President's memo

Knowledge and Quality

When I signed on for this job I knew the toughest part would be following Peter Smith's memo act. Without his sense of humor and command of the English language, it makes no sense to try to emulate his style. Nevertheless, my objective on this page will be essentially the same — to tell you what we see as the challenges facing ACI and concrete in general.

In 1905, our society started out as a user's organization and it remains so today. It is an organization composed almost entirely of individual members although corporate memberships are available. Around the world, in recent years, we have seen an increase in consumer interest groups. Also, we have seen new government watchdogs put in place at various levels to protect consumers. So often the climate has been to champion consumer rights and intensify the differences between producer and user interests.

Confrontation has its place but divisiveness rarely produces much long term benefit. What is often overlooked is that there are strong common interests between the two groups. A parallel might be drawn in labor-management relations. While labor and management in companies throughout much of the world were concentrating on emphasizing their prerogatives, Japanese companies were running off with the market by concentrating on common interests. They have produced a wide variety of products with higher quality and lower prices.

Concrete is the perfect example of a product that does best when producer and consumer interests are working together. The two groups' interests do converge on extending knowledge about concrete and controlling quality. The knowledge part is easy to accept but some users may wonder about producer interest in quality. Regardless of the expediencies of the moment, the producer's long term welfare is best served by attention to quality and he knows it.

That's what ACI is all about — knowledge and quality. It is why this concrete organization can remain a broad umbrella society without being buffeted and dissected by narrow concerns which so often weaken or destroy other concrete industry organizations.

Fortunately for ACI, no president is going to change its direction very much. This year, I want to concentrate my efforts on improving ACI's ability to help those who make a living from concrete. For a long, long time people earning their livelihood in concrete in North America have relied on the cement industry to do their bidding through the education, promotion, and research efforts of the Portland Cement Association.

A large number of cement companies no longer contribute to PCA's work and that industry has in one way or another told cement buyers that it is time for them to pick up on the responsibilities. The buyers of construction, their designers, and specifiers are not compelled to use concrete. And they will not if it is not competitive, does not have the desired qualities, or they are unsure about how to deal with it.

ACI can help in many of these endeavors. The Institute is not likely to become the "Music Man" for concrete but even our most pious members want to see concrete do well. At the local level we can do a better job of disseminating technical knowledge and emphasizing quality if we can encourage initiative and support of ready-mix producers, block makers, reinforcing steel suppliers, cement companies, concrete contractors, admixture companies, and even concrete industry trade unions.

Architects, engineers, contractors and owners must be continuously updated on concrete design and construction or they will go in other directions. ACI publications and seminars can do this with proper support. Local chapters make the effort easier and more effective; other organizations can help in areas where we do not have chapters.

Sharing some of the load previously carried by PCA is just one way we can help concrete. Our new programs directed toward people with their hands in the mud is another important endeavor. We are now ready to certify the qualifications of field testing technicians and we are aiming for certification of laboratory technicians, shotcrete nozzlemen, and concrete craftsmen. This new missionary work is very exciting to me and I want to talk more about it in coming memos.

President's memo

ACI's Future

Have you ever spent any time on future planning either personally (New Year's resolutions?) or on behalf of some organization? I have on several occasions, but the most satisfying planning effort I've been involved with has been the ACI Long-Range Plan. The plan is the result of the work of many ACI members and staff employees starting in 1980. It was published in the January 1982 *Concrete International: Design & Construction.*

The plan recognizes ACI's shortcomings as well as strengths and in most cases quantitatively spells out reachable objectives with timetables and implementation responsibilities. It is obvious to me that our technical and administrative committees and the staff are taking the goals seriously and working hard to attain them.

At the spring convention in Los Angeles, the Planning Committee reported that all objectives and goals are being worked on by one or more committees and the staff. The objectives of the Long-Range Plan are not just to make ACI stronger and more effective but many goals are directed toward helping our members. And, of course, all are directed toward improving the mechanisms for increasing our knowledge about concrete.

To enhance our planning efforts, the Planning Committee has organized a special program focused on the future of the concrete industry for the fall convention in Kansas City. At the general session, two widely respected speakers will address the prospects for concrete construction globally and in North America. Two others will discuss the prospective changes to come in concrete materials and in the design of concrete structures. These stimulating topics should help us further refine our planning work for the Institute but they should also be valuable in adding direction to the careers and business interests of ACI members.

Solid progress has been made in the implementation of the ACI Long-Range Plan. For example, in our efforts to broaden ACI's involvement in the concrete industry, several goals are well in sight. One goal was to publish three "how-to" booklets on concrete by 1985. The Concrete Craftsman Series is now launched with *Concrete Slabs on Grade* and has reached an enthusiastic readership. Another similar sized booklet on constructing concrete walls is expected to be ready for printing by the end of this year. Our plans to develop and maintain a program for certification of concrete technicians are well underway. The first program to certify concrete field technicians is ready to go and if you want to be involved ask headquarters for a copy of "Sponsoring Group Manual for ACI Certification, CP-2(82)."

