Hypertension research has reached a remarkable point in 1988. From humble beginnings in the animal physiology laboratory, it has progressed by utilizing the modern investigative techniques of each succeeding decade. Today, the results of molecular modeling, X-ray crystallography, and recombinant DNA research are routinely reported in journals detailing research in the field of hypertension.

The following review, which is the first of a three-part series focusing on the past, present, and future of the Council, is a personal account by a pioneer of the early days of hypertension research, Irvine Page. Subsequent articles will sketch the maturation of this rapidly growing field.

The Council for High Blood Pressure Research
Its Origin and Purposes

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It is all but impossible for the modern generation of scientists and clinicians to understand the abysmal ignorance before the 1940s with regard to the mechanism and treatments of arterial hypertension. The majority of physicians worldwide did not consider hypertension of major importance. That it could produce stroke and myocardial, renal, and vascular disease was suspected but not widely accepted. Some still believed, when they thought about it at all, that lowering blood pressure would reduce renal blood flow and lead to uremia! The causal relationship to stroke was vaguely perceived but lowering average blood pressure to prevent stroke was rarely considered. Since the time of Bright, renal disease had been believed to be associated mainly with a "hardened pulse" (which we now know as hypertension), but no attempt was made to relieve it. Some confusion occurred more recently when George Pickering stressed the idea that hypertension was not a disease but simply the expression of the upper end of the blood pressure scale — a quantitative, not a qualitative, aberration.

While there were sporadic attempts by those such as Janeway, Carrel, and Allbutt to understand hypertension, it was not until Cash, Goldblatt, Pickering, Peart, Grollman, Smith, Van Slyke, Helmer, Kohlstaedt, Braun-Menendez, Fasciolo, Tacquini, Leloir, Genest, and Page studied the problem more seriously in the 1920s through 1940s that the field began to take form. Strange as it may seem to the current generation, no meetings or committees devoted to hypertension existed nor were there journals. Such were the circumstances in the 1930s.

If I had to select any single personal event that stimulated the organization of this nascent field, it would be the occurrence of malignant hypertension in Mr. Charles Bradley, a prominent businessman and civic leader in Cleveland. Attempts had been made at the Cleveland Clinic to treat him but with no success. Dr. Russell Haden suggested to Bradley that an experimental treatment at the Indianapolis City Hospital might help. It did.

From 1937 on, Helmer, Kohlstaedt, and I had been studying various kinds of kidney extracts in experimentally hypertensive dogs and hypertensive patients in Indianapolis. To the surprise of everyone involved with Mr. Bradley's case, his symptoms and signs cleared and the blood pressure was reduced. Because of this, his brother, Alva Bradley, owner of the Cleveland Indians baseball team, became greatly interested in hypertension. This interest led to the arrival of Drs. Corcoran, Taylor, and myself at the Cleveland Clinic from Indianapolis to initiate a research division concerned principally with cardiovascular disease.

The field of hypertension had been greatly advanced by the propitious discovery by
Harry Goldblatt in 1934 that hypertension could be induced in animals by renal ischemia. This provided a practical way of creating a model of renal hypertension and was the impetus for the later discoveries by others of many different ways of eliciting hypertension. While not the first, it was the most effective and practical method. Modifications such as cellophane wrapping and figure-of-eight ligatures were employed (especially the former) for long-term experiments.

First Meeting in Cleveland

It became apparent that a large void existed in the study of hypertension that might be partially remedied if a society directed toward the study of hypertension was founded. To that end, in October 1945, the National Foundation for High Blood Pressure was initiated. The first meeting of 27 scientist-clinicians was held in Cleveland, March 14–15, 1947. We were joined by a lay group composed of outstanding Cleveland businessmen. A local American Heart Association chapter had not yet been formed. The plan was to conduct a low-key, person-to-person campaign within the business community for research funds.

When we discussed our plans with the national office of the AHA, we learned that they were planning a national campaign opening with Jack Benny as the “Walking Man.” They raised about $1 million and we raised approximately $100,000 annually. Thus, between 1945 and 1947 both organizations for the first time began to raise money, chiefly for basic research in cardiovascular disease. The average grant ranged from $3,000 to $10,000 — and we thought we were generous!

In 1947 the name of the Cleveland organization was changed to the American Foundation for High Blood Pressure. The inclusion of businessmen with the physicians on the board of trustees was an interesting innovation. A medical advisory board of 31 members was elected to determine medical policy. Despite the fact that in 1947 there seemed to be little of real importance to discuss about hypertension, sympathectomy and low salt diets were mentioned. The discussions did indeed lack depth. But the Foundation supported 19 research projects during the 1949–1950 period. This was a first in the neonatal field of hypertension.

A New Era — The Foundation Becomes a Council in the AHA

A conflict of interest was bound to develop between the Foundation and the AHA. The latter belatedly realized that money could be raised nationwide in support of research. They watched with concern as the much smaller experiment in Cleveland began to grow. Negotiations were initiated, therefore, to unite the Foundation with the AHA through a newly created “Council for High Blood Pressure Research” within the AHA. Although there was considerable opposition to the merger, it was consummated on June 5, 1959. The Council maintained a certain uniqueness by meeting regularly in Cleveland for 40 years, and by retaining Mrs. Ethel Strattan as executive secretary for the Council in my office in Cleveland. The total cost of the office and annual meeting was about $12,000 in 1952.

