Pete Drobach has a knack for getting to the root of a problem.

High school students John Magish and John Ripley would be the first to agree. They're both student members of a "big brother" program that Pete sponsors. Each week, they spend several hours of their own time helping less advanced classmates with their studies.

Pete is more than a sponsor. He's also a consultant—particularly when they're stumped by the logic of a tough "new math" problem.

But when Pete graduated from Rutgers in 1964, it wasn't these youngsters with their homework problems that brought him to General Electric. It was the chance to help people in industry solve tough technical problems. A career in technical marketing at General Electric gave him the opportunity.

Today, Pete's an application engineer in steel mill drives and automation systems. His ideas on how to apply products from many of GE's 160 separate businesses enable his customers to improve the efficiency and productivity of their plants.

Like Pete Drobach, you'll find opportunities at General Electric in R&D, design, production or marketing that match your qualifications and interests. Talk to our man when he visits your campus. Or write for career information to: General Electric Company, Room 801A, 570 Lexington Avenue, New York, N.Y. 10022.
HKN Award Dinner
by Robert W. Slade
Award Organization Committee

An atmosphere of progress, change and future challenge dominated the Eta Kappa Nu Award Dinner held March 16 at the Belmont Plaza Hotel, New York City.

The dinner—one of the best attended in recent years—honored three men active in fields virtually unknown to electrical engineers when the Award was established 32 years ago.

The Outstanding Young Electrical Engineer of 1967, Dr. Robert F. Elfant of International Business Machines Corporation, was recognized for his contributions to computer memory research. Honorable mentions went to Dr. George H. Heilmeier of RCA Laboratories for his study of new effects in solids and liquids, and to Dr. Robert W. Lucky of Bell Telephone Laboratories for his contributions to the field of data communications.

Winners of the award and honorable mentions are selected for outstanding professional achievements, civic and social activities, and cultural pursuits.

They must be no more than 35 years old, with a B.S. E.E. or equivalent degree held no more than ten years.

The featured speaker at the dinner was Dr. James Hillier, vice president, RCA Laboratories, who discussed the future of R & D. He observed that "the growth of R & D output, in the form of new products and new technology, seems to be on a collision course with the ability to generate the investment money required to feed it into our economy."

Dr. Hillier noted that the costs of exploiting a new technology are substantially larger than the cost of developing it; that the growth of R & D is rapidly outstripping the availability of investment funds to exploit it; and that good projects by present standards may not be able to meet the far more stringent requirements of the future.

He concluded that "those organizations which have been trying to develop incentives to increase the investment in R & D are actually on the wrong track. They should be turning their attention to the development of incentives for greater investment in the utilization of R & D results—a significantly different objective."

Chairman of the Eta Kappa Nu 1967 Jury of Awards, which selected the winners, was Frank A. Gunther, executive vice president and director, Dynamics Corporation of America and president, Radio Engineering Laboratories. Jury members were: Eugene D. Becken, vice president and chief engineer, RCA Communications, Inc.; John Farley, Switching Supervisor, Illinois Bell Telephone Company; S.B. Ingram, director of Technical Employment Center, Bell Telephone Laboratories; Edward A. Leach, vice president Sangamo Electric Company; Berthold Sheffield, Radio Corporation of America; William P. Smith, Dean of Engineering, University of Kansas; John V. Walsh, vice president of engineering, Sperry Gyroscope Division; and Roger I. Wilkinson, Bell Telephone Laboratories.

The list of candidates was presented to the Jury by the Eta Kappa Nu Award Organization Committee, chairman by Berthold Sheffield. Committee members are: Robin Beach, Emerson D. Callahan, Reed Cronce, Larry Dwon, Irving Engelson, Anthony F. Gabrielle, Edward E. Grazda, William B. Groth, Everett S. Lee, Edgar W. Markard, John M. Monstein, Harlan J. Peris, Sheldon J. Raiter, Frederick A. Russell, Robert W. Slade and Roger I. Wilkinson.