Not every goal in the Long-Range Plan is intended to plow new ground. Some are simply checkpoints for decision making about who we are and what we want to be. For example, one goal is "by the 1983 fall convention determine if it is appropriate to change ACI's name to reflect an international image." That decision has now been made — our name will remain as is — but it does not mean that the Institute will slow down its emphasis internationally. The decision was reached by participation from a number of committees with differing perspectives. I want to go into some of the reasons next month when discussing ACI's international role.

Even though a number of these decisions have been made they are not (pardon the pun) cast in concrete. The Long-Range Plan is intended to be a dynamic tool for focusing the efforts of our many diverse members, committees, and staff. As we grow and times change, our plan must change too and some of the decisions just made may have to be reconsidered. There is often repeated comment about planning — "If you don't know where you're going, any road will take you there." Right now, I think our Long-Range Plan is a good map for showing ACI how to get to where we want to go.

President's memo

Our Role Internationally

In last month's memo, I reported that not all the steps being taken to implement the Institute's Long-Range Plan were changes. One goal in the plan was to make a decision in 1983 on whether or not it is appropriate to change ACI's name to reflect an international image. That decision has been made; we will remain the American Concrete Institute. Does that mean a pulling back in our international committments? No — one of our long-range objectives is to "expand ACI's impact internationally." The presidents who preceded me, T. Z. Chastain and Peter Smith, made a number of initiatives to help ACI move toward that objective. We want to do everything practical to continue the momentum.

A number of our committees with differing perspectives reached the conclusion that our name should nevertheless stay. No doubt some members based their decision on the fact that a name change creates a temporary loss of identity - a problem that doesn't seem to bother many international business corporations because we see lots of name changes these days. There are many other reasons that are more compelling in my view. The word "American" in the narrowest context usually refers to the United States but in this hemisphere the broader view is that it should apply to North America, Central America, or South America. For the next decade or so I think we will see our major membership growth coming from countries in this section of the globe. I also think we will see continued interest in ACI from countries around the Pacific and from India and the Middle East.

Political propaganda often tries to pin the "imperialist" tag on the United States (which is a bad rap) and we certainly have no such designs within ACI. Another label for the U.S. is "provincial" and I am embarrassed to admit that term too often fits. Few of our U.S. members can speak any language but English, and it is clear that this nation is not moving fast enough toward "metrication" even though almost every other country of the world uses the SI system. Also, ACI members doing our work typically restrict their focus to a U.S. context. But that's not all bad and I think many of our 4000 non-U.S. members who belong to ACI get that viewpoint and learn what is currently going on here. In other words, "American" is part of what they are buying with ACI membership.

ACI standards are the basis for many legal documents and specifications within this country. The publication of ACI 318 "Building Code Requirements for Reinforced Concrete" is our most important activity and it is the criterion for concrete design recognized legally by regional, state, or local building codes in the U.S. The responsibility for developing the building code and other standards is enormous and it would not be fair to our existing constituency to weaken the impact of these documents by trying to consider how the provisions of the standards might affect construction in a number of other countries. This narrow view can make our documents more valuable to the non-U.S. member because they tend to be more specific and less complex. Too often design guides developed by international bodies tend to be either too watered down because of the need to compromise or they seem unnecessarily complicated.

As evidence of our interest in our international members, officers and ACI staff have made many visits these past three years to South America, Europe, the Middle East, and the Far East. Some of the countries visited have ACI chapters; in other cases, we are working cooperatively with like-structured societies or with more commercial organizations involved with cement or concrete.

Other steps that have been taken lately are the Spanish language synopsis of *Concrete International* contents and Vice President Ignacio Martín will write a brief column in Spanish on current ACI activities and future plans. Right now there are 18 ACI documents published in Spanish and plans are underway to translate more. We have initiated a system of plastic shrink wrapping our periodicals for overseas members and find that they reach our members in much better condition. To chapters outside North America we have offered to provide bulk quantities of ACI publications for sale on consignment. This arrangement promises to reduce shipping and money exchange problems. The Institute is in effect loaning the books to the chapters until they are sold. We continue to encourage participation of knowledgeable ACI members on the programs of international conferences and symposiums.

Your society remains firmly committed to a theme coined by Peter Smith — "Good Concrete - Worldwide" — but we will do so as the American Concrete Institute. We also intend to carry on that work on a sound business basis so that the Institute will advance along with concrete design and construction.

President's memo

Our Overlooked Constituency

The Institute as an organization, and we as individual members, need to do a better job of reaching the people doing the actual concrete work and who make the minute-to-minute decisions that vitally affect quality. We really have a long way to go in this department. Concrete craftsmen typically have never heard of ACI and assume our work has no relevance to them.

Who knows how much concrete is used where no specification exists and there is no person involved in the process who is knowledgeable about the basics of concrete quality? Add to this group projects where the specifications are not read, instructions are not followed, and there is no inspection or testing and no enlightened supervision. We can't measure this because the distinction between uncontrolled and controlled work is a broad spectrum, but I suspect a major part of the work is on the uncontrolled end. It certainly is if we count numbers of jobs as opposed to volume of concrete placed.

