions to the basic collection. In
contrast, the "Standards for College Libraries" are much
more limited in their approach, being based on one variable
only, that is, student numbers.

3. The University of California, Davis.

This endorses the Clapp-Jordan idea of a basic minimum
collection, irrespective of student numbers, with additions
for assessed variables. "Institutions should not plan
library facilities based largely on the size of the enrol-
ment"[186]. "This factor...should rank below the academic
program and quality as a factor, particularly as far as
book collections are concerned"[187]. It prefers a minimum of
75,000, or even 125,000 volumes, to the Clapp-Jordan figure
of 50,750. 75,000 volumes has been accepted as the minimum
for the basic undergraduate libraries at each of the new

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University of California campuses at San Diego, Irvine and Santa Cruz.

Five of the six Clapp-Jordan variables, to be added to the basic minimum, are assessed and enlarged as follows:

		No. of vols.
a)	Faculty member	200
	Professional research staff member	100
b)	Undergraduate student	10
	Graduate student	20
d)	Undergraduate major	1,000 - 1,500
e)	Master's program	5,000
f)	Doctoral program	25,000

Under the sub-heading "Other library facilities available in the area", the point is made, "Too much weight is often given to this factor. An institution must eventually develop a library to meet its basic needs and other libraries if available should only be depended upon for seldom-used special materials and for the partial support of certain research projects"[188].

4. Libraries in the new polytechnics.

Polytechnics, like colleges of advanced education, are "institutions devoted to university-type work at the under-graduate and, to a lesser degree, post-graduate level"[189]. Like the Clapp-Jordan and University of California, Davis, formulae, this guide makes the point: "The basic stock re-quired to meet academic needs other than research within a discipline is the same for 30 students as for 300 students. It is the duplication of requirements that varies"[190]. It recommends a basic stock of 150,000 volumes, plus 3,000 periodical titles, for a polytechnic with over 2,000 full-time undergraduates and offering a wide range of disciplines, including the humanities, and encouraging linguistic and regional studies in both commerce and technology. Duplica-tion of up to 1 copy for 10 students is suggested. No growth rate is mentioned, and no account is taken of part-time students, though it is known that polytechnics will offer part-time instruction[191], despite their concentration on full-time studies.

While no guide is given for numbers of records, tapes, films, teaching machine programmes etc., an annual budget of £stg.10,000 is suggested, that is one-sixth of the amount of £stg.60,000 for books and periodicals. These figures take no account of capital grants, which "may be required where

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existing resources are substantially below the minimal
stock requirements"192.

5. Guide to Canadian University Library Standards.
    A university is regarded by the University Library Stan-
dards Committee of the Canadian Association of College and
University Libraries as having an enrolment of 1,000 or
more students, and otherwise conforming to the Canadian
Universities Foundation's definition of a university as "an
institution of post-secondary education, professional train-
ing and research, which awards first and advanced degrees
in two or more faculties"193.

    A minimum total size of 100,000 volumes is recommended.
This minimum should then be increased by 200 volumes for
each graduate student until the total is overtaken by the
standard of 75 volumes per full-time student. A table is
given for size of the periodical collection (see below). It
is based on the combined figures of American and Canadian
universities (1961-1962 figures), excluding those with a
total enrolment over 20,000 or with 50% of the student
population in graduate studies. Periodicals do not include
annual publications.

Total student population	No. of periodical titles
1,000	1,000
2,000	1,500
3,000	2,100
4,000	2,600
5,000	3,100
6,000	3,600
7,000	4,100
8,000	4,600
9,000	5,100
10,000	5,600
11,000	6,200
12,000	6,700
13,000	7,250

6. Guidelines for college libraries, particularly those
    affiliated with the Victoria Institute of Colleges.
    These recommend a minimum of 50,000 volumes of currently
effective stock (books and periodicals) for 1,000 full-time
equivalent students in a general college and suggest that
the ratio of books to full-time equivalent students should
not fall below 50:1 in any college, however small its stu-
dent enrolment. Larger institutions, such as the Royal
Melbourne Institute of Technology, with a wide range of

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courses, will require considerably greater and richer coll-
ections. Specialist institutions with a relatively small
student enrolment require a minimum of 25,000 volumes. A
minimum of 400 to 500 periodical titles (excluding donated
house journals) is suggested for the smaller college (e.g.
one with three engineering courses and courses in applied
science, business and general studies); and 750 to 1,000
titles for the larger college with a greater variety of
courses.

Guidelines for duplication, or provision of multiple
copies of individual titles, in a large collection are as
follows:
  a) prescribed textbooks. Normally, 2 copies only,
     since students should buy their own.
  b) assigned or recommended reading. 2 copies of any
     assigned title likely to be required by from 5
     to 10 students at any one time; 3 copies of any
     assigned title likely to be required by from 11
     to 20 students;
     one additional copy for each additional 10 stu-
     dents, to a maximum of 6 copies for 50 students;
     one additional copy for each additional 20 stu-
     dents beyond this maximum.

A part-time student is regarded as being equivalent to
one-quarter of a full-time student, this fraction being
based on "a reasonable approximation of comparative use"[194].

7. Standards for C.A.E. libraries given in the second Wark
   Report.
   These are "subject to later review" and are "to be
achieved in a relatively short space of time"[195].

Colleges are divided into five categories, based princi-
pally on student enrolment, and a part-time student is rated
as one-third of a full-time student. However, a footnote
refers to a later section in the chapter on "The Library and
the Part-time Student", in which the following statements
are made: "It is certainly dubious to argue that the basic
book stock he (the part-time student) needs is less than
that of his full-time colleagues. Indeed, when considering
the provision of multiple copies for large classes, extra
weighting should probably be given to part-time students who
with less opportunity to read in the library should have an
increased opportunity to borrow"[196].

Categories of colleges and their bookstock requirements
are shown below. Periodical subscriptions include adequate
back runs of each title
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Category 1. Small colleges with less than 600 equiva-
lent full-time (EFT) students and with several fields
of study.
Bookstock   to reach 25,000 volumes, including 200
periodical subscriptions.
Category 2. Colleges with over 600 and less than
1,000 EFT students and teaching three engineering
courses, an applied science course, and business
studies or art.
Bookstock to reach 50,000 volumes, including 200-700
periodical subscriptions.
Category 3. Colleges with more than 1,000 and less
than 2,000 EFT students and teaching in several fields.
Bookstock   to reach 80,000 volumes and 700-1,000 peri-
odical subscriptions.
Category 4. Colleges of more than 2,000 and less than
3,500 EFT students in several study fields.
Bookstock   to reach 100,000 volumes, including 1,000
- 2,000 periodical subscriptions.
Category 5. Colleges of more than 3,500 EFT students.
Bookstock   to reach 150,000 volumes with 3,000 peri-
odical subscriptions.

We strongly support the idea of a basic collection that
is independent of factors such as the size of the student
body, and is then weighted for as many variables as can be
assessed with some degree of accuracy. However, we dis-
agree equally strongly with the principle of scaling down
the part-time student to some fraction of the full-time
student for purposes of determining size of library collec-
tion and staff required for services to be provided. We
consider there has been in the past a very wrong and unfor-
tunate disregard of the library needs of the part-time stu-
dent. This is now being recognised and studies of his par-
ticular requirements have been proposed. Perhaps the most
elementary way of beginning to provide for him is to regard
his library needs as being at least equal to those of the
full-time student, except for seating accommodation, which
he obviously cannot occupy as much. It cannot be argued
that an inferior book collection, either in quality or quan-
tity, will meet his needs, since he clearly requires access
to at least the same range of titles, though over a longer
period, and to greater duplication in some areas, because
of his greater need to borrow publications, occasioned by
his inability to spend as much time in the library as the
full-time student. Again, in terms of services, he needs

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the most liberal hours of library opening, to give him maxi-
mum opportunity to use the library both for individual study
and for borrowing; and he also needs quick and efficient
help and service when he is able to visit the library. He
has no time to wait in queues or learn by trial and error.
Hence he needs efficient instruction in library use and
sources of information, professional help quickly given as
required and swift stack service. This has obvious implica-
tions in terms of library staffing. It is wrong to assume
that, because the part-time student now uses the library
less than the full-time student, his true needs are necess-
arily less. Present library provision takes little account
of his needs and so prevents him from making the use that he
should of the library. It is an obligation to correct this.
The same reasoning applies to external students, who, be-
cause they can visit the library very little indeed, need
more professional help and advice than even the part-time
student, and this must be conveyed by letter, a much more
time-consuming process than by word of mouth. We therefore
strongly recommend that all students, whether full-time,
part-time or external, be regarded as at least equal in
their library needs when size of book collections and staff-
ing requirements are calculated. In our own calculations,
we have not discriminated against part-time and external
students.

In the general disregard for part-time students(the guide
for polytechnics does not even mention them), it is heart-
ening to find the following observation in the Canadian
Association of College and University Libraries' brief to
the Bladen Commission on the financing of higher education,
entitled "Forecast of the cost of academic library services
in Canada, 1965-1975"[197].

"Part-time 'extension' or 'night course' students come to
the library less frequently than 'day' students, but need
longer loan periods and hence more copies of recommended
readings".

We emphasise again that the first and most elementary
step towards considering part-time and external students is
to regard their library needs as at least equal to those of
full-time students in all except seating accommodation.

The fallacy of basing library bookstock provision entire-
ly on student enrolment is being increasingly recognised.
The HERO report on the "Study to Develop a Research Program
for the Design Development of Modern College Libraries" men-
tions this in its discussion of the need for establishing a
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formula for allocating funds to acquire library materials to
support the curriculum. It says, "This formula cannot be a
direct relationship between class enrollment and funds,
otherwise relatively unpopular but academically significant
courses will be so deprived of funds that the quality of
their offerings will be affected, which could have an ad-
verse effect upon the quality of the entire school"198.

The standards and guidelines outlined above clearly refer
in the main to central library provision. We heartily en-
dorse the V.I.C. Guidelines' view of the educational advan-
tages of a central library and of the undesirability of
expense on separate departmental libraries at this early
stage of college library development, and support their
recommendation that "the development of a strong, centrally
administered collection should receive priority"199. On
the other hand, we see no advantage to be gained from coll-
ege librarians burying their heads in the sand and refusing
to face such facts as geography. We do, however, stress
that all library provision should be under the control of
the central library and should be of the same standard; that
is, if departmental or branch libraries become necessary,
they should be adequately staffed from the central library
and should offer, as far as possible, the same hours of
opening and services as the central library. We do not
countenance collections in schools or departments, mainly
for teacher use, either scattered through the school or
department or in a central spot under the control of a
clerk or office assistant. Anything that is purchased from
library funds should be recorded in the main library cata-
logue and be under the full control of the library. There
is an obvious need for the provision of certain types of
publications such as handbooks, laboratory, workshop and
repair manuals, standards, mathematical tables, case stud-
ies, in the teaching school or department. These should be
regarded as teaching equipment and purchased from non-
library funds such as a materials vote. However, requests
for such items should be submitted to the librarian in the
first place to enable him to check that there is already a
copy in the library, and, if not, to purchase one from the
allocation of the requesting school or department, in cases
where library votes are divided up in this way; and to
exercise a general control over the type and number of such
publications purchased. No extra staff or accommodation
should be provided by the administration to look after or
house these publications. Some simple controls of this

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type are needed to prevent the growth of "blackmarket" collections.

In general, we favour centralisation, but if decentralisation becomes necessary, we recommend that it be strictly controlled by the librarian. The special difficulties of providing in one large central library a service that is tailored to the differing needs of both students and staff and is, therefore, quite obviously to them superior to the restricted but nevertheless more personal (and so often more satisfying) service that is given in small departmental libraries, are considered in our discussion of staff for services required in C.A.E. libraries.

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7 FURTHER EXAMINATION OF THE CLAPP-JORDAN FORMULA

As stated previously, the Clapp-Jordan approach of pro-
viding a basic collection of 50,750 volumes, and then build-
ing on this by weighting for assessed variables such as
student enrolments, number of academic staff, subject areas
of undergraduate concentration, etc., seems to us fundamen-
tally sound. Recognition of the need for a basic collection,
irrespective of any other factors, is essential to achieve
a broadening and liberalisation of the library collections
in colleges offering only a small range of courses or spec-
ialising in one subject area only, as, for example, the
South Australian School of Art and the Victorian College of
Pharmacy. The library collections in colleges offering a
wider spread of courses, will, by reason of inter-disciplin-
ary overlap, become more automatically broadened and liber-
alised. This broadening is basic to the aims of advanced
education.

We are quite unable to accept a basic library collection
smaller than the suggested Clapp-Jordan one of 50,750
volumes for any C.A.E., whether it be a mono-discipline
college or a multi-discipline one. Though for some other
purposes it may be convenient to separate mono-discipline
and specialist colleges from multi-discipline colleges, for
matters relating to the library we are opposed to this
approach. In terms of the Clapp-Jordan formula, the mono-
discipline college needs its basic 50,750 volumes just as
much as the multi-discipline college. It will, of course,
have a lower rating for the relevant variables, because of
narrower fields of subject concentration and, in some cases,
fewer staff and students than the multi-discipline college.