Left to Right: Mrs. George Heilmeier, Dr. George Heilmeier, Mrs. Robert Elfant, Dr. Robert Elfant, Mrs. James Hillier, Dr. James Hillier, Dean William Smith

Left to Right: Dr. James Hillier, Dean William Smith, Dr. Robert W. Lucky, Mrs. Robert W. Lucky, Mrs. W. Lee Shevel, Dr. W. Lee Shevel.

Left to Right: John Tucker, Craig Kirkwood, Mike Marcus, James Carlos, Robert Olsen, Eugene Boehne, Larry Dwon, Holmes MacDonald, H. L. Ablin, Steve Finn.

Left to Right: Carla Wilkinson, Sidney B. Imgrund, Mrs. John Walsh, Mr. John Walsh, Mrs. Edward Leach, Mr. Edward Leach, Mr. Anthony Gabrielle, George DeAnders, E. Walden.

President William Smith, Mrs. Robert Elfant, Mr. Robert Elfant.

Dr. George Heilmeier responds to his award.
The most highly prized possession the boy had was a very small and very old axe that was given to him by the man he called Grandpa Morse. He could not remember exactly when it was given to him, but it was before the boy was six years old. The evidence to establish this fact is that on the day his sister Olivia was born his Grandmother Smith sent him to cut sassafras wood with his axe from which she extracted fluid supposed to be good for washing a baby’s eyes.

The boy always enjoyed going with adults to spend a night at the Morse home. He never forgot his amazement to see Grandmother Morse put hot coals from the open fire into a covered container, and by use of its long wooden handle, move the container between the sheets of the bed in which he was to sleep that cold winter night. He had never before had such a warm bed to crawl into. The boy also was interested to watch the cooking of food over the open fire. There were no iron stoves in that house to be used for cooking food or warming rooms.

One Sunday morning the boy was amazed to see Grandpa Morse joking his oxen in the barn yard. He asked if it was wicked to make oxen work on Sunday. The old man replied that he thought Sunday was a good day to draw stable manure into the field where potatoes were to be planted. The boy watched the oxen being driven in the field and manure being dumped from the cart as people in horse-drawn wagons passed along the road on their way to church. After those people had passed from sight the oxen were brought to the barn and unyoked. When he had become older he learned that this kind old man apparently enjoyed doing unusual things which attracted attention.

On clear November mornings as the boy followed his line of traps over the pasture hill back of his home, in the distance to the south he could see another hill on which the house in which Jedidiah Morse was born. On those occasions the boy’s thoughts were more on the hope he might find a skunk caught in one of his deadfalls than about Jedidiah of whom he heard the older members of his family speak. Jedidiah had graduated from Yale, and in 1789 produced the first books dealing with geography to be used in America.

He was interested to learn that Jedidiah’s son Samuel was cousin of the old man who had given him the small axe. Then later he became interested in things electrical, he became deeply interested to learn that Samuel Morse had invented the telegraph, and was surprised that the telegraph had been invented by a man who had gained fame as a potrait painter.

The man the boy called Grandpa Morse was not his real grandfather. His Grandfather Paine died when the boy was seven years old, and Grandfather Smith, on his mother’s side of the family, had lost his life as a Civil War soldier. But Grandfather Smith’s brother John had married Frances Cornell, the younger relative of Ezra Cornell who helped to bring the telegraph into general use and had later founded the university that bears his name.

To the south of the boy’s home in Woodstock, Connecticut at a distance about as far as a horse was supposed to be driven in a single day, was the town of Plainfield where the Cornell home was located. Aunt Frances, as the boy called her, was the last remaining member of the Quaker group who had lived in that region during several generations. The migration of the Cornell family to the west began about the time of the American Revolution when it was found there was insufficient land in that part of New England to support the increasing population with the rural life of that period.