As an organization interested in knowledge and quality, how successful have we been when 65 years after Duff Abrams' landmark paper most of the people working with concrete still haven't heard of the water-cement ratio? Concrete quality in the eyes of most buyers of "cement work" is a smooth slab or wall. Unfortunately that's about the only criterion many mechanics producing the result apply to. Steps such as timing steel troweling, use of air entrainment, proper jointing, and adequate curing are omitted, usually not because of laziness, carelessness, cost cutting, or lack of interest, but rather because they are not convinced of the importance of these critical items. Most concrete workers have as much pride in their endeavors as we do in ours; if they knew better they would try to do better.

These people doing the manual work are our overlooked constituency. We go on with business as usual and so do they. The difference between good and bad practices are not hard to learn and understand — almost anyone working in concrete could do so but too many have not had the opportunity. I do not think we have tried hard enough to reach them. Somehow we have stayed above the battle and lost too many casualties.

So what if much of the lousy concrete we see around is due to nonsupervision and tradesmen who do not know the fundamentals of good practice — what can ACI do about it? Right now our options are limited because we haven't been working that side of the street. The first step is to recognize that this area is properly our business and then set up programs to deal with the problem.

ACI is starting to attack the problem on several fronts. Last year we published the booklet "Slabs on Grade" which was written for concrete craftsmen. We went to great lengths to keep the "fog index" low by avoiding highly technical language. In this publication we traded technical precision for common understanding. This year we will publish another Concrete Craftsman Series booklet about cast-in-place concrete walls and directed toward carpenters, laborers, ironworkers, and finishers working on walls.

Our Educational Activities Committee is active on two other fronts. A seminar series "Construction of Slabs on Grade" has now played in five cities and attracted more blue collar workers than we have heretofore been able to reach. Educational Committee E902 is at work on planning a program to certify concrete craftsmen who can demonstrate that they know the basics of good quality concrete construction.

What else can be done? I'd like to see more involvement by our members associated with ready-mixed concrete companies at the local level. Ready-mix companies are often blamed for bad concrete but actually concrete work would be much worse today if the lions share of it did not come from good batch plants and drum mixer trucks. It is not the responsibility of ready-mix companies to police their customers to prevent them from ruining the delivered product. But what they can do is sponsor educational programs — with or without finishing demonstrations — and hand out literature to those at the end of the chute who ultimately dictate quality's fate at the job. Good concrete work encourages more of it, poor work encourages buyers to look for other alternatives. It, therefore, is in the best interest of ready-mix companies to have some more enlightened individuals in the placing and finishing crews.

Presently there are huge numbers of tradesmen doing concrete work who may have excellent craft skills but do not know enough about the basics of concrete quality and what it takes to get long-term durability. But there is another problem coming. The Department of Labor's Bureau of Labor Statistics has predicted that by 1990 we will need 59,000 more masons (a 40 percent increase) and 42,000 more finishers (a 37 percent increase). If the BLS projections are close to right, that means that 360,000 mechanics will be laying masonry and finishing concrete in 1990 — a sobering thought. Much of the existing labor force will be reaching retirement age or have left the industry because of the severe current lack of construction jobs. The new people coming in will know even less about the things we're interested in, but on the other hand, they may be more receptive to learning. It's hard for a 25-year veteran of concrete work to believe there is anything he doesn't know about it. Who will train these new concrete workers in the basics of quality? The unions have done a good job of training in some geographical areas. Open shop contractors are sponsoring training programs but they spend less than 10 percent of what the building trades collect to run their programs. The Associated General Contractors - Oklahoma State University curriculum for training finishers has an agenda for basic concrete quality and it is used by contractors and vocational schools in twenty or more states. Some local apprentice programs cover these things —so do the World of Concrete seminars. Still, the whole process needs more interest and involvement from ACI and its members.

At the national level we are going to explore additional ways we can be more involved in this vitally important educational work. I hope that more ACI members will pick up the challenge and do what they can individually, and with the help of their companies, to reach our "overlooked constituency." Working through our local chapters may be an effective means for this to be accomplished.

President's memo

Computers in ACI

You know we are squarely in the middle of the computer age when *Time* magazine names the computer as "Man of the Year." ACI has not been asleep during the computer revolution; it organized Technical Committee 118, Use of Computers, 20 years ago. Headquarters began using a computer in its operations at about the same time. But even though your Institute and its members have been involved with computers all along, it is time for us to re-think our relationship with computers and decide how we can better serve our members who are using these machines.

Knowing what to do is like trying to catch a fly but, in spite of the present dizzying pace of the computer field, I think we may now have a better sense of direction than in years past. About 40 percent of our membership is involved with structural design so that means that a large segment of our organization is already familiar with computers or electronic calculators. Whether these members are in large organizations or small, they either now are or soon will be dealing with micro-computers. These small computers are making quantum leaps in capability monthly and the prices continue to drift down to where they will be affordable to almost anyone.

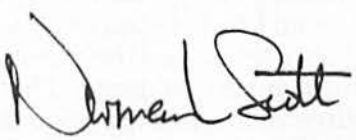
As time passes, fewer of our members will be looking to tables and graphs as design-aids and more will be seeking computer solutions. Tables and graphs will soon be as passé as the slide rule. We will publish another Design Handbook soon after the release of the 1983 ACI Building Code but we anticipate that this book will not be as popular as previous editions no matter how well it is done.