Clapp and Jordan, as we have described, endeavour to
provide a formula for minimum collections in senior college
and university libraries. A minimum collection is establish-
ed through the provision of a basic collection of 50,750
volumes, which is increased by the application of weight-
ings for assessed variables, the resulting number of volumes
constituting the minimum collection. This is a minimum
required by each library for self-sufficiency and cannot be
achieved through a pooling of resources with any other
library or libraries. It is important to be clear about
this. Sharing of resources is possible only over and above
a certain minimum. Clapp and Jordan endeavour to establish

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this minimum.

The Clapp-Jordan approach to building minimum library collections seems to us the most promising one to date, and so worthy of further examination and thought. However, the figures it suggests appear to us modest and in their provision for serials, quite inadequate. It should be remembered that the Clapp-Jordan criteria were published in an article that appeared in COLLEGE AND RESEARCH LIBRARIES four years ago and was, therefore, based on even earlier thinking. From the provision of only 250 periodical titles in the basic collection, and 3 for each field of undergraduate concentration or "major" subject area, it seems fairly obvious that the term "periodical" is not used as a synonym of "serial", but, presumably, in the restricted sense of publications appearing more frequently than annually. United States academic library statistics differentiate between numbers of titles of "periodicals" and "total serials", the figure for "serials" sometimes being double or more that for "periodicals". The restrictive definition of periodicals would exclude numbered series, and the review type of serial, ADVANCES IN ..., PROGRESS IN ..., ANNUAL REVIEW OF ... , which has multiplied so rapidly and become so significant, particularly in the last decade, as one means of coping with the information explosion. It also seems obvious that indexing and abstracting publications, which, for the same reason as the review serials, have increased in number and taken on added significance in the last decade, have been wholly or largely disregarded. This means that the true serials area is very short. Clapp and Jordan acknowledge that the reinforcement figure of 335 volumes for each "major" subject field of undergraduate concentration is "very modest". It is only 17% of the 2,000 and more titles that typically appear in "basic lists". It is worth pointing out that the "basic lists" given as examples include electronics, physics and art, as well as what might be thought of as the humanities areas of anthropology, economic and social development of modern China, communism (books in English only) and life and thought in the United States. The electronics list quoted by Clapp and Jordan covers the period 1945 - June, 1959, and another similar list covering July, 1959 - December, 1964, has now been produced. Furthermore, the briefest look at the literature of subjects such as chemistry and biology would confirm that 335 titles is a "very modest" assessment for these areas. (See Appendix A).
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To relate the Clapp-Jordan formula to existing library
collections in institutions in the United States that might
be thought of as in some ways comparable with colleges of
advanced education, particularly in the initial stages of
development of the colleges, a sampling was taken of 1966-67
library statistics for four-year institutions (other than
universities) with graduate programs. Universities were
not used, as by definition they (a) give considerable stress
to graduate instruction; (b) confer advanced degrees as well
as bachelor's degrees in a variety of liberal arts fields;
and (c) have at least two professional schools that are not
exclusively technological. The requirements in volumes
calculated with the Clapp-Jordan formula (accepting the
stated rating of the part-time student as equivalent to
one-third of a full-time student) were in a number of cases
found to be lower, sometimes considerably so, than the
total of volumes already held in the existing libraries.
This reinforced our view that the Clapp-Jordan formula
does not err on the side of over-provision. It was inter-
esting to find, however, that in all the samples taken the
number of serial titles actually held in the libraries was
considerably in excess of the number provided by the Clapp-
Jordan formula. Again, this is reinforcement of our view
that Clapp-Jordan is grossly inadequate in its recommend-
ations for serial titles. This view is further strengthen-
ed by the fact that,in a recent revision of the Clapp-
Jordan formula for junior or community college libraries[200],
an enlargement of the periodical provision has been
recommended. The original formula calls for a basic col-
lection of 16,875 volumes, including 125 periodical titles,
and provides 1 additional periodical title for each faculty
member and 3 for each subject field of study. The revision
enlarges the basic number of titles to 300, and the addit-
ional numbers for each faculty member and subject field of
study to 1.3 and 4 respectively. These figures are higher
than the corresponding Clapp-Jordan recommendations for
senior college and university libraries, namely 250, 1 and
3 titles respectively. From examination of serial litera-
ture, we consider that a basic collection of 1,000 titles
(including relevant indexing and abstracting publications)
would be far more adequate for colleges of advanced educa-
tion other than those principally concerned with one dis-
cipline only. 500 of these titles might be kept for 20
years, and the other 500 for only 10 years. For each field
of undergraduate concentration or "major" subject area,

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we consider 100 titles a modest substitute for the Clapp-Jordan recommendation of 3 (See Appendix A).

We decided to apply the Clapp-Jordan formula to an existing college situation in Australia. Because of ready availability of statistics and the least risk of misinterpretation by us of information supplied, the example chosen was the one closest home, namely the Broadway site. It is a particularly complex one, but does illustrate problems of library provision that exist in States other than New South Wales. The Broadway site accommodates Sydney Technical College as well as the New South Wales Institute of Technology, though the former is part of the Department of Technical Education and the latter comes under the jurisdiction of the New South Wales Advanced Education Board. Library provision, in the ex-Bon Marche department store, is at present joint. The Sydney Technical College Library, as its present name is, serves the Broadway site and is, in addition, the central library of the Department of Technical Education, giving service to the administrative and educational staff at the Head Office of the Department, and supplementing the service in all Technical Colleges throughout the State, where necessary for their Institute as well as their Technical College activities. It is a simple matter to calculate the present Institute library collection requirements in terms of the Clapp-Jordan formula, but this is unreal, for, in practice, the requirements of Sydney Technical College must be taken into account too. This type of situation is by no means peculiar to New South Wales, though it does appear that in all States there are moves, in varying stages of accomplishment, to separate the tertiary, diploma courses from the sub-tertiary, certificate, trade and other courses, both physically, that is, on separate sites, and administratively (the tertiary courses being part of the college of advanced education or institute of technology, and the sub-tertiary of the technical college). Much thought has been given to the formula that should be used to calculate the library collection size for Sydney Technical College. Should the Clapp-Jordan formula for senior college and university libraries be used only for the New South Wales Institute of Technology, and the formula for junior or community college libraries be applied to Sydney Technical College? The junior college formula[201] is given in Table 2 (p. 77).

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TABLE 2

FORMULA FOR ESTIMATING THE SIZE FOR LIMINAL ADEQUACY
OF JUNIOR OR COMMUNITY COLLEGE LIBRARIES

| | BOOKS | | PERIODICALS | | TOTAL |
	Titles	Volumes	Titles	Volumes	Volumes
To a basic collection, viz:					
1. A collection to support a two-year general education or liberal arts (transfer or university parallel) program	12,500	15,000	125	1,875	16,875
Add for each of the following as indicated:					
2. Faculty member (full time equivalent)	30	36	1	15	51
3. Student (full time equivalent)		4		1	5
4. Subject field of study, either transfer or terminal, in which courses are offered beyond the standard general education or liberal arts transfer program	100	120	3	45	165

The many years of close contact and experience of one of
us with certificate, trade and other staff and students at
the Granville and North Sydney Technical Colleges as well as
at Sydney Technical College made us completely unable to
accept the Clapp-Jordan junior college library standards for
Sydney Technical College Library, which has State-wide as
well as site responsibilities. After much discussion, we
agreed that some modification in application of the Clapp-
Jordan senior college and university library standards
would more realistically meet the needs of Sydney Technical
College. We therefore gave our attention to this difficult
exercise. We have already stated our firm conviction that
it is entirely wrong to scale down the part-time student,
who is undertaking a course leading to the same terminal
award as the full-time student, to a fraction of the latter,
when his library collection and service needs are being
considered. If anything, the part-time student needs great-
er consideration in these areas than his full-time counter-
part, because of his limited time and consequent difficulty
of access to his study and the materials associated with it.
After much consideration, we decided to set up our own
measure of student "full-time equivalence" for all types
of students on the Broadway site, and calculate this as the
product of course subject coverage and what might be termed
difficulty of study access. Initially, we considered 4
sets of hours available per week (see A, B, C and D in
Table 3, p. 78) for full-time diploma, part-time diploma,
certificate, trade and special students. The first set (A)

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was based on a 12-hour day (9 a.m. to 9 p.m.) for 5 days
per week (i.e. 60 hours per week) for full-time diploma
students; the second (B) on the same, plus 8 hours on
Saturday (i.e.68 hours per week); the third (C) on a 12-
hour day for 6 days per week (i.e. 72 hours per week); and
the fourth (D) on a 12-hour day for 7 days per week (i.e.
84 hours per week). We are aware of the grossness and
crudeness of our calculations, and that some factors have
not been taken into account. For all this, we consider that
the calculations shown in Table 3 have some merit.

TABLE 3

CALCULATION OF STUDENT "FULL-TIME EQUIVALENCE"

Type of Student	Hours Available per week	Hours of Course Attendance per week	Nett Hours Available per week	Subject Coverage	Difficulty of study access	Full-time Equivalence
A						
Full-time Diploma	60	20	40	1	1	1
Part-time Diploma	20	12	8	3/5	5	3
Certificate	20	10	10	1/2	4	2
Trade	28	8	20	2/5	2	4/5
Special	20	6	14	3/10	2–6/7	6/7
B						
Full-time Diploma	68	20	48	1	1	1
Part-time Diploma	28	12	16	3/5	3	1–4/5
Certificate	28	10	18	1/2	2–2/3	1–1/3
Trade	36	8	28	2/5	1–5/7	24/35
Special	28	6	22	3/10	2–2/11	36/55
C						
Full-time Diploma	72	20	52	1	1	1
Part-time Diploma	32	12	20	3/5	2–3/5	1–14/25
Certificate	32	10	22	1/2	2–4/11	1–2/11
Trade	40	8	32	2/5	1–5/8	13/20
Special	32	6	26	3/10	2	3/5
D						
Full-time Diploma	84	20	64	1	1	1
Part-time Diploma	44	12	32	3/5	2	1–1/5
Certificate	44	10	34	1/2	1–15/17	16/17
Trade	52	8	44	2/5	1–5/11	32/55
Special	44	6	38	3/10	1–13/19	48/95

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We decided that it was completely unrealistic to consider an average student working week of more than 72 hours, that is, 12 hours per day for 6 days of the week. We therefore looked at student full-time equivalence in the theoretical 72-hour working week, and from this decided to rate all diploma and certificate students as 1, trade students 2/3rds and special students as 3/5ths. We consider that our attitude to certificate students receives broad support from the Wiltshire report on academic awards in advanced education. This, as we have already mentioned, states that many courses offered in C.A.E.'s will be at sub-professional level. These are the courses in the Wiltshire Category B2, which are recommended, most unwisely in our view, for the terminal award of "diploma". The Wiltshire Committee's thinking on courses in Category B2 needs to be considered in full and for this reason is quoted below.

Category B2[202]

6.20 Many courses offered by the colleges will have limited objectives and will be at the sub-professional level. Some will provide a short tertiary course for those students who may not be willing to commit themselves to a substantial programme leading to professional standing. In other cases community needs are satisfied by a course taking less than three years. Again, some courses, while being properly considered to be tertiary, lead directly from Certificate work which is not at tertiary level.

6.21 Characteristics of courses in Category B2 follow :
(i) The course is of two years' duration on a full-time basis, four years on a part-time basis, or some other equivalent full-time/part-time combination, following the satisfactory completion of secondary education.
(ii) The course treats a fairly restricted area of knowledge and may give only the basic elements of theory before passing to applications or to the development of skills.
(iii) The course may have a somewhat lower standard of entry, but not inconsistent with the satisfactory completion of secondary education or its equivalent, than would be required for entry to courses in Categories A and B1.

Some explanation is needed about the nature and length of the courses conducted by the Department of Technical Education. Certificate (technician) courses most commonly require 9-10 hours attendance per week for 4 years. The educational entrance qualification demanded is the N.S.W.

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School Certificate, with,in some cases, passes at an approp-
riate level in certain specific subjects. Post-certificate
courses are of 2 kinds, the prerequisite for both being
completion of the appropriate certificate course:

1) Higher Certificate Courses. These extend the cert-
   ificate course in breadth and depth and are therefore
   "substantial" courses of at least 2 years' duration,
   e.g. Metallurgy Higher Certificate Course. 2 years,
   10 hours per week.

2) Post-Certificate Courses. These are of any duration,
   e.g. Chemical Instrumentation. 1 year, 7 hours per
   week. They may even be simply subjects, as the
   Electrical Engineering subjects offered to those who
   have completed the Electrical Engineering Certificate
   Course, e.g. Electrical Mathematics IV. 1 year,
   2 hours per week.

Trade courses are designed for apprentices engaged in the
skilled trades, and most commonly require 8 hours' day
release attendance per week for 3 years. There are general-
ly no specific educational requirements for entry to trade
courses, though students must have reached a standard of
education sufficient to enable them to follow the course.
Admission is, however, restricted to those who are gaining
appropriate experience in their daily occupations. Post-
trade courses require completion of a relevant trade course
for admission, and may be of any length, though they are
usually not more than 2 years.