The Council tried to nurture the highest standards in both basic and clinical science. This has always been a difficult task in all fields of medicine but the Council felt it was well worth the effort. It is easy to destroy this relationship and hard to maintain it, but both patient care and understanding of the mechanisms of hypertension will suffer unless it is maintained.

In the early sixties there was growing opposition by the AHA to the fund-raising activities of the Council, even though the Council approached only corporations. By that time the Council meetings were attracting prime researchers from all over the world. Since the AHA was growing rapidly and was becoming effective in fund raising, the Council voted to discontinue raising money and thus negated the need for the participation of the lay members of the Council. This step was taken with great reluctance because it was this policy of including lay members, which many supported, that had made the research presented at the Cleveland meetings initially possible. The Bradley brothers, Charles and Alva, deserve a great deal of credit for opening the Council’s doors to the world of big business.

Associated Activities

After the affiliation, the Council participated somewhat less in the national affairs of the AHA except through the election of Irvine Page to the presidency. Rather it was
more involved in initiating plans for international societies concerned with hypertension. The International Society of Hypertension was the first of these, followed by the Inter-American and Inter-European societies. But with the creation of subspecialties such as nephrology, stroke, molecular pharmacology, and several others, the plan to hold all-inclusive meetings began to crumble. The desire to hold meetings to promote antihypertensive drugs and the lure of free travel were just too much. The same sort of problems occurred in the weedlike growth of journals as new societies were founded.

**Early Membership**

From 1940 to 1955, membership in the Council was a curious mix, since very few scientists were directing their research primarily in the field of hypertension. Names such as Findley, Marazzi, Mommerts, Wright, Allen, Andrus, King, Wilkins, Thomas, Tobian, and Page kept the meager programs alive. Curiously, our scientific colleagues at Case-Western Reserve University, notably Goldblatt and Skeggs, participated very little, which was a disappointment. It is fair to say that at that time the academic world, including a number of members of the AHA, did not view the Council with favor.

**Journal Publications**

In the early days of the Council, it was difficult to get papers on hypertension published anywhere. Few editors were interested. Rheumatic fever was the dominant interest. For example, Goldblatt published his classic papers in the *Journal of Experimental Medicine*, a journal that had almost no circulation among cardiologists. Because Fred Smith, then editor of the *American Heart Journal*, refused to publish our paper on the discovery of angiotonin, it also appeared in the *Journal of Experimental Medicine*. The solution to the problem subsequently came about because of intense rivalry among commercial publishers who cannily realized that hypertension had already become a major subject. After the Council found, to our surprise and chagrin, that the AHA did not own the title of its official journal, the *American Heart Journal*, a group of us (Irving Wright as Chairman, Cowles Andrus, Edgar V. Allen, Robert King, Robert Wilkins, Harold M. Marvin, and Irvine H. Page) started the journal *Circulation* in 1950, followed by *Circulation Research* in 1953.

**The Stouffer and CIBA Prizes**

All organizations sooner or later must face the issue of formally recognizing excellence while avoiding politics in the selection process. Fortunately most awards are not of sufficient consequence to cause major concern. And there is always the possibility that prizes will be given to encourage the granting of money to investigators.

At the Council’s inception, the field of hypertension research was so neglected that not a single award for achievement of even modest importance was available. Vernon Stouffer filled the vacuum by offering an annual $50,000 prize to be awarded by the Council at its Cleveland meeting. The award ceremony attracted such speakers as President Dwight Eisenhower and astronaut Neil Armstrong — not bad for beginners! Later, financial troubles for Mr. Stouffer’s estate forced a change of name to the CIBA Award.

**What of the Future?**

There has been a surprising lack of interest in the history of hypertension, perhaps because the most important advances have come in relatively recent decades while molecular biology has begun to usurp the interest of the young. Most of the first generation (1920–1950) of serious investigators of hypertension have died. And now death is taking its toll on the members of the second generation, and — almost worse, but probably necessary — some capable investigators have become administrators and committee buffs.

The question persists as to whether any organization is so perfectly constructed that it will adapt without flaw to the rapid advances of science. In my generation (1925–1965) enormous strides were made in the treatment of hypertension and the understanding of its multiple mechanisms. But now the focus is changing; molecular biology is taking over and is now on the cutting edge. Whether this vast accumulation of knowledge gathered during my generation will be lost is an unanswered question.
Perhaps the only real service I have performed is the laborious writing of a long and tiresome book that summarizes much of the knowledge attained during that period and points out its deficits and merits. (I.H. Page, *Hypertension Mechanisms*. Orlando: Grune & Stratton, 1987).

There is another question that must be posed. Is the Council equipped to continue to represent the best of an advancing field worldwide? It has maintained the highest standards for 41 years. It uniquely tries to present only the best in both basic and clinical science. That being so, it cannot compete successfully with the more mundane educational societies whose function is to teach the practice of medicine but not to support the basic research on which treatment is based. It was the first such organization in the world to assume the responsibility for this task. It has welcomed and helped organize several other large organizations such as the International Society of Hypertension. It is hoped, for the sake of the field, that we will not see the development of organizations whose main function is competition. This would only add another burden to the two great dangers of the growth of knowledge — the overloading of mental circuits and the diversion of efforts by committees and task forces away from research itself.

If the Council remains a friendly forum for the presentation of the best in hypertension research to a critical audience, its unique position is assured. For the prepared mind, criticism can be a stimulus to greatness. Beware of those with a love of money uncoupled with a critical brain. We have a right to expect the best at every Council meeting.

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