In the design business, we still have the software-hardware compatibility issue but the problem is diminishing. Most of the small micro-computer programs used in concrete design are now written in BASIC. The language is powerful enough to do the job and with slight modifications the programs will run on nearly every kind of micro available.

Presently there are several hundred makes of micros on the market that could do ACI type design work. A shake-out is expected and many that may be technically superior will fade away. The survivors will be those that can get shelf space in computer stores or are otherwise backed by good marketing and are technically adequate. The list of survivors popular with structural designers will be rather short. Right now, the small computers most used seem to be Apple, IBM-PC, DEC, Radio Shack, Hewlett-Packard, and Wang. The newest machines can handle 16 bit words and are beginning to squeeze out the 8 bit machines. In spite of the proliferation of new micros, hardware will become much less important than compatible software. An operating system software shake-out seems to be in progress and I think before long it will be possible to easily run the same design program on a variety of different machines. If the array of computer makes and operating systems used by ACI members becomes limited to a few, as I expect, then it will be practical for ACI to provide directly applicable services to its using members.

Right now our Technical Activities Committee has an ad hoc subcommittee studying what our role should be concerning computers. There are a number of possibilities ranging from pointing members toward programs prepared by others to writing programs and selling them. It is also possible that ACI could market programs prepared by others after they have been reviewed and found to be consistent with ACI standards or recommendations. Frankly, I'm biased toward seeing ACI becoming as active as we can in computers within the bounds of practicality, good business practices, and ethical principles. I think our members would welcome that kind of service.

At the Kansas City convention (September 25-30) Educational Committee E 702 will present a seminar entitled "Mini-Micro Computer Programs for Concrete Design." Seven computer programs will be available for sale at the seminar for a nominal cost. This is a kind of a trial balloon to see how far and how fast ACI should be moving with computer seminars and software development. If you have any thoughts on the subject, I would be pleased to hear from you.



President's memo

Who Has Responsibility for Research?

When faced with the proposition that ACI members should be contributing money to research projects I suspect that most would ask — "Who? Me?" The response is a natural one and there are very few professional societies around the world that allocate any part of individual membership dues to research programs. That posture is being challenged within ACI. Members of the Board of Direction and our technical committees have questioned whether our historical role in research is appropriate for these times. They point to our bylaws where our purpose is stated in Article I thus:

> "Section 1. The purpose of this Institute shall be to further engineering and technical education, scientific investigation and research, and development of standards for the design and construction of concrete structures. The Institute shall organize the efforts of its members for a nonprofit, public service in gathering, correlating, and disseminating information for the improvement of the design, construction, manufacture, use, and maintenance of concrete products and structures. It shall promote improved technology, technical competence, and good design and construction practices."

I think most observers of ACI's work would give it high marks for discharging that mission in nearly all aspects. Still, there is that challenging first sentence, "The purpose . . . shall be to further . . . scientific investigation and research . . ." How well do we do there? Doesn't that statement imply more direct support than merely reporting on research and encouraging others to do scientific investigations? Maybe yes, maybe no, and to study the matter further an ad hoc committee on research has been appointed to report to the Board. This committee is headed by Professor Neil Hawkins. The committee will start work by drawing up a list of critical questions that should be answered. If we can collectively agree on what are the most important questions, then the answers should not be far behind.

Many professionals believe that the most appropriate source for research funds is the government or industry. Research and development seems to thrive best when propelled by a vested interest. R & D has adequate support in the chemical, mechanical, electrical, and electronic industries but the payoffs are usually protected by patents or other proprietary mechanisms. In the construction industry, few think about patents or proprietary schemes so there may be a corresponding lack of incentive to pursue new ideas. Superimpose on this the tendency in the past two decades to litigate endlessly over construction problems and you have strong disincentives to stray from the tried and true.

Government agencies at national and state levels provide substantial funding for research. The transportation agencies are an important resource and much of the state DOT research is conducted in the civil engineering departments of state universities. The National Science Foundation is another key source in the U.S., but industry participation has been curtailed in recent years. As I mentioned in the May memo, the cement industry no longer does much generic research and development on behalf of concrete producers and users. It was never a foregone conclusion that they should be the primary sponsors of such work and it is gratifying to see others pick up some of the responsibility. The Prestressed Concrete Institute has raised $750,000 (some of it from professional members) to fund a three-year R & D program. The Reinforced Concrete Research Council was created years ago to stimulate research sponsored by users and now has some real money. It is ready to sponsor worthy research projects dealing with structural concrete. It seems that there may be a need for a similar organization dealing with concrete materials. Would it not be appropriate for ACI to sponsor a Concrete Materials Research Council? There are many in our organization who believe this area of scientific investigation has not been given sufficient attention in recent years.

ACI has had technical committees reporting on and encouraging research since 1921. Our current committee (123, Research) has the mission of determin-

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ing research needs and disseminating information on those needs and the results of completed studies. Most of our almost 100 technical committees, in the course of their work, come across areas where it would be helpful to have results from undone research. I am not satisfied that we yet have a good mechanism for getting these research needs into the hands of those who might be able to do something. So much research seems to be "me too" stuff where the investigators are merely trying to extend the work of others on a similar subject. More attention needs to be given to really new problem areas identified by our technical committees, particularly Committee 318, Standard Building Code. How useful it would be if concrete researchers could be ready to move on the really troublesome questions faced by our technical committees.