Special courses mostly provide commercial or technical
training for special needs. They may be of any duration
and the majority have no specific educational or occupation-
al requirements for admission. Their tremendous range may
be judged from the examples given below:

Technical Report Writing.   12 weeks, 2 hours per week.
Industrial Safety.   1 year, 1½ hours per week.
Optical Dispensing.   2 years, 10 hours per week
   in Stage I, 8 hours per week in Stage II. Entrance
   requirement: N.S.W. School Certificate with ordinary
   level passes·in English and Science and a credit
   level pass in Mathematics.
Bankers' Institute.   4 years, 6 hours per week.
   Entrance requirements: (a) Educational. N.S.W.
   School Certificate. (b) Occupational. Employment in a
   banking institution.

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Day Matriculation.   1 year.   Classes are held
   between 9 a.m. & 5 p.m.   Entrance requirements:
   (a) Educational. N.S.W. School Certificate.
   (b) Age.   18 years of age.
Indonesian.   3 years.   2 hours per week
   in Stages I and II, 4 hours in Stage III.
Pre-Sea Induction for Deck Apprentices.   1 Term,
   30 hours per week. Entrance requirement: Anticipated
   employment as deck apprentice.
Local Government Clerks.   4 years. 7½ hours per week
   in Stage I, 8½ hours per week in Stage II, and 6
   hours per week in Stages III and IV. Stages III and IV
   are available only by correspondence. Entrance require-
   ment: Higher School Certificate, with a pass in 4 sub-
   jects, including English.
We decided to apply the Clapp-Jordan formula for senior
college and university libraries, with our own adjustment
for full-time student equivalence, to calculate the follow-
ing minimum library collection requirements:
   (i)   Broadway site for 1969 (i.e. New South Wales
           Institute of Technology and Sydney Technical
           College).
   (ii)   New South Wales Institute of Technology for 1969.
   (iii)   Broadway site for 1990.
   (iv)   New South Wales Institute of Technology for 1990.
   (v)   Sydney Technical College for 1990.
The statistical information that follows was used for the
calculations. Figures for 1969 are actual, whereas those
for 1990 are projections from current expectations. No
distinction has been made between the full-time, part-time
and external students in any one category. All diploma and
certificate students have been rated as 1; trade students
as 2/3rds; and special students as 3/5ths. Student numbers,
as has been pointed out previously, are regarded by Clapp
and Jordan as requiring only duplication of existing titles
of books and periodicals, not an increase in new titles.

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NEW SOUTH WALES INSTITUTE OF TECHNOLOGY, 1969

Faculty - Full-time   120
          Part-time   160 approx.
          Total assessed at 158 (on basis of expected
                                 staff/student ratio of
                                 1:16)
Students - Full-time and
           Part-time   2,525

Fields of Undergraduate Concentration ("Major" Subject
Fields)
(e.g. Life Sciences, Mathematics, Mechanical
Engineering, Management)   25

Fields of Graduate Concentration (Master's Work
or Equivalent)   0

Fields of Graduate Concentration (Doctoral Work
or Equivalent)   0

                SYDNEY TECHNICAL COLLEGE, 1969

Faculty - Full-time   521
          Part-time   1,302
          Total assessed at 1,200

Students -
Certificate & Post-Certificate
          Oral   10,522
          External   4,824
          Total   15,346

Trade & Post-Trade
          Oral   9,112
          External   2,175
          Total   11,287
Special
          Oral   10,524
          External   14,317
          Total   24,841

Fields of Undergraduate Concentration
("Major" Subject Fields)   45*

*S.T.C. offers approx. 334 courses. Because of joint library
 provision, these have been assessed as covering 45 subject
 fields, i.e. 13% of the total number of courses offered.
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NEW SOUTH WALES INSTITUTE OF TECHNOLOGY, 1990

Faculty   1,875 (assessed on basis of
                                            expected staff/student
                                            ratio of 1:16)

Students   30,000

Fields of Undergraduate Concentration
("Major" Subject Fields)   45

Fields of Graduate Concentration (Master's
Work or Equivalent)   30

Fields of Graduate Concentration (Doctoral Work
or Equivalent)   0

                SYDNEY TECHNICAL COLLEGE, 1990

Faculty   1,400 (assessed on 1969 basis)
Students -
Certificate & Post-Certificate
          Oral   13,955[1]
          External   4,824[2]
          Total   18,779

Trade and Post-Trade
          Oral   12,086[1]
          External   2,175[2]
          Total   14,261

Special
          Oral   13,959[1]
          External   14,317[2]
          Total   28,276

Fields of Undergraduate Concentration
("Major" Subject Fields)   65*

1 This is the same proportion of the 40,000 projected oral
   student enrolment for 1990, as obtains in 1969.
2 As for 1969.
* Scaled down to 40, for joint library provision.

CLAPP-JORDAN CALCULATION OF LIMINAL COLLECTION SIZE
FOR LIBRARY SERVING BROADWAY SITE IN 1969

			No. of volumes
Basic collection			50,750
Faculty	1,358		135,800
Students -			
Diploma and Certificate	17,871		
Trade 11,287 x 2/3 =	7,525		
Special 24,841 x 3/5 =	14,905		
F.T.E. Total	40,301		483,612
Fields of Undergraduate Concentration			
("Major" Subject Fields)	70		23,450
		Total	693,612

NEW SOUTH WALES INSTITUTE OF TECHNOLOGY
LIBRARY COLLECTION REQUIREMENTS, 1969

			No. of volumes
Basic collection			50,750
Faculty	158		15,800
Students	2,525		30,300
Fields of Undergraduate Concentration			
("Major" Subject Fields)	25		8,375
		Total	105,225

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CLAPP-JORDAN CALCULATION OF LIMINAL COLLECTION SIZE
FOR LIBRARY SERVING BROADWAY SITE IN 1990

		No. of Volumes
Basic Collection		50,750
Faculty	3,275	327,500
Students -		
Diploma and Certificate	48,779	
Trade 14,261 x 2/3 =	9,507	
Special 28,276 x 3/5 =	16,966	
F.T.E. Total	75,252	903,024
Fields of Undergraduate Concentration ("Major" Subject Fields)	85	28,475
Fields of Graduate Concentration (Master's Work or Equivalent)	30	91,500
	Total	1,401,249

NEW SOUTH WALES INSTITUTE OF TECHNOLOGY LIBRARY, 1990

		No. of Volumes
Basic Collection		50,750
Faculty	1,875	187,500
Students	30,000	360,000
Fields of Undergraduate Concentration ("Major" Subject Fields)	45	15,075
Fields of Graduate Concentration (Master's Work or Equivalent)	30	91,500
	Total	704,825

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SYDNEY TECHNICAL COLLEGE LIBRARY, 1990

			No. of Volumes
Basic Collection			50,750
Faculty	1,400		140,000
Students			
Certificate	18,779		
Trade 14,261 x 2/3	9,507		
Special 28,276 x 3/5	16,966		
F.T.E. Total	45,252		543,024
Fields of Undergraduate Concentration			
("Major" Subject Fields)	65		21,775
		Total	755,549

For the reasons we have indicated, and particularly in the
serials area, we consider the Clapp-Jordan figures too
modest.   Despite the inadequacy of the actual figures
suggested, we favour the Clapp-Jordan approach as a basis
for the determination of more accurate standards than have
yet been devised, provided that all students, full-time,
part-time and external, are rated as equal. Our Clapp-
Jordan calculation for library bookstock for the New South
Wales Institute of Technology in 1969 is 105,225 volumes.
If, however, the standards in the second Wark Report were
applied, the New South Wales Institute of Technology would
fall into Category 2* and merit, therefore, a provision of
only 50,000 volumes. Interestingly, if all students were
rated as equal in the application of the Wark Standards,
the New South Wales Institute of Technology would fall into
Category 4 and merit a provision of 100,000 volumes, which
is more nearly comparable with our Clapp-Jordan calculation.
It must, however, be appreciated that this is so only
because the Institute student enrolment of 2,525 falls at
the lower end of the 2,000-3,500 range provided in Wark
Category 4.

    * 1/3 rd of 2,366 part-time students + 159 full-time
    students = 948 EFT students

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The standards suggested in the Wark Report cannot, of
course, be applied to the New South Wales Institute of
Technology Library in 1990, since they are, by definition,
goals intended for early achievement.

8 STAFF

Standards or guidelines for library staffing are even less well developed than those for library collections. Of greatest interest, perhaps, is the suggested staffing for libraries in the new English polytechnics. This does not establish standards as such, but gives a detailed dissection of staff for the library of a polytechnic, with, it will be remembered, "over 2,000 full-time undergraduates and offering a wide range of disciplines, including the humanities, and encouraging linguistic and regional studies in both commerce and technology"[203]. Such a library requires a basic stock of 150,000 volumes and 3,000 periodical titles, plus an annual budget of at least £stg.60,000 for books and periodicals and £stg.10,000 for non-book material, such as films, records, tapes. The annual budget allows (on 1967 prices) a monograph acquisition rate of 10,000 titles and 1,000 duplicates, and the payment of subscriptions to 2,000 periodicals. The staffing suggested for a polytechnic of the order outlined will be discussed later.

It seems clear that reader services and technical services staff must be computed on a different basis. In the "Standards for Junior College Libraries", it is recommended[204] that staffing be based on a minimum of four service areas and be computed separately for each: technical services, public services, audio-visual services, administrative services. We endorse this. However, we do not feel qualified, at this early stage of C.A.E. library involvement with non-book media, to make any firm recommendations regarding staffing for audio-visual services, except to stress that due staffing allowance must be made for this important and developing area of activity; that is, it cannot, even initially, be "squeezed" into existing services. In some C.A.E.'s a separate audio-visual department exists, and the C.A.E. librarian must determine the relationship of the library to this department. One thing is clear, namely that all students and staff must have the same access to non-book as to book material; which probably means that the library must purchase, house, organise for use and lend audio-visual material in much the same way as book material. Non-library audio-visual departments may well confine their activities in the future to production, some selection and perhaps major repair of materials and equipment, leaving housing, with its associated organisation and promotion of use, to the library. In her 1968 annual report,

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the Librarian of Swinburne College of Technology, Victoria,
says, "We have been working in close association with the
Audio-Visual Aids Department towards a definition of our
respective areas of responsibility, and present thinking is
that it is appropriate for the library to help in the selec-
tion of material, to arrange orders, and to maintain cata-
logues and loan records"[205]. The C.A.E. librarian must
decide whether audio-visual materials are to be housed
separately from the rest of the library collection, as
seems most practical, or are to be integrated into the
total collection. Whatever the decisions, one or two pro-
fessional staff, plus one technician, should be assigned
initially to audio-visual services in any C.A.E. library
involved in this area of activity - and, before long, this
should be in all C.A.E. libraries. This is an area that re-
quires planning, decisions and development. Even if major
repairs to materials and equipment are carried out by a
separate audio-visual department, checking and minor repairs
will always have to be done by a technician employed by the
library, if service is not to be seriously interrupted. For
the particular benefit of part-time students and staff,
there should be full access to audio-visual materials at all
times that the library is open, and this will almost cer-
tainly require the manning of extra service points.

The recently published "Guidelines for Audio-Visual Ser-
vices in Academic Libraries" endorse our thinking about the
need for adequate library staff for audio-visual services.
They stress that the audio-visual librarian should be app-
ointed early in the stages of planning the educational
institution's audio-visual programme. "The audio-visual
librarian may be appointed from the existing staff depending
upon work-load and interests; however, the creation of this
position should always entail an increase of the over-all
professional staff of the library"[206]. Moreover, "a trained
technician should be added to the staff before the purchase
of equipment"[207]. The Guidelines point out that "the
librarian's ability to select, organize, and service mater-
ials applies to all types of learning resources"[208]. Thus
the responsibilities of the librarian to non-book materials
are the same in kind as to book materials, and include
selection, acquisition and cataloguing, collection organi-
zation and maintenance, and service. The same sort of ser-
vice, including promotion of use, should be available as for
printed material, and for this reason "the entire library

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staff should be fully conversant with the various types of
materials and with the equipment necessary for their use"209

"The potential of audio-visual media", say the Guidelines,
"is considerable. The realization of this potential, however,
depends upon the knowledge, enthusiasm, and capabilities of
the librarians administering the program. The increased
possibilities of service and the enhanced resource collec-
tions should excite every academic librarian"210. The
implications, in terms of both quantity and quality of
library staff, are obvious.

The best measure of reader services staffing is obtained,
we consider, by relating it to student population to be
served; whereas technical services staffing should rather
be related to the intake of volumes per annum. Student
population is itself related to academic staff, through a
staff-student ratio (e.g. 1 : 16 desired for the New South
Wales Institute of Technology). In the absence of suitable
standards or guidelines for reader services and technical
services staff, it was decided to examine the existing staff
situation in Australian university libraries, to see whether
any guides might be derived for C.A.E. libraries.