As he rode the horse-drawn vehicle to visit the family of Uncle John Smith and the boy knew when he had come to the Cornell farm before the house was in view. On that farm all stone walls stood straight and plumb instead of the tumbled down condition of other farms. The wooden barways were all in perfect order and the weeds and bushes were cleared from the roadside. Aunt Frances’ older son was lured to the west in hopes of finding gold and a little later her younger son went to Kansas. The gold was not found but one of the two became owner of a large wheat farm in Washington and the other became a doctor and founded a hospital in a region that lacked medical facilities. Her unmarried daughter Anna Smith, was a teacher in Worcester living in an apartment with another teacher Sarah Averill.

At the age of 17 the boy passed the entrance examinations at Worcester Polytechnic Institute. A great depression had developed. The boy’s father had little money but borrowed enough to cover tuition fees that not enough was collected to cover the expense for room and board. Anna kindly invited the young man to live in her apartment and for him to pay years later. Had not Anna done this the study program could not have been carried out.

John Smith had died but Aunt Frances continued to live in the ancient Cornell house. During winters she was with daughter Anna. Aunt Frances was a great talker and her favorite topic was her relatives, especially those of past times. She corresponded with Cornell relatives who lived as far away as California and Australia. As she talked the young man tried his best to listen in a polite manner but he was shocked on one occasion to have her stop talking, and after looking at him sharply for a moment to exclaim “Why Ellery, you do not seem at all interested to hear about your family relations.”

Ezra Cornell made many visits with his Plainfield relatives when Aunt Frances was a young woman she remembered the stories he told about his activities which had brought him great wealth and fame. The young engineering student at Worcester soon became fascinated to hear his Aunt Frances tell about Morse and his association with Cornell in bringing the telegraph into the service of society. Never again did she have evidence that he did not show interest in what she said.

Ezra’s father left Plainfield to live in Westchester County, New York where Ezra was born in 1807. According to modern standards Ezra had a meager education yet he did teach country school a term or two. He learned the trade of carpenter and worked in a machine shop for a year. In 1826 Ezra moved to Ithaca where he operated a mill for about eight years then joined his brother in farming and lumbering. He became interested in building plows and this brought him in contact with Samuel Morse who invented the telegraph in 1835 and in 1843 was granted $30,000 by the Federal Government to build a telegraph line between Baltimore and Washington. Morse’s plan was to bury an insulated conductor in the earth through which the electric signals were to pass. Ezra agreed to build a special plow to open the furrow in which the conductor was to be placed and to have charge of operating the plow and install the conductor.

According to the story Ezra told his relatives, it was the custom each night to send telegraph messages over the conductor which was buried. It was found that as the distance increased the signals became weaker, and finally failed completely. Morse was distraught and told Ezra “We are ruined.”

Ezra replied that they were not yet ruined. He urged Morse not to announce the failure of signals to pass through the buried conductor, and to let him handle the matter the following day. (Continued on Page 15)
A FIRESIDE CHAT  
with Cleo Brunetti

Construction of a nuclear power plant operating on the bottom will have been started.

Our Company has built a seagoing vessel for the Scripps Institution of Oceanography at La Jolla, California, called the FLIP. It is 355 feet long... At sea the vessel can be made to flip itself vertically. When it does, most of its 300 foot length goes underwater and five stories of laboratories remain above water. This provides a "stable platform" for scientists to conduct studies at sea. Even though it may encounter 35 foot waves, the vessel moves only a few inches up and down...

We are now working on a deep diving system (DDS) designed to carry workers from ship to a depth of a thousand feet. This system is to be used for salvage operations throughout the world. It consists of two main units — a decompression chamber aboard ship and a diving capsule. Divers enter the water in the spherical diving capsule which takes them to the bottom and has an opening which allows them to go out and work on the ocean floor... They live in this system for something like three weeks, going up and down freely without danger of getting the bends, since the same pressure is maintained in all parts of the system, the decompression chamber, the diving capsule and the ocean bottom...