But where do these researchers get the money to do the work? The Reinforced Concrete Research Council works on a seed money principle. They collect some money from their member-sponsors then find other sponsors interested in results from a particular study. It may not take much seed money to provide big leverage for research funding. The climate is right to get good support for truly worthy studies.

For years professional societies have collected volunteer dues for scholarship programs. These programs seem to have broad support although I have personally questioned their worth. Maybe we have some members who are interested enough in research that they would like to see their modest contributions supported by a bigger kick from organizations with a direct interest in some study?

We will continue to look for the right way for ACI to take a more active role in research. I know many of you have ideas and we would be pleased to hear about them.

President's memo

THE '83 CODE

This month the 1983 ACI Building Code will be on the street. This document which is more precisely titled "Building Code Requirements for Reinforced Concrete" is our most important publication and culminates from our most important technical committee activity. Almost since the beginning of the Institute, code writing was seen as one of our primary missions. ACI's first attempt at code writing was in 1910. The "Code" for concrete design and construction doesn't really become a legal document until it is officially adopted by the government jurisdictions having authority to promulgate building codes. ACI 318-83 will become a part of model codes, regional, state, and city codes within the coming months. In the U.S., ACI 318 is literally "the law of the land" in reinforced and prestressed concrete design and construction.

Each time ACI releases a new code there is a chorus of voices claiming that it is too complicated, too complex, impractical to use, and will result in additional design costs and construction costs. These code users often believe they are not heard by the code writers but such is not the case. ACI is very mindful of these objections. Prof. Chester Siess guided ACI 318-83 to conclusion and, while president in 1974, focused two of his messages to the issue. He has a long and distinguished career in code writing and has been sympathetic to demands for more simplification. The problem is that the process of code simplification is itself very complicated and complex. (Siess defined *complicated* as applying to what offers great difficulty in understanding, solving, or explaining and *complex* as the unavoidable result of necessary combining or folding.)

The membership of ACI 318 is chosen to include people who must design with the code, those who enforce the code, and those who must build with the code. Committee newcomers from those groups often find their perspective and experience is limited when it comes to writing code provisions. They discover that code writing is an art which requires special vision about all the different ways a grouping of words and symbols might be interpreted. The central objective must be public safety, durability, and serviceability. And increasingly, ACI is trying to achieve economy, constructibility, and maintainability. All of this is to be accomplished while keeping one eye on past experience with structural performance and the other eye on strength tests from new research. It is a huge responsibility and the next edition of the code will be written under the guidance of Prof. John Breen.

Wrestling with the problem of complexity in standards writing is, of course, not unique to ACI's work. In England, a debate has been going on for ten years about the complexity of CP110, a limit state code, which was to replace CP114, a working stress code. The old CP114 just won't fade away as intended. Some are saying that it would be far better to go along with CP110 because Eurocode II is coming next. One observer said it would make CP110 look like a "man on the job" leaflet.

As structures become more complex and new research results come in, it is inevitable that changes will occur. This is as desirable as it is necessary. Still, it is human nature to resist change and when unfamiliarity with the new translates into increased design and construction costs, the cries of outrage become more shrill. Those who are trying to make a living from concrete construction naturally get very concerned about this because it can force designs into other materials.

But we should not be bothered by the release of ACI 318-83. We should rather regard it as an opportunity for concrete. First, ACI 318-83 is not that much different than ACI 318-77. A code supplement containing interim provisions was published in 1980 and the December 1982 issue of *Concrete International: Design & Construction* contained all of the revisions proposed by Committee 318. Therefore, most designers will not be surprised by what they see in this new code. Second, an excellent series of semi-

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President's memo

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nars is planned for 1984, co-sponsored by ACI and the Portland Cement Association to acquaint users with the new code. These all-day seminars are planned for at least 27 cities. In addition to receiving copies of the code and commentary, attendees will get the new "Notes on ACI 318-83," published by PCA.

For the future, the ACI Long-Range Plan squarely focuses on the complexity issue. Goal 6 in the section on committees challenges: "Simplify ACI codes and standards." To implement the plan goal, the Technical Activities Committee has a subcommittee on simplifying codes and standards. They have issued an interim report which outlines the problem in some depth and offers possible solutions. I think you can see that it is not any easy matter to solve. One of the best ideas I have seen so far is to write a two-tiered code, the first using simple procedures for the majority of cases and a second section containing more complex aspects for more complicated design.

ACI made a big step forward in 1965 when it introduced the code's commentary. This year PCA will be publishing a booklet on simplified design of concrete building frames of modest size and height using provisions of the new code. It is an extension of ideas proposed by past president Russell Fling when he wrote "Using ACI 318 the Easy Way" in the January 1979 issue of *Concrete International: Design & Construction.*

But here is what you can do if you are concerned about people getting a good understanding of ACI 318-83. Contact the ACI Education Department and see about scheduling a code seminar in your area during 1984. With the code, familiarity doesn't breed contempt; it fosters acceptance and affection.