(a)   READER SERVICES STAFF

The ratio of reader services staff to students was cal-
culated for all Australian university libraries for 1968
(see table 4, p.92). The student figure used was the total
number of students, irrespective of whether they were under-
graduates or graduates, pursuing their studies on a full-
time, part-time or external basis. The Australian Univer-
sities Commission, in tabling student enrolments in its
fourth report, uses equivalent full-time student figures,
assigning the following weightings for calculation of full-
time equivalence for the triennium 1970-72:

      Ph.D. and Master's Degree Students
                  Full-time   2
                  Part-time   1
                  External   ¼
      Honours, masters qualifying, post-graduate diploma
      students and undergraduates
                  Full-time   1
                  Part-time   ½
                  External   ½

It is interesting that the Commission has revised its weigh-
ting of external undergraduate students since its third
report and now rates them as ½, or equal to part-time
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undergraduates, instead of ½, as previously, with the foll-
owing explanation:

"The Commission's study of the cost of teaching an
external undergraduate has led it to the conclusion
that the cost is, on the average, not less than the
cost of teaching a part-time undergraduate. For some
time to come there will continue to be a need, chiefly
for members of the teaching profession, to improve
their qualifications by external studies and the
Commission does not wish to discourage universities
from meeting this need by underestimating the cost of
meeting it"211.

We have already explained our reasons for regarding the
collection and service needs of part-time and external stu-
dents as at least equal to those of full-time students. We
decided against weighting full-time Ph.D. and Master's
Degree students as 2, on the grounds that they should be
more self-sufficient in library use, even though their needs
are greater in depth, than undergraduate students. We de-
cided also that it would not be misleading to confine our
examination of the reader services situation in university
libraries to 1968, that is, to one year only, since this
should be the most favourable year for reader services
provision (except, perhaps, 1969, for which figures are not
yet available). In the older universities student enrol-
ments have either become fairly constant or are dropping,
and the new universities still have the advantage of small
enrolments. Because the financial restrictions that came
into being after the 1964-66 triennium are still continuing,
there is no likelihood of reader services staff having to be
transferred to technical services, to ensure that additional
funds are spent. The year 1968 should therefore give an
accurate picture of the best reader services' performance
to date in university libraries.

TABLE 4

AUSTRALIAN UNIVERSITY LIBRARIES 1968

Name of University	Total Student Enrolments	Reader Services Staff	Ratio of Reader Services Staff to Students
ANU	3,981	62	1 : 64
NMU	1,927	21	1 : 92
NNU	2,286	16	1 : 143
NU	16,269	106	1 : 153
NUN	14,618	69½	1 : 210
NUNE	2,469	16	1 : 154
PU	459	8	1 : 57
QTU	591	7	1 : 84
QU	14,726	72½	1 : 204
SFU	1,212	17	1 : 71
SU	8,591	39½	1 : 220
TU	2,643	22	1 : 120
VLU	1,163	22	1 : 53
VMoU	8,466	64	1 : 132
VU	13,990	66½	1 : 210
WU	6,573	41	1 : 160

SOURCE OF STATISTICS: Library Association of Australia — University and College Libraries Section. News sheet. August 1969.

National Average   1 : 133

Order of Priority

1. VLU	1 : 53		9. NNU	1 : 143
2. PU	1 : 57		10. NU	1 : 153
3. ANU	1 : 64		11. NUNE	1 : 154
4. SFU	1 : 71		12. WU	1 : 160
5. QTU	1 : 84		13. QU	1 : 204
6. NMU	1 : 92		14. VU	1 : 210
7. TU	1 : 120		15. NUN	1 : 210
8. VMoU	1 : 132		16. SU	1 : 220

It is interesting to note that the national average and the median are almost identical.

It must be pointed out that there are many concealed factors in the figures used. For instance, it is not known how much help is given to reader services by technical services staff for rostering and reader education and in other ways. In some university libraries such help is undoubtedly

considerable, e.g. at Macquarie and the University of New
South Wales, where substantial assistance has been given by
cataloguing staff in reader education and maintenance of an
enquiry service at the catalogue. The ratio of reader ser-
vices staff to students is falsely high in such university
libraries. The reverse operates at the Fisher Library,
University of Sydney. Here reader services staff receive
no help from the technical services departments in reader
education and only minimal help in rostering; and, in
addition, the thirteen branch libraries (staffed by the
Division of Reader Services) assign subject headings to
their books. Descriptive cataloguing is, however, done for
them all by the Cataloguing Department, and classifying for
all except the Law and Dentistry branch libraries, which do
their own. This means that the ratio of reader services
staff to students is falsely low.

It is beyond question that no university library is at
present fulfilling its reader services functions in the
consistently positive way envisaged for the C.A.E. librar-
ies. The ratio of reader services staff to students in
Macquarie university library was looked at very carefully,
because of this library's commitment to, and activity in,
the reader services area. It is known that the reader
services work at Macquarie receives substantial help from
technical services staff, so that the ratio of 1 : 92 is
falsely high. Despite this, it was felt that a ratio of
1 : 90 might be regarded as a starting-point for adequacy
of reader services staffing in C.A.E. libraries.

<center>(b)   TECHNICAL SERVICES STAFF</center>

The ratio of technical services staff to volumes added
was calculated for all Australian university libraries,
except Papua and New Guinea, for the 3-year period 1966-
1968 (see table 5, p.94-5). In the technical services area
we felt that to examine one year only would indeed be mis-
leading, because of variations in intake of publications,
caused by fluctuation in available funds, binding activity
and gifts, as well as in the distribution of staff for
statistical records (e.g. in the libraries at the Univer-
sity of Adelaide and of Sydney, some staff originally
classified as "administration" and "other" have been re-
distributed into "technical services" and "reader services").

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TABLE 5

AUSTRALIAN UNIVERSITY LIBRARIES 1966-1968

Year	No. of Vols. Added	Technical Services Staff		Ratio of Technical Services Staff to Vols. Added
ANU				
1966	34,645	55		1 : 630
1967	38,354	56		1 : 685
1968	42,128	67		1 : 629
			Average:	1 : 648
NMU				
1966	27,400	25		1 : 1,096
1967	35,243	17		1 : 2,073
1968	28,431	31		1 : 917
			Average:	1 : 1,362
NNU				
1966	11,161	8		1 : 1,395
1967	11,830	9		1 : 1,314
1968	10,767	11		1 : 979
			Average:	1 : 1,229
NU				
1966	63,133	68		1 : 928
1967	88,525	62		1 : 1,428
1968	90,086	72		1 : 1,251
			Average:	1 : 1,202
NUN				
1966	29,921	66		1 : 453
1967	44,006	60½		1 : 730
1968	34,614	53		1 : 653
			Average:	1 : 612
NUNE				
1966	18,880	19		1 : 993
1967	20,992	19		1 : 1,105
1968	17,990	20		1 : 900
			Average:	1 : 999
QTU				
1966	3,777	3½		1 : 1,079
1967	3,185	8½		1 : 375
1968	4,257	11½		1 : 370
			Average:	1 : 608
QU				
1966	41,291	49½		1 : 834
1967	50,520	52½		1 : 962
1968	47,680	53½		1 : 891
			Average:	1 : 896
SFU				
1966	19,242	18		1 : 1,069
1967	21,537	23		1 : 936
1968	19,945	25		1 : 798
			Average:	1 : 934
SU				
1966	32,444	41		1 : 791
1967	31,660	46		1 : 688
1968	30,143	55½		1 : 543
			Average:	1 : 674

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Year	No. of Vols. Added	Technical Services Staff		Ratio of Technical Services Staff to Vols. Added
TU				
1966	7,800	13½		1 : 578
1967	10,298	16		1 : 644
1968	13,603	17		1 : 800
			Average:	1 : 674
VLU				
1966	40,931	25	·	1 : 1,637
1967	25,553	31		1 : 824
1968	16,545	40½		1 : 409
			Average:	1 : 957
VMoU				
1966	34,984	54		1 : 648
1967	45,508	58		1 : 785
1968	31,040	58		1 : 535
			Average:	1 : 656
VU				
1966	43,616	36½		1 : 1,195
1967	31,778	37		1 : 859
1968	27,534	34½		1 : 798
			Average:	1 : 951
WU				
1966	22,473	23		1 : 977
1967	11,394	19		1 : 600
1968	13,862	22		1 : 630
			Average:	1 : 736

SOURCE OF STATISTICS: Library Association of Australia — University and College Libraries Section. News Sheet. August, 1967; September, 1968; August, 1969.

National Average 1966-68:   1 :   876

Order of Priority (Average 1966-68)

1.	NMU	1 : 1,362		9.	WU	1 : 736
2.	NNU	1 : 1,229		10.	SU	1 : 674
3.	NU	1 : 1,202		11.	TU	1 : 674
4.	NUNE	1 : 999		12.	VMoU	1 : 656
5.	VLU	1 : 957		13.	ANU	1 : 648
6.	VU	1 : 951		14.	NUN	1 : 612
7.	SFU	1 : 934		15.	QTU	1 : 608
8.	QU	1 : 896				

Here the national average is close to the median, though
not almost identical as in the case of the ratio of reader
services staff to students.

There are, again, concealed factors in the figures used,
principally the unknown amount of time lost from technical
services work through assistance in reader services func-
tions. Macquarie University library shows the highest per-
formance in technical services, no doubt because of its
strict adherence to Library of Congress cataloguing and
classification. However, it is known that its technical
services staff participate substantially in reader services
functions, a situation which makes its ratio of technical
services staff to volumes added falsely low. Indeed, its
ratio of 1 : 917 for 1968, considerably lower than for 1966
and 1967, is undoubtedly to be attributed to this. Techni-
cal services in Fisher Library, on the other hand, receive
assistance from reader services staff, as pointed out
previously, a situation which makes its ratio falsely high.
Because of loss of time to reader services, it is a fair
assumption that the national average over three years is
too low and would be higher if technical services staff
were engaged solely on their own work, instead of being
drawn off for assistance to reader services. This is not
to suggest, however, that it is undesirable for technical
services staff to participate in reader services functions.
On the contrary, there are many arguments in favour of all
professional library staff having contact with, and so
becoming more aware and understanding of, the needs and
difficulties of readers. University libraries that have
established catalogue enquiry services, staffed from their
cataloguing departments, recognise the value of this. Some
university libraries use all professional staff with the
necessary subject competence, whether attached to technical
services or reader services, to assist in instructing groups
of students in library use and sources of information rele-
vant to their subject fields of interest. This has decided
value for the technical services staff involved, but must,
nevertheless, reduce their output in technical services, a
fact that needs to be taken into account in overall staff-
ing. Allowing for loss of time to reader services work and
assuming, as appears realistic, an increasingly sophistica-
ted output per member of staff, it seems reasonable to
suggest a ratio of technical services staff to volumes add-
ed per annum of 1 : 1,000 for C.A.E. libraries, once some
stability has been reached in annual rate of intake. In
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the early stages of establishment, a larger number of technical services staff, resulting in a lower initial ratio, may be necessary.

The ratio of 1 : 1,000 was accepted as a guideline only after much thought. The expectation of an increasingly sophisticated output per member of staff is reinforced in the cataloguing area by the "Standards for Junior College Libraries", which provides four formulas for technical services staff, application to be dependent on "classification schemes and the use of commercial, centralized or outside services"212:

1. For the library which uses the Dewey Decimal Classification and does its own processing and cataloguing:
   One technical service position per 1,000 volumes catalogued annually.
2. For the library which uses the Library of Congress Classification System and does its own processing and cataloguing:
   One technical service position per 1,500 volumes catalogued annually.
3. For the library which uses the service of an outside facility using the Dewey Decimal Classification System:
   One technical service position per 1,500 volumes catalogued annually.
4. For the library which uses the services of an outside facility and uses the Library of Congress Classification System:
   One technical service position per 2,250 volumes catalogued annually.

It will be appreciated that the approaches suggested in the "Standards for Junior College Libraries" offer greater opportunities of savings in the American than the Australian context. Nevertheless, the point made about increased output through greater sophistication in methods is valid.

We preferred not to accept a guideline for technical services staffing based solely on cataloguing output, since this ignores bound volumes of serials added to stock, a factor giving some indication of serial work load.

APPLICATION OF STAFFING FORMULAS

It was decided to apply the 1 : 90 ratio of reader services staff to students and the 1 : 1,000 ratio of technical services staff to volumes added per annum in

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C.A.E. libraries, test its application against existing
staffing, and give some estimates of future staffing needs
(see tables 6-10, p.98-108). Unfortunately, the necessary
figures were not readily available and had to be gathered
from a variety of sources. Some statistics were simply
unavailable, and the strict accuracy of none can be guaran-
teed. In some cases, librarians have not formally divided
their staff into technical service and reader service cate-
gories and cannot assess the allocation of staff to the two
functions. Nevertheless, we feel justified in using the
statistics given in Tables 6 to 10, and do not think any
lack of strict accuracy affects the type of trend we have
observed or the general conclusions we have drawn. However,
we do recommend that C.A.E. librarians study the University
library statistics published annually in the News Sheet of
the University and College Libraries Section of the Library
Association of Australia and endeavour to compile compatible
statistics, where relevant. Obviously, comparisons with
university libraries will be made, and it is in the inter-
ests of all libraries that this should be so.