By 1975, we expect to have established manned-habitation at 6,000 feet, including underwater sea terminals. At that time we will be producing oil and gas from shelves below 1,000 feet and doing some preliminary mining of phosphorus and manganese nodules. Permanent ocean platforms,

The FLIP (Floating Instrument Platform) ship settles into its vertical working position. In its horizontal position FLIP floats on the surface like a normal vessel. When it flips vertically, its narrow tubular base rests on the bottom of the sea. (Photo courtesy FMC Corporation)

Los Angeles Regional

by William Bonner

A regional visitation was held in Los Angeles on February 17, 1968. There were eighteen delegates from active chapters, two faculty advisors, and five members of the Los Angeles Alumni Chapter present.

Epsilon Nu California State College of Los Angeles
Epsilon Theta University of Southern California
Epsilon Beta Arizona State University
Epsilon Iota San Jose State College
Mu University of California, Berkeley
Epsilon Theta California State College of Long Beach

We profited by the reports from previous visitations which indicated that informality is necessary.

Mr. Alex Kendall, past president of Los Angeles Alumni Chapters and presently associated with TRW Systems Group, arranged a tour for the TRW Space Park. This is one of the outstanding research and development centers of the world. Having the tour first set the participants at ease for the discussions which followed.

After the tour, Mr. Andrew Mienke, Jr. of TRW Public Relations made a short and very interesting presentation. This was followed by a short statement by one delegate from each chapter. The program areas mentioned in these statements were used as a basis for discussions in the afternoon.

We then moved to the Pen and Quill restaurant for lunch as the guests of TRW.

A two hour discussion followed lunch, and it was tremendous. The delegates really exchanged ideas. These six chapters are all in relatively healthy condition but certainly not without problems.

LETTERS TO THE EDITOR

April 15, 1968

Dear Sir,

I received the May issue of The Bridge today. I especially enjoyed reading "Telescopes Through the Ages" and the advertisement of Western Electric. I was the first to solicit advertising in The Bridge. I worked at Hughes Aircraft Co., in Culver City and they were first to have an ad in The Bridge of Eta Kappa Nu. I believe the cover on the current issue is great.

Stanley "Ray" Wirth
1719 Vegas Valley Dr.
Las Vegas, Nevada
ELECTION YEAR 1968

In the spirit of this important election year, BRIDGE is pleased to present the following article on the subject POLITICS OVER A CUP OF COFFEE, as well as the special eight page supplement (starting on opposite page) entitled THE FEDERAL CONSTITUTION.

From the local school board to the major national campaigns — a candidate is handicapped if he hasn't made points and influenced votes over an informal coffee get-together. Ohio's Representative Donald E. Lukens (R), for example, estimates he attended more than 750 campaign coffees during his successful race for a seat in the 90th Congress.

But this brew is not new! Political history has always been laced with coffee. The coffeehouse was traditionally the place where the hottest issues of the day were stirred up. Fore-runners of the political club — such famous coffeehouses as Will's, Buttons, the Green Dragon and Procope's — are ground into history itself.

The first coffeehouse was established in London in 1652. Within twenty years, coffeehouses had come to play so important a role in the social and political life of the day that Charles II attempted to repress them on the ground that they were "seminaries of sedition."

But history was being hatched over hot coffee and Charles II could not stop the flow. In spite of royal opposition, the free-thinking spirit of the English coffeehouse survived.

The French had a word for it — and how important a word is shown by the fact that our common term for restaurant is café, the French word for coffee or coffeehouse. At Procope's in Paris, Robespierre, Marat and Danton plotted the fall of Louis XVI and Marie Antoinette — cakes didn't help her with those coffee drinkers either! But Procope's didn't lose its head — in 1790 it was still around, draped in black to mourn the passing of that friend of the Republic, Benjamin Franklin — and still later it played host to a poor artillery officer named Bonaparte who was forced to leave his tricorned hat as security for unpaid coffee bills.