President's memo

Year End Progress Report

On this page and elsewhere in *Concrete International: Design & Construction* over the past several months you have heard about ACI plans for this year and beyond. I think it may be appropriate at this point to let you know how things are going.

Financial — Your Institute remains sound financially. This is a matter sometimes taken for granted in societies such as ours but we know from bitter past experience that the delicate balance between income and expenses can get quickly tilted if not carefully watched. The staff and the Financial Advisory Committee have been extremely diligent and the results show.

Contractor's Involvement — One of the objectives of our Long-Range Plan is to increase the involvement of contractors in our work to improve the practicality of our documents without sacrificing quality. The Technical Activities Committee can see that these efforts are working because in the review of technical committee output they are processing many more comments dealing with constructibility issues. A few weeks ago I made a trip to Washington to talk to the staffs of the Associated General Contractors, Associated Builders and Contractors, National Association of Home Builders, and the finisher's union. The discussions were very useful and I am convinced we can and should play a stronger role in training tradesmen working with concrete. The Educational Activities Committee has accepted the challenge to get more active in concrete craftsman training and to begin establishing links with organizations concerned with vocational training at the local level. In my talks to chapters, I am encouraging them to take an interest in this mission which is so important to the quality of concrete construction.

Certification — The program for certifying concrete field technicians Grade I is moving very well. Our educational committee dealing with certification is now ready to go quickly into training and certifying concrete laboratory technicians Grades I and II. With this in place, ACI will have a program broad enough to really serve the testing laboratories and others concerned with concrete testing problems.

Computers — The Technical Activities Committee has expanded its ad hoc subcommittee on computers and tangible results are promised at the annual meeting in Phoenix in the spring. The trial balloon session on computers at the Kansas City convention demonstrated that our members are indeed looking for more services from ACI on computers. The most likely first step will be to publish computer program listings or algorithms for relatively short design problems. The ad hoc subcommittee will be dealing with program solicitation, selection processes, technical review procedures, servicing inquiries, and updating. As we gain experience we intend to move toward more involved programs and computer software for more than just structural design problems.

International — The *Concrete International* synopsis page in Spanish as well as the column by Vice President Martín seem to be appreciated by our South and Central American membership. In a few months, Vice President Martín and past president T. Z. Chastain will visit six countries in South America. In October, 12 ACI members and I spoke at the conference in Amman, Jordan, dealing with concrete technology for developing countries. The ACI Building Code is now used as a reference standard in Colombia. ACI 318-83 is now available in SI units and a Spanish translation of the code will be available shortly.

Research — In my October memo, I suggested that there might not be a ground swell of enthusiasm from our membership over the idea of direct financial support for research. It nevertheless is something we should study carefully. We have no news to pass on but our Board ad hoc committee studying the matter will report in Phoenix.

Committee Membership — One of the goals of our Long-Range Plan is to expand committee appointments to increase opportunities for participation with our growing membership. In Kansas City, TAC and EAC held a joint meeting to kick around ideas on how this could be made to happen without sacrificing document timeliness and quality. Several practical proposals came out of the discussions and our two principal governing committees are studying ways to implement some of them.

As we close out 1983, I would like to be able to personally thank each of our members who donate their time to the work of ACI through our committees and chapter activities. Many spend their personal funds to travel to meetings to participate. Collectively, it is an enormous resource directed toward the good of the design professions and concrete construction worldwide.

Thanks so much for your help and best wishes for the New Year!

President's memo

Blue Collar Training

In my August 1983 memo I stated the case for ACI to become more active in training the people doing the actual concrete work — those who make so many on-the-job decisions that affect concrete quality. I have restated this theme in talks before our chapters and concrete industry associations. The response has been very encouraging. *Concrete Construction* magazine ran the memo as a guest editorial and many have expressed an interest in supporting the effort. Our Educational Activities Committee has been responsive to the idea and so has the headquarters staff.

Conditions are right for ACI involvement. The need for concrete craftsmen is not great at the moment but when the construction industry heats up again there will be a big demand for trained workers. Right now, at least 70 percent of construction is non-union and it looks like the mix of union and non-union work will stay like that for awhile. One problem for the construction industry is that the unions have historically been the source for training skilled workers. I think the non-union segment of the industry is sincere about training but currently they have not come close to matching the money the union segment spends on training.

Significant changes in the construction industry are continuing. It used to be easy to identify contractors belonging to the Associated General Contractors (AGC) as union firms and those belonging to the Associated Builders and Contractors (ABC) as non-union ("merit shop contractors") but AGC does not want to be seen as representing only union contractors. Both organizations are working on the training problem and both have local chapters.