TABLE 6

READER SERVICES STAFF REQUIREMENTS IN C.A.E. LIBRARIES, 1969

Name of C.A.E.	Tertiary Student Enrolments	Sub-Tertiary Student Enrolments	Present Reader Services Staff	No. of Staff Required to Provide 1 : 90 Ratio of Reader Services Staff to Tertiary Students Only	Present Total Library Staff
Ballarat Institute of Advanced Education	463A	10A (See also note under **)	1B	5	5A
Bendigo Institute of TechnologyA	532	1,312	3 (2 + 1 Branch Librarian)	6	7
Canberra College of Advanced EducationA	350	0	2	4	10
Caulfield Institute of TechnologyA	1,871	2,076	3	21	6½

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Name of C.A.E.	Tertiary Student Enrolments	Sub-Tertiary Student Enrolments	Present Reader Services Staff	No. of Staff Required to Provide 1 : 90 Ratio of Reader Services Staff to Tertiary Students Only	Present Total Library Staff
Footscray Institute of Technology[A]	1,548	5,100	approx. 5 (3 + 2 Branch Library)[C]	17	13
Gippsland Institute of Advanced Education[A]	256	1,920	Total Library Staff of 2	3	2
Gordon Institute of Technology[A]	914	2,352	Total Library Staff of 13	10	13
New South Wales Institute of Technology* (Broadway site only)	2,525	*	*	28	*
Preston Institute of Technology	1,085[A]	0[A] (See also note under **)	1[B]	12	6[A]
Queensland Agricultural College, Gatton	259[A] approx.	292[A] approx.	1[B] (Borrowing)	3	3[A]
Queensland Institute of Technology	2.648[A]	1,961[A]	3[B]	29	7–3/5[B]
Queensland Institute of Technology. Capricornia	167[A]	110[A]	2½ (1½ + 1 Deptl. Librarian)[A, B]	2	7 + 1 part-time (July, 1969)[A]
Royal Melbourne Institute of Technology	8.784[D]	Not Known**	8[B]	98	17[B]
South Australian Institute of Technology[A]	3.018·	2.913	3	34	12 + 2 part-time

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READER SERVICES STAFF REQUIREMENTS IN C.A.E. LIBRARIES, 1969

Swinburne College of Technology	3,369[A]	3,073[A]	3[B]	37	11[A]
Western Australian Institute of Technology[A]	4,170	0	Total Library Staff of 33	46	33

* The library needs of the staff and students of the New South Wales Institute of Technology located on the Broadway site are serviced by Sydney Technical College, which has a reader services staff of 21. This staff is responsible for service to 37,776 students (our own calculation of full-time equivalence) of Sydney Technical College. The sub-tertiary student body on the site will not diminish.

SOURCE OF STATISTICS:

A. "Questionnaire on Libraries in Colleges of Advanced Education" sent out by Mr P. T. McNally, Librarian. Queensland Institute of Technology, Darling Downs. Replies received May/June, 1969.

B. Statistics distributed at meeting of C.A.E. librarians, Adelaide, August, 1969. In some cases 1968 figures are given for library staff.

C. Footscray Institute of Technology — Libraries Department. Annual report for 1968.

D. Supplied by Victoria Institute of Colleges — reference date 30/6/69.

** Statistics supplied by Victoria Institute of Colleges (reference date 30/6/69) gave the following figures for "approx. number of other students using the library":
  Ballarat Institute of Advanced Education   450
  Preston Institute of Technology   550
  Royal Melbourne Institute of Technology   4,400

GENERAL NOTE ON VICTORIAN COLLEGES:

For some of the colleges affiliated with the Victoria Institute of Colleges (V.I.C.), discrepancies exist between the figures taken from the McNally Questionnaire and the official figures (reference date 30/6/69) supplied in November 1969 by the V.I.C. In most cases where discrepancies occur, the V.I.C. figures for tertiary student enrolments are lower than those supplied by librarians in response to the McNally Questionnaire. This is perhaps to be attributed to the fact that the V.I.C. figures are for post first year tertiary enrolments. We used the McNally Questionnaire figures, so as to have the same statistical source for all colleges. We consider that the trends we have observed and the general conclusions we have drawn are not invalidated by these statistical discrepancies.

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Of the 15 College libraries examined in Table 6, only
one, Queensland Institute of Technology, Capricornia, has an
adequate reader services staff for tertiary needs. In the
present situation, it is, of course, necessarily inadequate,
because it has to serve sub-tertiary needs as well. In 8
cases, the reader services staff required for tertiary needs
exclusively is not only greater than the existing reader
services staff but also than the present entire library
staff of the College. In 6 of these 8 cases, sub-tertiary
needs have to be met as well. The situation on the Broadway
site in New South Wales is clearly the worst of all. To
serve the mix of 40,301 students (our own calculation of
full-time equivalence) of the New South Wales Institute of
Technology (2,525) and of Sydney Technical College (37,776),
a reader services staff of 448 would be required. The
present staff of 21 is inadequate even for current tertiary
needs only. The resultant depression of service must strain
even the most vivid imagination!

Though not the direct concern of this report, it cannot
be too strongly stressed that the needs of sub-tertiary
students must not be neglected or pushed to one side in the
interests of providing quickly for tertiary students. There
is the strong danger that this may happen (indeed, it may
well have happened already) in libraries that are catering
for both tertiary and sub-tertiary needs. Educationally,
it is indefensible; and in the national interest, it should
be strongly resisted, since people with different types and
levels of training are all needed in the work of the commu-
nity, not just those who have received tertiary education
in C.A.E.'s and universities. The study in employment atti-
tudes reported by Mr L.R. Parker records that employers in
"several organizations commented on how the increasing use
of technicians to underpin the work of their technological
graduates acted as an effective multiplier of the latter's
output"213.

TABLE 7

READER SERVICES STAFF REQUIREMENTS IN C.A.E. LIBRARIES, 1972

Name of C.A.E.	Predicted Tertiary Student Enrolments [E]	Sub-Tertiary Student Enrolments	No. of Staff Required to Provide 1 : 90 Ratio of Reader Services Staff to Tertiary Students only
Ballarat Institute of Advanced Education	765	Not known	8½
Bendigo Institute of Technology	935	Not known	10
Canberra College of Advanced Education	2,262	0	25
Caulfield Institute of Technology	· 3,210	Not known	36
Footscray Institute of Technology	2,230	Not known	25
Gippsland Institute of Advanced Education	535	Not known	6
Gordon Institute of Technology	1,990	Not known	22
New South Wales Institute of Technology			
(Broadway site only)	4,900 approx.	*	54
Preston Institute of Technology	2,025	0	22½
Queensland Agricultural College, Gatton	289	Not known	3
Queensland Institute of Technology	3,275	Not known	36
Queensland Institute of Technology, Capricornia	810	Not known	9
Royal Melbourne Institute of Technology	14,895	Not known	165
South Australian Institute of Technology	5,445	Not known	60½
Swinburne College of Technology	6,150	Not known	68
Western Australian Institute of Technology	8,428	0	94

* See footnote to Table 6.

SOURCE OF STATISTICS:

E. AUSTRALIA — Commonwealth Advisory Committee on Advanced Education. Second report. (Chairman: Sir I. W. Wark.) Canberra, Govt. Pr. 1969, 108-9.

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TABLE 8

TECHNICAL SERVICES STAFF REQUIREMENTS IN C.A.E. LIBRARIES, 1969

Name of C.A.E.	No. of Vols. Added 1968*	Vols. Expected to be Added 1969 (approx.)	Average of Vols. Added 1968-9 (approx.)	Present Technical Services Staff	No. of Staff Required to Provide 1 : 1,000 Ratio of Technical Services Staff to Vols. Added 1968-9 (average)
Ballarat Institute of Advanced Education	1,668B	3,000A	2,334	1½B	2½
Bendigo Institute of TechnologyA	2,000	1,500	1,750	2	2
Canberra College of Advanced EducationA	5,000 approx.	15,000	10,000	7	10
Caulfield Institute of Technology	2,028A	1,800A	1,914	3–3/10B	2
Footscray Institute of Technology	4,500A	6,000A	5,250	5C approx.	5
Gippsland Institute of Advanced Education	Not known	Not known	990** approx.	Total Library Staff of 2A	1
Gordon Institute of TechnologyA	3,829	6,500	5,164	Total Library Staff of 13	5
Preston Institute of Technology	1,542A	950A	2,246	2B	2
Queensland Agricultural College, Gatton	930B	1,200A	1,065	2B	1
Oueensland Institute of Technology	3,490B	3,500A	3,495	3–3/5B	4
Oueensland Institute of Technology, Capricornia	3,000B approx.	1,750A	2,375	3 + 1 part-timeA	2½
Royal Melbourne Institute of Technology	4,440B	Not known	6,280** approx.	6B	6½
South Australian Institute of TechnologyA	5,300	10,000	7,650	6	8
Swinburne College of Technology	3,350B	3,500A	3,425	6B	3½
Western Australian Institute of Technology	Not known	Not known	Not known	Total Library Staff of 33A	—

SOURCE OF STATISTICS:
As for Table 6.

* The McNally Questionnaire (Source A) asked for "titles" added. However, some libraries actually stated that they were supplying statistics for "volumes", not "titles". Source B asked for "monographs". It seems a reasonable assumption that most libraries gave numbers of "volumes", not "titles", in response to the McNally Questionnaire. Whether "volumes" covered only monographs (books) and excluded bound volumes of serials cannot be determined.
** Number of volumes acquired during year ending 30/6/69 (supplied by Victoria Institute of Colleges).

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From Table 8 it can be seen that, on the whole, technical
services staff provision in C.A.E. libraries is much nearer
adequacy than that for reader services. This is not to say
that it is, in fact, adequate, even in the cases where the
number of staff required to provide the 1 : 1,000 ratio of
technical services staff to volumes added per annum is
smaller than the present technical services staff. Uncer-
tainty about the coverage of the figures given in "volumes
added" (it is not known in most cases whether they are
"volumes" or "titles" added, include or exclude bound
volumes of serials and cover tertiary acquisitions only),
and lack of knowledge of what proportion of technical ser-
vices staff is engaged on sub-tertiary work, in cases where
the figure for "volumes added" excludes sub-tertiary acquis-
itions, make it impossible to assess the adequacy of staff-
ing to anything other than a crude degree of accuracy. It
must, of course, be realised that, as in the case of uni-
versity libraries, technical services staff are drawn off to
assist in reader services functions. The report of the
Librarian of the Footscray Institute of Technology, Victoria,
that in the first half of 1968 "both cataloguers spent con-
siderable time relieving at the reference and circulation
desk"[214] would not reflect an unusual situation. This is
clearly not a case for an increase in technical services
staff as such, but further strengthens our assertion of the
need for more adequate staffing provision for reader
services.

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Despite the warnings sounded about the uncertainty of the figures used for calculating technical services staffing, the conclusion is still valid that staffing provision in this area is much nearer adequacy than in reader services in C.A.E. libraries. This is not surprising, since libraries must take advantage of available funds to build collections, without which no service can be given. However, it is critically important that there should be recognition that this is what has happened and that service needs have as yet received virtually no consideration. The justification for building collections is that they are to be used as a vital part of the educational programme. This will not happen by chance, and the imbalance in staffing may well be perpetuated, unless there is clear recognition that it does exist. Money "must" be spent, but reader services can be withheld or neglected indefinitely, however educationally indefensible this may be. Staff and especially students who have had no previous experience of adequate reader services will find it difficult to clamour for what should be provided as a normal part of the educational programme. The part-time student particularly often simply "goes without", because the library is not open at weekends, because there are insufficient experienced professional staff on duty at night to help him in the half hour that he has managed to make available, because the room housing current issues of serials closes early and he cannot browse in it, or for a variety of other reasons. Everyone acknowledges that this is regrettable, but, in our present mode of evaluation, not as unthinkable as failing to spend available funds. We "must" spend funds. Equally, let our thinking recognise that we "must" give service.

TABLE 9

TECHNICAL SERVICES STAFF REQUIREMENTS IN C.A.E. LIBRARIES, 1972

Name of C.A.E.	No. of Vols. Held 1968	Estimated 1972 Bookstock[F]	Average Intake of Vols. per annum Required to achieve 1972 Target (approx.)	No. of Staff Required to Provide 1 : 1,000 Ratio of Technical Services Staff to Vols. Added per annum
Ballarat Institute of Advanced Education	13,078[B]	34,000	5,225	5
Bendigo Institute of Technology	25,250**	36,000	2,690	3
Canberra College of Advanced Education	4,265[B]	Not known	—	—
Caulfield Institute of Technology	12,971[B]	36,000	5,750	6
Footscray Institute of Technology	15,540[C]	42,000	6,615	7
Gippsland Institute of Advanced Education	5,722[B]	7,200	375	½
Gordon Institute of Technology	20,000[A] approx.	48,100	7,025	7
Preston Institute of Technology	8,963[B]	17,000	2,000	2
Queensland Agricultural College, Gatton	12,715[B]	19,064	1,590	1½
Queensland Institute of Technology	11,063[B]	30,000	4,725	5
Queensland Institute of Technology, Capricornia	7,000[B] approx.	30,000	5,750	6
Royal Melbourne Institute of Technology	38,600[B]	71,200	8,150	8
South Australian Institute of Technology	25,000[B] approx.	52,800	6,950	7
Swinburne College of Technology	30,000[B]	45,020	3,750	4
Western Australian Institute of Technology	30,000[A] approx.	104,750	18,690	19

SOURCE OF STATISTICS:
- A. As for Table 6.
- B. As for Table 6.
- C. As for Table 6.
- F. Statistics from Commonwealth Department of Education and Science supplied to Library Sub-Committee of the Commonwealth Advisory Committee on Advanced Education (Document No. 70, 3 October, 1969), with the warning that the estimated figures are overstated. These were derived from the original State submissions, but there were considerable reductions in the final grants for the 1970-72 triennium.
**Supplied by Victoria Institute of Colleges.