The spirit of coffee and caucus was soon imported to the New World. Boston's Green Dragon was by far the most celebrated of the American coffeehouses — and Daniel Webster called it the headquarters of the Revolution; but the King's Arms near Trinity Church was also well known. Rooms on its second story were used for public trials and political meetings.

This historic gastronomic combination is as politically potent today as it was when John Adams led a band out of the Green Dragon to dispose of a great deal of tea! With an estimated 42,000 elections held in the United States every year, the campaign coffee gathering is made to order for down home politicking.

Among the more enthusiastic boosters of the campaign coffee is Sen. Howard H. Baker, Jr., who made especially effective use of the gatherings in his successful 1966 bid to become the first Republican ever elected to the Senate in the history of Tennessee. According to Senator Baker, coffee get-togethers give a candidate a chance to meet people not ordinarily involved in his campaign. He says the campaign coffee plays an important role in describing the "deadly serious business" of politics to voters.
TAXATION AND THE FEDERAL CONSTITUTION

JAMES MADISON
President of the United States

Give me leave to say something of the nature of the government, and to do so in a way that it is perfectly safe and just to vest it with the power of taxation. There are a number of parts in its constitution; but the principal question is, whether it be a federal or a consolidated government. In asking this question before we must consider minutely, in its principal parts. I myself conceive that it is of a mixed nature; it is, in a manner, unprecedented. We cannot find one express prototype in the experience of the world: it stands by itself. In some respects, it is a federal nature; in others, it is of a consolidated nature. Even if we attend to the manner in which the Constitution is investigated, ratified, and made the act of the people of America, I can say, notwithstanding what the honorable gentleman has alleged, that this government is not completely consolidated; nor is it entirely federal. Who are the parties to it? The people — not the people as composing one great body, but the people as composing thirteen sovereignties. Were it, in this form, a consolidated government, the assemblage of a majority of the people would be sufficient for the exercise of all the means of defense and protection. We have adopted it already, the remaining States would be bound by the act of the majority as a consolidated government, and it is unable to repel it. Were it such a government, the power of the people in this State, without having had the privilege of deliberation upon it; but, so, it is, without its own consent. Should all the States adopt it, it, for the people of the nation, is established by the thirteen States of America, not through the intervention of the Legislatures, but by the people at large. In this particular relation, we have derived from the dependency of the existing and proposed governments is very material. The existing system has been derived from the dependent derivative authority of the Legislatures of the States; whereas this is derived from the people of the United States. If we look at the manner in which alterations are to be made in it, the same idea is in some degree attended to. By the new system, a majority of the States cannot introduce amendments; nor are all the States required for that purpose; no majority can concur in alterations; in this there is a departure from the federal idea. The members of the national branch of Representatives are to be chosen by the people at large, in proportion to the numbers in the respective districts. When we come to the Senate, its members are elected by the States in their equal and political capacity; but had the government been completely consolidated, the Senate would have been chosen by the people, in their individual capacity, in the same manner as the members of the other House. Thus it is of complicated nature, and this complication, I trust, will be found to exclude the evil of absolute consolidation, as well as of a mere confederacy. If Virginia were separated from all the States, her power and authority would extend to all cases; in like manner, were all powers vested in the general government, it would be a consolidated government, but the powers of the Federal government are enumerated; it can only operate in certain cases, has it legislative powers on defined and limited objects, beyond which it cannot extend its jurisdiction.