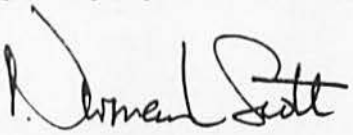
Within the construction industry and particularly in non-union construction there is pressure to reduce the number of craft jurisdictions. At the same time it is questioned why it should be necessary to train a tradesman for say three years when the skills necessary to function in a narrow sub-trade would take much less time to learn and develop. Thus there is a lot of emphasis on "task training." This concept is encouraged by the fact that huge numbers of new people will be needed to keep up with demand during the next decade. One problem with task training is portability of credentials. A union concrete finisher or carpenter can move from job to job or employer to employer with a union card to establish that he or she is qualified to do the work. A task trained non-union craftsman currently has no such "passport." You can begin to see why there is an interest by open shop groups in "certification" of craftsmen.

If nature takes its course without involvement by ACI you can bet that task training of craftsmen in the concrete trades (slab placing and finishing, block and bricklaying, concrete wall construction, etc.) will center almost exclusively on developing the manual skills with little emphasis on teaching the basics of concrete quality. I am not suggesting that we try to make a finisher into a concrete technologist but it is not difficult to teach the importance of water-cement ratio, timing of finishing operations, proper consolidation, good jointing practices, and adequate curing. The same is true in teaching basics for quality masonry work, placing concrete walls, or supported slabs.

Members of the Business Roundtable which represent the biggest buyers of construction have stated they are willing to pay for tradesman training through a payroll checkoff system. This is kind of automatic with the union trades but the system has not yet been formally developed in non-union construction. ABC is working on an "Open Shop Training Trust Fund" to deal with the matter. They insist, however, that it is not to be an ABC run program but rather governed by a Board of Trustees composed of members from various construction industry groups.

It seems to me that the money taken out of direct labor payrolls for training (probably about ½ of 1 percent) will be spent locally. Vocational schools at the local level seem to be ideally positioned to provide this type of training. Besides ABC chapters we can expect to see interest from local chapters of AGC, the National Association of Home Builders (NAHB), and many sub-trade associations. Our ACI chapters could play an important role in helping with concrete trade training at this level.

What can ACI do at the national level? We have already started a dialogue with ABC, AGC, NAHB and the finishers union in Washington, D.C. The Educational Activities Committee and the staff of the Educational Department are making plans to step up our efforts. The Concrete Craftsman Series booklets, "Slabs on Grade" published last year and "Cast-In-Place Walls" coming out this year are resources for training programs. Other educational material has been developed that is quite comprehensive and we can digest these documents down to bite size pieces which will be appropriate for task training programs in vocational schools. Films and slide shows will be needed and are available. ACI can provide a useful service by training the vocational trainers. We have many members at the grassroots level who have the knowledge and inclination to teach a few nights of the year at vocational schools. This effort can make a big impact on the quality of concrete construction and also on labor productivity. ACI has much to contribute and I hope many of you will want to get involved.



President's memo

Research — Let's Do More!

In the October 1983 memo, I proposed the notion that perhaps ACI should be taking a more active role in research. The Institute has dutifully reported on and responded to the results of research findings since our beginning, but it has not funded research projects nor been very assertive about what should be researched.

Dr. Gunnar M. Idorn of Denmark in his Raymond E. Davis lecture at the Kansas City convention challenged us to restore American leadership in cement and concrete materials research. (The text of his paper is included in this issue.) He has suggested that the long term durability of concrete may be related to the rate of energy release during the plastic and hardened states. Have we been concentrating too much on high strength or early age strength and sacrificing resistance to damage by freeze/thaw, alkali-aggregate reaction, sulfate attack and reinforcing corrosion? He wants to see more research on this and the development of new techniques to measure the relevant properties of concrete.

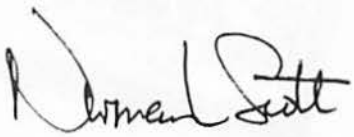
His is not the only voice telling us to get going on research. Earlier, Professor Della Roy of Pennsylvania State University sounded an alarm about the sorry state of cement and concrete research in the U.S. She headed a National Research Council committee on the subject which issued a report in 1980 entitled "The State of Cement and Concrete R & D in United States." This report was presented and discussed at the San Juan ACI convention in September, 1980. The committee found that research and development in cement and concrete in the United States is inadequate in the light of the needs and opportunities. It further stated that the deficiencies were not widely recognized and recommended that the federal government establish a National Cement and Concrete Research and Development Center.

The fact that superplasticizers had to come into U.S. construction from Japan and Europe tells that there is some catching up to do. The steady flow of materials research that used to emanate from the Portland Cement Association has slowed to a trickle. So has output from the Bureau of Reclamation, Corps of Engineers, and the National Bureau of Standards. The report on NBS research (*Concrete International: Design & Construction*, December 1983 issue) was, however, encouraging.

The list of great names involved in past research in cement and concrete materials has dwindled to a few. The number of U.S. universities seriously into the activity can be counted on one hand. Who is training the chemists, physicists, geologists and engineers who will make careers in cement chemistry, crystallography, petrography, and concrete durability? We badly need these experts, but also people who can bridge the gaps in the spectrum of specialties ranging from chemistry to the practical end uses of concrete.

It is not easy to establish a forum where all these scientists and engineers can interact. That problem has been with us for decades. Civil engineers, geologists and chemists do not easily communicate with one another yet the process is necessary and requires patience. There are a number of organizations where the interaction goes part-way, i.e., American Chemical Society, American Ceramic Society, American Society for Testing and Materials, and the American Concrete Institute. Can we make ACI a better place for this forum? Perhaps it could stimulate thinking which could lead us to new developments plus better solve the old problems of durability.