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In its chapter on libraries, as we have already mention-
ed, the second Wark report provides tentative standards,
"to be achieved in a relatively short space of time"[215], for
bookstock, staff and seating capacity in C.A.E. libraries.
We are quite unable to accept these standards, even on the
basis of accomplishment within the 1970-72 triennium. We
have already expressed our strong objection to the scaling
down of the part-time student to one-third of his full-
time counterpart in calculations of his library collection
and service needs. The basis for, and validity of, our
objections is acknowledged later in the library chapter in
a special section on "The Library and the Part-time Stu-
dent"[216], yet the E.F.T. rating of one-third is still appl-
ied to the part-time student in the standards given. We
have also stated our conviction that every C.A.E. library
needs a basic collection of certainly no less than 50,750
volumes, irrespective of any other factors such as student
enrolments. Volume weightings are then to be applied for
numbers of academic staff, students, fields of study, etc.
We cannot accept a standard for bookstock that is based
almost exclusively on numbers of students enrolled. Never-
theless, we decided to apply the Wark Report bookstock
standards to C.A.E. libraries, assuming that the standards
should be met by the end of 1972, and then calculated the
technical services staff (using our ratio of 1 : 1,000)
needed to meet this 1972 bookstock target. We next added
on our calculated figures for 1972 reader services staff
requirements (tertiary needs only), based on our ratio of
1 : 90, thus obtaining a total of technical services and
reader services staff required in individual C.A.E. librar-
ies in 1972; and compared our totals with the Wark Report
standards for staffing (see table 10,p.108). These include
administrative staff as well, but specifically exclude
staff required for binding, audio-visual and publishing
activities, evening opening and branch libraries. Our
figures also exclude staff for binding, audio-visual ser-
vices and publishing, but include those required for even-
ing opening and branch libraries, where applicable. We are
aware that our suggested staffing figures are produced from
a "mix" of our own guidelines and those of the Wark Report,
but feel, nevertheless, that they are more realistic than
those suggested in the Wark Report and give a more accurate
picture of the order of staffing provision that is needed in
C.A.E. libraries. Again, it must be stressed that staffing
is considered for tertiary needs only, and that in the prac-
tical situation in many, if not most, C.A.E. libraries pro-
vision will still have to be made, in varying degrees, for
sub-tertiary needs.

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TABLE 10

Name of C.A.E.	Wark Report Category No.F	Average Intake of Vols. per annum Required to achieve Wark Report Standards for Bookstock by 1972	No. of Technical Services Staff Required to Achieve Wark Report Standards for Bookstock by 1972 (on basis of 1 : 1,000 ratio)	Total of Reader Services Staff (on basis of 1 : 90 ratio) & Technical Services Staff Required 1972 (Tertiary Needs Only)	Total Library Staff (Wark Report Standards) E
Ballarat Institute of Advanced Education	2	9,225	9	17½	8-16
Bendigo Institute of Technology	2	8,500	8½	18½	8-16
Canberra College of Advanced Education	3	18,925	19	44	16-25
Caulfield Institute of Technology	4	21,750	22	58	25-40
Footscray Institute of Technology	3	15,625	16	41	16-25
Gippsland Institute of Advanced Education	1	4,825	5	11	4-8
Gordon Institute of Technology	3	15,000	15	37	16-25
New South Wales Institute of Technology	4	23,175	23	77*	25-40
Preston Institute of Technology	3	17,750	18	40½	16-25
Queensland Agricultural College, Gatton	1	3,075	3	6	4-8
Queensland Institute of Technology	3	17,225	17	53	16-25
Queensland Institute of Technology, Capricornia	2	10,750	11	20	8-16
Royal Melbourne Institute of Technology	5	27,850	28	193	40-50
South Australian Institute of Technology	4	18,750	19	79½	25-40
Swinburne College of Technology	5	30,000	30	98	40-50
Western Australian Institute of Technology	5	30,000	30	124	40-50

* Reader Services Staff for Broadway site only. Technical Services Staff for Broadway and suburban branches.

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In the case of only one College in Table 10, namely Queensland Agricultural College, Gatton, does our suggested staffing for 1972, for tertiary needs only, fall within the range of the Wark Report standards. It must, however, be remembered that this College may be serving sub-tertiary as well as tertiary needs in 1972, and that it falls into Category 1, which sets a collection standard of only 25,000 volumes. We believe that 50,000 volumes is the minimum viable size for any C.A.E. library, even if it is serving an institution concerned primarily with one discipline only. In all cases other than the Queensland Agricultural College, our suggested staffing is beyond the range of the Wark Report recommendations, and, in the case of the larger C.A.E.'s, very considerably so. Yet we believe that our suggestions are essentially moderate, and in all probability much too modest. A close examination of the recommended staffing for the libraries in the new English polytechnics confirms this view. Such an examination is both interesting and instructive, not least because the assessment of staffing appears realistic if the library is to be equipped to "play a central role in the educational programme as a major teaching instrument"[217].

LIBRARIES IN THE NEW POLYTECHNICS

As mentioned previously, the suggested staffing is for the library in a polytechnic with over 2,000 full-time undergraduate students and offering a wide range of disciplines, including the humanities. A basic stock of 150,000 volumes and 3,000 periodical titles is assumed, to ensure the provision of which capital grants may be required. The annual budget (based on 1967 prices) is £stg.60,000 for books and periodicals and £stg.10,000 for other library

recording material - tapes, records, films, etc. In our
examination of the proposed library staffing for such a
polytechnic, we excluded provision for other library recor-
ding material, that is, slide collection and visual and
audio aids (total of 7 staff); for bindery (2); printing
and plate-making (2), photographic (2), bookshop (2) and
trainees (4). This reduced the total staff of 97 to 78.
As we wished to study reader services and technical services
staffing only, we excluded a further 7 for management, leav-
ing a total of 71 for reader services plus technical serv-
ices staff. Our dissection of the suggested staffing is as
follows:

Reader Services Staff

	Professional Library Staff	Non-professional Library Staff
Reading Areas, e.g.:		
Humanities and social sciences	2	1
Natural Sciences	3	1
Technology	3	1
Undergraduate and public	2	1
Serials	1	0
Information and Liaison	4	2
Tutorial	3	0
Central library utilization:		
Internal loans and control desk	1	5
External loans	1	2
Stack and binding	0	2
Cloakroom	0	2
Reprographic services:		
Copying/collating etc.	0	2
Publication (editorial)	1	1
Research and development	1	1
	22	21

Total: 43

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<u>Technical Services Staff</u>

	<u>Professional Library Staff</u>	<u>Non-professional Library Staff</u>
Serials	1	2
<u>Cataloguing and information processing</u>	6	6
<u>Acquisition:</u>		
Books (if processing by bookseller)	1	4
<u>Central library utilization:</u>		
Stack and binding	1	2
Receipt and dispatch	0	2
<u>Research and development</u>	1	2
	10	18

Total: <u>28</u>

TOTAL OF READER SERVICES AND TECHNICAL SERVICES STAFF: <u>71</u>

It is interesting to note that the reader services staffing proposed gives a ratio for reader services staff to students of approximately 1 : 47. Had we applied our reader services formula of 1 : 90 and our technical services formula of 1 : 1,000, we would have estimated a staff of approximately 22 for reader services and of perhaps 15 for technical services, that is, a total of 37, compared with 71. The Wark Report standards, if applied, would call for a total staff at the lower end of the 25 to 40 range. It must be remembered that the proposed polytechnic library staffing includes under "information and liaison" officers to provide an information service to industry and commerce (liaison with outside organizations, minimum visits 120p.a.), an activity which we have deliberately omitted from our calculations. However, "information and liaison" accounts for a total of only 4 professional and 2 non-professional staff and includes other essential duties, such as liaison with polytechnic departments, Boards of Studies, enquiries.

In considering the adequacy of the staffing proposed for the polytechnic library, it is essential to be clear about its role. It is not only to "play a central role in the educational programme as a major teaching instrument"[218],by:

    i)   Stimulating "intellectual curiosity and independent learning"[219];

   ii)   Counteracting "the specialization inculcated by

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teaching courses"[220]. In addition, it "has a posi-
tive role to play as an information communication
centre"[221].

Some of the implications of these concepts are[222]:

a. Use of the library must be associated jointly with
    lectures and practical work as principal media for
    teaching as well as learning. Existing artificial
    divisions between the library and teaching locations
    must be broken down.

b. All students should be taught to recognize the sign-
    ificance of libraries and information services, and
    trained not only to use them but to familiarize them-
    selves with modern methods of information handling,
    processing and technical communication.

e. The professional library staff should be fully and
    effectively drawn into College committees at all
    levels, and, in particular, on the various Boards of
    Studies.

f. The library, its services and resources must be an
    integral part of the Polytechnic and within the Coll-
    ege environment.

If library provision is to reflect the principles out-
lined above, factors such as the following[223] must be taken
into account:

1. The library must represent knowledge as a whole
    although the majority of items added will be within
    the academic disciplines taught in the Polytechnic.

2. Applied research and, in particular, project work in
    the final year of sandwich courses call for a sub-
    stantial provision of retrospective journal holdings
    in the library.

3. To teach students the effective use of libraries and
    information services; to search for publications not
    in stock; to fulfil the role of the library as an
    information communication centre requires an exten-
    sive collection of bibliographies and abstract
    publications.

4. The basic stock required to meet academic needs other
    than research within a discipline is the same for 30
    students as for 300 students. It is the duplication
    of requirements that varies.

This is a library designed to carry out the expanded
reader service functions which we are hoping will be within
the compass of the C.A.E. libraries. Two points struck us
forcibly in our study of the proposed library staffing:
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1) that the staffing suggested does genuinely reflect
   the stated role of the library;
2) that our own tentative formula for reader services
   staffing is, as we suspected, far too low.

It does appear to us that the provision of a technical ser-
vices staff of 28 is over-generous. At first sight it
appeared grossly over-generous, particularly in the catalog-
uing area. However, a more careful examination made us
realise that staff in this area are engaged on far more than
conventional cataloguing. Their duties, for instance, in-
clude indexing and abstracting. Though we have no precise
details of the content of their additional work, it is
obvious that it would contribute to an enriched service to
readers. The proposed library is to be geared to service
of a high order, and the activities of all the staff,
whether actually in the reader services area or not, must
support it. While a staff of 5 (2 professional and 3 non-
professional) engaged full-time in research and development
may seem to us luxurious, it is surely no more than is
needed to ensure the proper development of library services.
The realism of the approach to staffing needs is, we consid-
er, very commendable and also very refreshing, because of
its rarity.

RATIO OF PROFESSIONAL TO NON-PROFESSIONAL STAFF

In the "Standards for Junior College Libraries", the
following ratios of professional to non-professional staff
are suggested:
1) Reader Services - 4 professional to 6 non-
    professional[224].
2) Technical Services - 1 professional to 2 non-
    professional[225].

To carry out the expanded programme of reader services,
with its increased professional content, we felt that the
ratio of professional to non-professional staff would have
to be higher than 4 to 6 in this area. The ratio of 1 to
2 in the technical services area appeared much more approp-
riate. We were interested to find in the suggested poly-
technic library staffing a ratio of approximately 1 to 1 in
reader services and approximately 1 to 2 in technical ser-
vices. This confirmed our thinking that a library that is
to perform the breadth and depth of services envisaged in
the polytechnics and, as we hope, in the C.A.E.'s must have
a higher ratio of professional to non-professional staff
than 4 to 6 in the reader services area. In the recommended

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polytechnic library staffing there is, as would be expected, a heavy concentration of professional staff in the reading areas, information and liaison and tutorial, where the ratio of professional to non-professional staff is 3 to 1 (actual 18 professional staff to 6 non-professional). In circulation, on the other hand, the ratio of professional to non-professional staff is 2 to 9 (actual 2 professional to 9 non-professional staff for internal loans and control desk and external loans). A workable starting-point appears to be the provision of 1 professional to 2 non-professional members of staff in technical services, and of 1 professional to 1 non-professional in reader services, with the proviso that in reader services the highest concentration of professional staff will be in what is described in the polytechnic library as the reading areas, information and liaison and tutorial. We are strongly in agreement with the recommendation in the second Wark Report that "There should be a greater concentration of professional librarians in reader services than has traditionally been the case in university and college libraries"[226]. The definition of "reader services" here excludes "loan recording" and is applied to "direct services to readers, such as reference work, tutorials, and promotional activities"[227]. It is also suggested that "Some other less direct specialist activities, such as book selection and bibliographical work, might also form part of the reader services division"[228]. We agree with this suggestion too, though do not think that book selection should necessarily be confined to reader services staff. It should rather be a shared activity of the librarian and his senior library staff.

Inevitably, in the practical situation, with unavoidably restricted funds for library staffing, there will be the temptation to sacrifice quality to quantity of staff. It is perhaps unfair to use the word "temptation"; "necessity" would be more realistic. There is no avoidance of the inevitable. The grave danger in the situation is the continued neglect of certain aspects of service and the permanent depression of standards of service. If, for instance, weekend opening of some C.A.E. libraries is achieved only by rostering for duty insufficiently experienced professional staff or, worse still, not fully professional staff, and if this situation continues for some time, there is an administrative tendency for this inadequate staffing gradually to come to be regarded as adequate, simply because the situation has existed for a long time. Thus the true standard of
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service is falsified, and it is hard to rectify the inadequacy later. If instruction of students in library use and specific sources of information cannot be accomplished, through a lack in quality and/or quantity of staff, there is a similar tendency to regard such an activity as a luxury that cannot be afforded, and so this very necessary aspect of service continues to be neglected. We must strive to ensure that standards set for C.A.E. libraries are genuine ones, even though not immediately attainable, not just expedients that have been forced on them through shortage of funds.

The greatest threat to the establishment and preservation of proper standards exists in the reader services area. It is vital that there be sufficient experienced professional staff on duty at all times, that is, at night and at weekends as well as during the day, to give students, and especially part-time students, the help they need in using the library. For part-time students particularly, it must be given quickly as well as competently. Because it is not possible to give students individually all the instruction in library use and sources of information that they need, not only for their courses, but as basic equipment for the rest of their working lives, this type of instruction must be accomplished on a group basis. This requires library staff with a high degree of professional knowledge and expertise, subject competence and an aptitude for, if not actual training in, teaching. There must be an increasing provision of professional staff with subject competence, if not specialisation, in particular disciplines or groups of disciplines. It must be the special task of such members of staff to maintain the closest possible liaison with the academic staff in the subject areas for which they are responsible, so that the central library can provide the service tailored to their needs that they would receive in a branch library covering only their particular discipline or disciplines. There is a great need for the central library to "outsell" the personal service that can be given in the smaller branch library. Because there is, as yet, little or no provision of subject "specialists" in C.A.E. libraries, it must not be assumed that they are not needed. The recommendations for "Libraries in the New Polytechnics" strongly stress the need for professional librarians with subject knowledge, who maintain close contact with academic staff. "Responsibility for reading areas should be in the hands of professional librarians with subject knowledge or

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experience in the subjects involved. These librarians must
be in close contact with the academic staff if selection of
stock is to meet the needs of the Polytechnic"[229].

RESPONSIBILITIES AND STATUS OF LIBRARY STAFF
WITHIN THE COLLEGES

In this context, examination of the recommended staffing
for libraries in the new polytechnics is both interesting
and salutary.

> "For professional staff two divisions have been used -
> A and B. The former (A) is intended to cover senior
> personnel possessing appropriate qualification and
> experience who have management or academic respon-
> sibilities. The range of salaries appropriate for
> these posts would vary from Head of Department,
> Principal Lecturer to Senior Lecturer or equivalent
> scales. The latter (B) posts require professional
> expertise but not invariably experience; the approp-
> riate scales being on the Lecturer scales or their
> equivalent"[230].

Of the total polytechnic library staff of 97, 11 fall
into category A and 27 into category B.

In case it should be thought that this scale of academic
equation "all the way" represents sheer flights of fantasy,
it is well to read the preamble to the recommended library
standards. Beneath the sub-heading "A guide to planning
requirements", there appears the following paragraph[231]:

> "This Guide was approved by the Council [for National
> Academic Awards] in July 1968. The standard of pro-
> vision recommended is very considerably higher than
> that obtaining at present in some of the constituent
> colleges of the new polytechnics. The Council realize
> that for them the Guide may represent a long-term tar-
> get. They hope that for others with better-developed
> libraries the recommended standards will be achieved
> in the near future".

If staff of the right calibre are to be attracted to
C.A.E. libraries, particularly for the highly professional
work in reader services, it is essential that they be offer-
ed appropriate status and salaries. They must be accepted
and respected by the academic staff of the colleges and
enjoy comparable privileges, such as study leave. However,
at this early stage of C.A.E. library development, we are
wary of recommending a simple equation of professional
library staff to academic staff for rates of salary and
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privileges. We are of the strong opinion that the matter
needs much careful thought and consideration within the
C.A.E.'s themselves. It must be firmly established within
the library that senior status and salary are not to be
accorded only for administrative responsibility, that is,
for being in charge of staff. They should be awarded also
for the intellectual contribution made to the work of the
library. It should thus be possible, as one university
librarian[232] has suggested, for two people to receive the
same salary in the same section: one for being in charge
of the administration of the section, and the other for
contributing specialised subject knowledge to the work of
that section. Until the intellectual content of work per-
formed is appropriately recognised, it will not be possible
to attract the type of staff needed to provide the highly
professional services envisaged in the C.A.E. libraries.

In any consideration of possible academic equation of
professional library staff in C.A.E.'s, account should be
taken of the Australian university situation. Broadly
speaking, most university libraries formerly enjoyed
academic salary equation for their professional staff from
the level of lecturer upwards, and some,particularly in
Victoria, from below this level. This meant in effect,
again broadly speaking, that the Chief Librarian was at
professorial level, the Deputy Chief Librarian at reader's
or associate professorial level, Heads of Divisions (e.g.
Technical Services or Reader Services) at senior lecturer's,
and Heads of Departments (e.g. Acquisitions, Cataloguing)
at lecturer's level. However, apparently through pressure
from the Australian Universities Commission, following the
Eggleston Report[233], the Australian Vice-Chancellors'
Committee[234] in August, 1967, decided that for graduate
and/or professionally qualified non-academic staff (e.g.
library, administrative, laboratory and technical staff)
academic salary equation should in future be applied only
at senior lecturer level and above, and that universities
should relate the salaries of posts below this level either
to comparable salary scales in the relevant Public Service
or to internal scales devised by the university itself.
Pressure for academic equation "all the way" could result
in an excessive number of purely academic qualifications
being required of library staff. To re-arrange thoughts
expressed by Norman Beswick[235], library staff should be
accepted as equals among faculty on the basis of being
fellow-educators rather than fellow-scholars. The approach
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of the V.I.C. Guidelines for College Libraries is sensible.
"Professional library staff should have salaries and status
commensurate with their responsibilities and in line with
those enjoyed by the equivalent levels of teaching staff"236
The V.I.C. Board of Studies, in "Comments on the Role of
Libraries and Librarians in the Affiliated Colleges of the
V.I.C.", February, 1969, a document which does not concern
itself with salaries, says, "It is assumed that the Chief
Librarian and his senior staff are both academically and
professionally qualified to allow them to be considered as
equals of the teaching staff at appropriate levels"237.

The recommendations of the V.I.C. Board of Studies re-
garding the responsibilities and status of the Chief Librar-
ian and his senior staff in the affiliated colleges of the
V.I.C. are well worth consideration. They are quoted
below238.

a) "The Chief Librarian should have sole control of
the internal management of the Library and of all
Branch Libraries. He should have at least the
status of a Head of Department in the largest
institutions and that of Principal Lecturer in
all others.

b) The Chief Librarian should at all times have
access to the Principal of the Institute, though
for matters of administrative liaison he may in
the larger Institutes be advised to deal with one
or other of the Vice-Principals.

c) The Chief Librarian should be by right a member of
the senior academic board of the Institute and a
member of the budget committee of the Institute.

d) The Chief Librarian and his senior library staff
may be members of faculty boards.

e) The Chief Librarian and his senior library staff
should be members (if they so wish) of the teaching
staff organisations of the Institute and should be
members of the academic electorate for any purpose
whatsoever".

We stress the importance of (c), and, in connection with
(d), point out that the recommendations for "Libraries in
the New Polytechnics" include this statement:
"It is vital that the professional librarians in charge
of reading areas should be members of the relevant
Boards of Studies and Course Committees"239.
In concluding this section, we stress again that the
question of salaries and status of professional library
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staff within the Colleges merits and needs very careful
thought and consideration before a final determination is
made.

LIBRARY COMMITTEES

The second Wark Report says, "It is desirable that each
college should have some type of advisory committee repre-
sentative of the administration, teaching staff and students
of the college"[240]. We endorse this, because we think that
the library committee can form a very valuable link with the
teaching staff particularly. We stress that it should be
advisory in nature, for we are fully in agreement with the
statement of the V.I.C. Board of Studies that "The Chief
Librarian should have sole control of the internal manage-
ment of the Library and of all Branch Libraries"[241]. It
goes without saying that the Chief Librarian should be a
full member of the Library Advisory Committee. Considera-
tion should also be given to one or more of his senior staff
being full members of it too. It should be chaired by the
Principal, the Vice-Principal or the Chief Librarian.

9 EVALUATION OF COLLEGE OF ADVANCED EDUCATION LIBRARY SERVICES

As in the Queensland Institute of Technology, Capricornia, we hope to see established in all C.A.E.'s some type of educational research unit which will continuously review and evaluate the educational objectives of each institution, the methods being used for the accomplishment of these objectives and the degree of success achieved. This whole process will necessarily include an evaluation of the contribution of the library to the educational process. As we have already stressed in regard to courses, buildings, equipment and facilities in C.A.E.'s, the law of supply and demand must operate, that is, provision of bookstock, buildings, staff and services must precede use, and, consequently, evaluation of library services. We are all aware of the tremendous stimulation of demand, particularly by students, that resulted from the provision of more adequate accommodation and bookstock in Australian university libraries. The Librarian of the largest of these, the Library at the University of Sydney, expressed it thus in 1964:

> "One very satisfactory result of providing properly designed libraries is to produce an increase in their use out of all proportion to the purely quantitative increase in facilities provided. If ever any illustration was needed of this truism it is afforded by the reaction of the student public to the new university library buildings in Australia. An absolute flood of use...has characterized the library scene in the past few years"242.

As we have already indicated in our strong recommendation against premature surveys of library use, evaluation must follow, not precede, provision. Adequate provision of library buildings, bookstock, staff and services has yet to be made in C.A.E. libraries. Nevertheless, the need for evaluation, when more adequate provision has been made, must be clearly recognised. In this regard,the report of the HERO "Study to Develop a Research Program for the Design Development of Modern College Libraries" merits consideration. In discussing the inability of libraries to measure their performance, it recommends the development of a systems analysis methodology for application to library problems, particularly in the area of cost effectiveness243.

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Part of the research programme proposed is the development
of such a methodology, applicable to any college library.
The report points out that new techniques of systems analy-
sis appear applicable to library matters, but cannot be
successfully used because of "a lack of standards, common
operational terminology, and meaningful statistics"244. It
urges "a major effort...to obtain uniform statistics upon
which to base the quantitative and the qualitative factors
needed for systems analysis, and for evaluating cost effec-
tiveness of library operations"245. The research programme
will attempt "to establish standards for library statistics,
and to formulate means for measuring and quantifying library
operations. From existing data, and from the models, tent-
ative standards and means of measurement can be postulated,
subject to future refinement. These can be tested, in the
course of the research, against actual operations in two or
more colleges selected at random"246. In regard to "cost
effectiveness", the report has this to say:

> "The application of the postulated statistical stan-
> dards and measurement norms against the operations of
> the models developed earlier, combined with the test-
> ing of these standards and norms on some typical small
> college library operations, should provide a basis for
> accurate and reliable cost analysis of college library
> and other college information systems operations. This
> will result in the development of an analytic tool of
> the utmost importance to all college administrators"247.

There is no doubt that the whole area of measurement of
performance needs very careful investigation, and that any
facility developed by the library in regard to statistics,
methods of quantification and measurement, and cost-benefit
analysis would make its operations very much more meaningful
to college administrators, who, for budget purposes, must
deal with needs that are capable of being quantified. The
HERO research programme is worth watching. So also is PEBUL,
the British OSTI-supported "Project for Evaluating the
Benefits from University Libraries"248. Begun in October,
1966, the first year of research, at the University of
Durham, was concerned with determining methods for assessing
the value or benefit of a university library. In the second
year, the project was extended to the University of New-
castle, and the determined methods of value assessment were
applied to the comparative merit of centralization or decen-
tralization in a university library.
The findings of projects such as the HERO research

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programme and PEBUL should be very helpful to librarians in
all institutions of higher education. Meantime, C.A.E.
librarians should themselves give careful thought and atten-
tion to the important area of standards, statistics, methods
of measurement of library performance and cost-benefit anal-
ysis. In any type of cost-benefit study, it is vital that
the "benefit" should be defined broadly and in terms of the
total educational process.