In order for the forum to attract these diverse specialists, our committee activities and convention programs must be attractive and useful to them in their work. Another draw for these people would be a Concrete Materials Research Council as suggested in the October memo or something similar. The seed money to start such an effort needs careful study. There are a number of alternatives, e.g., straight ACI budget allocation, voluntary dues, extra surcharges on some ACI publications, or special contributions by concrete industry companies or organizations. Other ideas may come forward and any increased research involvement will require staff time and some organizational changes. The first step is to get a consensus from our members as to whether or not we need to be more directly involved in research. After that we can find a way if there is the will.



President's memo

ACI and Infrastructure

The buzz word was "systems" in the late 1960s and early 1970s but currently it's "infrastructure." In that earlier period, the construction industry seemed to be trying to catch up to a notion that was imposed on it by the space program and massive industrialized housing projects in Europe. This time, the popular interest and concern over infrastructure was uncharacteristically created by construction industry people. I sense that it started with a campaign by the Associated General Contractors, but there are probably others who can show that they blew whistles further back. The American Society of Civil Engineers and the National Society of Professional Engineers mounted the bandwagon some time ago. They and other organizations are keeping the heat up by involvement with Congress, the state legislatures, and the media. It is good to see construction organizations and their members taking these initiatives and participating in what is essentially a political process.

There is evidence that this activity is paying off. Infrastructure construction and rehabilitation bond issues passed in numerous places last November, reversing the trend in recent years to defeat such proposals. For too long, elected representatives, being pummelled by incessant pressure from special interest groups, have opted to meet these demands by delaying new construction and suspending maintenance in order to approximately balance a budget or to keep from raising taxes.

There is much talk now among legislators about "capital budgets," "infrastructure banks," and "privatization." Some states and local government jurisdictions already have a method of physically separating capital budget expenditures from operating budget outlays. The Federal government does not, but there is presently bi-partisan support for a National Capital Budget which would mandate that a specified percent of total revenues would be spent on capital projects. The infrastructure bank concept is one whereby a government entity, such as a state, would create a central bank for making low-interest loans rather than grants to communities and other subordinate governmental bodies. Interest and repayment of principal, paid for by local taxes, would go back into the bank for funding more public works projects. Privatization is the term given to the notion of turning certain public works activities over to private interests who would then rebuild, maintain, and operate the facilities with income from user fees.

All of these developments are encouraging to ACI members because it portends more activity in design and construction with concrete and in related research. But despite the laudable efforts of our colleagues in sister organizations to shape public opinion concerning the needs, ACI will not be lobbying in behalf of more construction or maintenance funding. Our special charter prohibits it and furthermore our past history suggests that we can help society's cause best by doing what we do best — extending understanding about concrete and working to improve quality. We have some work to do to get the new concrete construction to live up to its promise. We should be embarrassed about some of the concrete that will be repaired or replaced by the new infrastructure spending. Much of it should have done better — lasted longer. Some of the problems were due to the state-of-the-art at the time, but many more were caused by simple violations of accepted good practice. The problem is, of course, worldwide and was the theme for an international symposium on "Rehabilitation of Structures" held late in 1981 in Bombay sponsored by our Maharashtra, India, chapter with ACI participation.

One part of the infrastructure restoration problem is to decide whether to repair or replace. To help with this decision, the Educational Activities Committee has eight seminars scheduled in 1984 entitled "Rehabilitation of Concrete Structures." The emphasis will be on infrastructure using case studies. During the last two years EAC sponsored 20 seminars on "Concrete Repair and Restoration" which were very well attended.

In this same period the JOURNAL and *Concrete International: Design & Construction* have carried a number of papers and reports dealing with design, construction, evaluation, maintenance, restoration, and quality control of infrastructure facilities. For example, ACI 350 just issued a revised report "Concrete Sanitary Engineering Structures" with accent on durability, chemical attack, and crack control. ACI 345 recently reported on "Routine Maintenance of Concrete Bridges."

(Cont. on page 6)

President's memo

(Cont. from page 5)

The Puerto Rico, Quebec, and Atlanta conventions had sessions on restoration and the papers will be compiled into a special publication this year by the newly formed Rehabilitation Committee (ACI 364). This SP series document will probably be titled "Repair and Rehabilitation of Structures."

The Shotcreting Committee (ACI 506) continues to be prolific in its output of useful information on that restoration method. ACI 201 has a revision of a report that will be ready shortly called "Guide for Making a Condition Survey of Concrete Pavements."

ACI 362, Parking Structures, is working on a design and construction guide to improve the performance of garages. Also, the March convention in Phoenix will have several papers presented which are relevant to the subject. For example, two sessions will be held on "Evaluation of Existing Concrete Buildings" which will deal with both strength and safety issues.

ACI has a wealth of information available on this vital global concern and more is coming soon. When the funds become available to get serious about public facility reconstruction, knowledge resources on concrete are right here. With better understanding and better communication we really can build more longevity into our concrete "infrastructures."