10 CONCLUSIONS

Our investigations have led us to conclude that the
C.A.E.'s are making a genuine contribution to diversity in
tertiary education, and will increasingly provide a viable
alternative to university education for those whose interest
lies in technology, that is, "the application of knowledge
to satisfy human need"[249], rather than the discovery of new
knowledge. The community of today, with its growing com-
plexity, needs the type of product, whether labelled
"diplomate" or "graduate", that is envisaged for the C.A.E.
- the professional man or woman in whom an attitude of mind
has been generated that will enable him or her to make an
immediate contribution in commerce, industry, government or
the arts; who has had the advantages of a liberalised educ-
ation which has endowed him with social, as well as voca-
tional, competence, and so has an understanding of the place
and purpose of his profession in society, appreciates that
he is an agent of change and must be prepared to encounter,
and cope with, resistance to it, and is able to communicate
readily with people, whether orally or in writing, and to
work with them in a team or a leadership role; and, above
all, who has been equipped with adaptability of mind and the
ability to continue self-learning for the rest of his life -
essential qualities and abilities for the technologist, be-
cause of the rapid obsolescence of technological knowledge.

The type of professional end-product envisaged for the
C.A.E. can become a reality only by a revolution in teaching
methodology and a swing of emphasis from teaching to learn-
ing in what is now increasingly called the learning-teaching
process. It is intended that C.A.E.'s will give primary
emphasis to their teaching role. For them to be successful
in their endeavours, it will be necessary for the library
to make a positive contribution, of a magnitude and depth
not previously contemplated, to the learning-teaching pro-
cess. This will require the development of new attitudes by
administrators, teachers and librarians alike, who will need
to work closely together as fellow educators.

Much investigation of the type of learning-teaching
methodology conducive to equipping the student with the
ability to continue learning on his own for the rest of his
life will be needed, and the role of the library in the
educational process will form a major part of any such
investigation. Teachers will themselves need guidance in
new methods and approaches. It is obvious, too, that much

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of the responsibility for helping the student learn how to
learn will rest with the library; and librarians must be
prepared to share the educational role of the teacher. The
development of new attitudes and new abilities by both
teachers and librarians will not occur by chance or solely
through the efforts of small, isolated groups of enthusi-
asts. It seems to us that there have been,and still are,
too many easy assumptions along these lines. If there are
to be real changes in the learning-teaching methodology
adopted in the C.A.E.'s, not just superficial changes, as,
for instance, the use of new media in the same unimagina-
tive way as the older media, there must be joint study of
the learning-teaching process by teachers and librarians.
Both will need to participate in teacher training pro-
grammes, and all C.A.E.'s must establish educational re-
search units whose function is a continuous review and
evaluation of the learning-teaching methodology being used
in the particular C.A.E.. The need for constant research
into, and thinking about, the learning-teaching process, as
well as the need to equip both teachers and librarians to
play their individual but overlapping roles in the educa-
tional process cannot be too strongly emphasised, since
they are crucial to the role of the C.A.E.'s in producing
the type of diplomate or graduate so badly needed in the
community today.

As the educational specifications of the C.A.E.'s are
produced and the learning-teaching process adopted in them
is defined, so the role of the library, which is an inte-
gral part of the learning-teaching process, will become
clearly defined. Meantime, it is obvious that no real
depth of thought has been given to the implications of the
library playing other than a somewhat expanded conventional
role in the educational process.

We have tried to highlight the depression of thinking
that exists in the areas of provision of bookstock and staff
for C.A.E. libraries. No satisfactory minimum standards or
guidelines yet exist, and those that have been tentatively
produced are in our opinion far too low to satisfy the re-
quirements of even conventional teaching methods. In re-
gard to bookstock, we are strongly in favour of the Clapp-
Jordan approach of a basic collection of not less than
50,750 volumes, which is then added to by weightings for as
many assessed variables as possible, such as student enrol-
ments and major subject fields of study. Until the need
for a substantial basic collection, irrespective of any
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other factors, is recognised, there will be no chance of
establishing C.A.E. libraries that can help produce liber-
ally educated technologists. Provision of bookstock must be
matched by provision of staff, a factor that has to date
received far too little attention, particularly in the
reader services' area. The educational role of the library
will necessitate professional staff increases in this area,
of an order not previously contemplated, for on these
librarians will fall the chief responsibility of helping
equip students, whether full-time, part-time or external,
with adaptability and the ability to continue self-learning
for the rest of their lives. It will be the reader serv-
ices' area of the library, which, in its staffing and the
educational functions it performs, will reflect the revolu-
tion in the learning-teaching process in the C.A.E.'s.

We are sure that there has been a serious neglect of the
library requirements of part-time and external students,
and that much of their lack of use of the library is to be
attributed to this neglect, rather than to a lack of need to
use the library. We consider that the first and most ele-
mentary way to begin catering for the needs of part-time
and external students is to stop scaling them down to a
fraction, such as one-third or one-quarter, of their full-
time counterparts and to regard them as at least equal to
full-time students for their collection and service needs.
Part-time students will always be the business of the
C.A.E.'s, and cannot therefore be neglected.

Finally, our project has convinced us, with steadily
increasing force, that the most important thing of all is
for the library to find its place in the learning-teaching
process and contribute positively to it; and that to do this
will require from all educators in C.A.E.'s so much thought,
understanding, effort and enthusiasm, and from all C.A.E.'s
such heavy financial investment, particularly in profession-
al staff, that no diversion, however intrinsically worthy,
from the main objective should be contemplated in the early
stages of development. Let us not jeopardise the chance of
the C.A.E. library of making a significant contribution to
tertiary education.

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11   RECOMMENDATIONS

From the thinking and experience associated with our
research project, we wish to make the recommendations listed
below. We consider Recommendation No.1 to be a pre-
requisite to virtually every other recommendation. We
realise also that there is inevitable overlap between some
of our recommendations.

    1)   That the Commonwealth Advisory Committee on Advanced
    Education sponsor in an appropriate college a study of
    the learning-teaching process in colleges of advanced
    education; a significant part of such a study to be the
    place of the library in the total learning-teaching
    process.

In making this recommendation, we wish to refer to "the
institutional self-study of the library by representatives
from all segments of the professional staff"*, recommended
by Charles E. Chapman, President of Cuyahoga Community
College. "Such a study", he points out, "can be conducted
by very new as well as by established colleges".

"Its purpose would be to determine how library services
could be integrated into the learning processes of the
student body...It would...include:

    The identification of the major problems in correla-
    ting the learning-teaching processes as they relate
    to faculty-library cooperation and suggestions by
    which greater cooperation could be developed
    The identification of methods by which students could
    be stimulated to use the library
    Suggested projects that give promise of improving
    library services
    Recommendations to the administration of appropriate
    action to be taken in improving the teaching-learning
    processes through improved library services".

* CHAPMAN, C.E.   "The Development of the New Campus (Junior)
    College Library". In MOORE, E. LeR. "Junior College
    Libraries, Development, Needs, and Perspectives: papers
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2)   That the Commonwealth Advisory Committee on Advanced
Education give consideration to the formation of a Sub-
Committee on the Learning-Teaching Process, which would
collaborate with its Library Sub-Committee.

3)   That the Commonwealth Advisory Committee on Advanced
Education emphasise to all colleges of advanced education
the need to establish an educational research unit,
charged with the responsibility of continuously reviewing
and evaluating the educational objectives of the institu-
tion, the methods being used for their accomplishment and
the degree of success achieved.

4)   That the Commonwealth Advisory Committee on Advanced
Education emphasise to all colleges of advanced education
the need to establish within their institutions some type
of teacher training programme, which includes the study
of teaching method conducive to equipping the student to
continue "self-learning" for the rest of his life.

5)   That the Commonwealth Advisory Committee on Advanced
Education suggest to all colleges of advanced education
the desirability of their librarians, particularly those
engaged in reader education and assistance, participa-
ting with teachers in some part, at least, of their
teacher training programmes.

6)   That in its thinking about the allocation of funds
for the purchase of library materials (e.g. from an
unmatched Commonwealth grant), the Commonwealth Advisory
Committee on Advanced Education bear in mind the need
for the provision of capital grants to help bring new
or existing libraries up to minimum requirements.

7)   That the Commonwealth Advisory Committee on Advanced
Education, if necessary through its Library Sub-Committee,
give consideration to the problem of imbalance created in
college of advanced education libraries, where provision
of staff does not match availability of funds for pur-
chase of materials, even though the latter be inadequate
for educational needs.

8)   That the Commonwealth Advisory Committee on Advanced
Education ask its Library Sub-Committee to give consider-
ation to more adequate collating of statistics relating
to college of advanced education libraries.

9)   That the Commonwealth Advisory Committee on Advanced
Education request its Library Sub-Committee to consider
the possibility of sponsoring an investigation by college
of advanced education librarians of standards for college

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of advanced education libraries.

10) That the Commonwealth Advisory Committee on Advanced Education sponsor an investigation, either in an individual college of advanced education, or through an organisation such as the Victoria Institute of Colleges or an ad hoc Committee, such as the Sweeney Committee, an investigation into the salaries, status and privileges (e.g. study leave) of librarians in colleges of advanced education.

11) That, as an incentive to better communication of developments and sharing of experience, the Commonwealth Advisory Committee on Advanced Education, in its distribution of funds for research, bear in mind the desirability of modest funds being made available to enable college of advanced education librarians and/or their senior staff to write up and evaluate worthwhile experiments (whether successful or unsuccessful) undertaken in their respective libraries.

12) That the Commonwealth Advisory Committee on Advanced Education ask its Library Sub-Committee to sponsor an investigation in an appropriate college of advanced education library into the best methods of meeting the vital need for education of students and staff in library use and sources of information.

13) That the Commonwealth Advisory Committee on Advanced Education request its Library Sub-Committee to sponsor the compilation of an advisory manual setting out and discussing the particular problems involved in the acquisition and use of audio-visual materials in college of advanced education libraries.

14) That the Commonwealth Advisory Committee on Advanced Education, through its Library Sub-Committee, investigate the technique of cost-benefit analysis and its application to library operations; and, later, sponsor some cost-benefit studies in individual college of advanced education libraries.

15) That, if modest funds are made available for the purpose suggested in (4), the Commonwealth Advisory Committee on Advanced Education ask its Library Sub-Committee to ensure that an appropriate college of advanced education library reports the results of assigning professional reader services staff with subject specialisations or competence to their particular areas of competence.

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APPENDIX A
LITERATURE IN SELECTED SUBJECT FIELDS
1. SERIAL LITERATURE

From the point of view of provision for fields of under-
graduate concentration or "major" subject areas, it was de-
cided to examine in detail the serial literature in the
fields of chemistry and electronic engineering. A prior,
less detailed survey of the serial literature of biology
and mathematics readily showed that the literature of biol-
ogy is a little more extensive than that of chemistry, but
that the literature of mathematics is less extensive than
that of chemistry, electronics or biology.

Chemistry. In a conservative review, 171 serials in the
field of chemistry were identified. With one exception,
serials written wholly in a language other than English
were omitted (though it is realised that some foreign
language serials will be required for undergraduate teaching
and learning), as were general science and indexing and
abstracting serials, since these were regarded as being
included in the basic serial title provision. It may be
interesting to record that 20 general science serials were
noted, such as:

ADVANCEMENT OF SCIENCE, AMERICAN SCIENTIST, AUSTRALIAN
JOURNAL OF SCIENCE, NATIONAL ACADEMY OF SCIENCES, Procs.,
NATURE, NEW SCIENTIST, SCIENTIFIC AMERICAN.

The branches of chemistry investigated were general, ana-
lytical, general industrial, inorganic, organic and physical.
Nuclear chemistry was disregarded, as were the following in-
dustrial fields: fats, soaps, pharmaceuticals; food; glass,
ceramics, etc; leather; metals; paints, etc; plastics,
rubbers, etc; textiles and dyes; wood, paper, etc. Six
cover-to-cover English translations of Russian journals were
included, and 50 house journals. E.M. Baer and H. Skolnik
in "House Organs and Trade Publications as Information
Sources" in "Searching the Chemical Literature"* list 58
house organs which they regard as equivalent to journals,
67 which are predominantly advertising and 19 primarily for
employees and stockholders. They specifically state that
their list is given as a guide and is in no way a compre-
hensive compilation. In their concluding remarks, they say,
"House organs and trade publications constitute a large and
important body of useful information not duplicated in other

* See first item in Sources Consulted, pp. 131-4.

sources. Although their primary objective is to sell prod-
ucts or enhance a company's prestige, they successfully
communicate the 'latest technical information on uses,
physical properties, specifications, and physiological
data'"**. Of the 171 chemistry serials identified, 12
would be covered by provision for Physics; 8 by provision
for Chemical Engineering; 5 for Biology and 1 for Metal-
lurgy. No less than 43 of the 171 (that is, 25%)are review
serials, the majority of the ADVANCES IN..., PROGRESS IN...
type.

Electronic Engineering. In an equally conservative review
of the same type as that for the field of chemistry, the
following figures were derived:

No. of serials identified	261
No. of foreign language serials included	4
No. of house journals included	33
No. of serials which would be covered by provision for other fields:	
Physics	31
Data Processing	17
Chemical Engineering	3
Mathematics	1
Electrical Engineering	3
Mechanical Engineering	2
Total of serials in other fields	57

Note: General science and indexing and abstracting serials
were omitted, since they were regarded as being included in
the basic serial title provision.

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