But the honorable member has satirized, with peculiar acrimony, the power given to the general government by this Constitution. I conceive that the first question on this subject is, whether these powers be necessary; if they be, we are reduced to the dilemma of either submitting to the inconvenience, or losing the Union. Let it be supposed that the most important of these republied powers; that of direct taxation is most generally objected to. With respect to the exigencies of government, there is no question but the most easy mode of providing for them will be adopted. When, therefore, direct taxes are not necessary, they will not be recurred to. It can be of little advantage to those in power to raise money in a manner oppressive to the people. To consult the conveniences of the people, and in many respects will be advanta-

ges to them. Direct taxes will only be resorted to for great purposes. What has brought on other nations those immense debts, under the pressure of which many of them labor? Not the expenses of their governments, but war. If this country should be engaged in war (and I conceive we ought to provide for the possibility of such a case), how would it be carried on? By the usual means provided from year to year. If necessary, they will be for the expenses of government, and other common exigencies, as we are able to raise them. How is it possible a war could be supported without money or credit? No, it can only be supported by any government, in such a case, to defend itself. It is in the power of the Constitution to establish funds for extraordinary exigencies, and give this power to the people of the United States, for the utter impossibility of getting a controlling power of raising money? Has it not been necessary for Great Britain, notwithstanding the burden of her taxes, to have recourse very often to this and other extraordinary methods of procuring money?
Section 1. The executive Power shall be vested in a President of the United States of America. He shall hold his Office during the Term of four Years, and, together with the Vice-President, chosen for the same Term, be elected as follows, viz., by the Electors in each State, who shall have the Qualifications requisite forChoosing Electors of the Legislature of the State, and who, on the Election of the President and Vice-President, shall have the Power of Voting for the persons of their Choisest Preference, without regard to any Party from which they may have received ANY Advantage whatever. However, no Person shall be chosen a Senator or Representative in any State, nor shall any Person hold any Office under the United States, unless they have attained to the Age of thirty-five Years, been a Resident of the United States for seven Years, and are a natural born Citizen of the United States, or a Citizen of the United States by Naturalization, at the Time of the Adoption of the Constitution. The Electors shall meet in their respective States, and vote by Ballot for two persons, of whom one at least shall not be an Inhabitant of the same State with either of the Candidates for President. A Majority of all the Electors may vote for President, and a Majority of the Electors then present may vote for Vice-President. But in case the Number of Electors be not equal to a Majority, each State shall have as many Members as it judgments, that the states, with every power in their hands, shall not be governed by the dictates of any other states, nor be subject to the national authority, till the Congress of the United States, at the Time of their Meeting, shall give their Assent thereto. There are certain social principles in human nature from which we may draw the most solid conclusions with regard to the conduct of individuals, and of communities. We love our families more than our neighbors, and our neighbors more than our countrymen in general. The human affections, like the solar heat, lose their intensity as they depart from the center, and become languid in proportion to the expansion of the circle on which they act. On these principles, we may say that no Governmental power, individual will be first and forever secured by the state governments; they will be a mutual protection and support. Another source of influence, which has already been pointed out, are the various official connections in the states. Gentlemen endeavor to evade the force of this by saying that these offices will be insignificant. This is by no means true. The state officers will ever be important, because they are necessary and useful. Their powers are such as are extremely interesting to the people; such as affect their property, their liberty, and life. What is more important that the administration of the justice, and the execution of the civil and criminal laws? Can the state governments become insignificant while they have the power of raising money independently and without control? If they are really useful, if they are calculated to promote the essential interests of the people, must they have their confidence and support. The states can never lose their powers till the whole body of the people of America are robbed of their liberties. They are the people they must support each other, or meet only one common fate. In this principle, we may safely trust the state governments, though we have no means of resisting them; but we cannot continue to beóer, as the states, though we have an effectual constitutional guard against every encroachment. This is the essence of their argument, and it is false and fallacious beyond conception.

With regard to the jurisdiction of the two governments, I shall certainly admit that the Constitution ought to be so formed as not to prevent the states from exercising the powers of their own existence; and I maintain that it is so formed, and that their power of providing for themselves is sufficiently established. This is conceded by one gentleman, and in the next breath the concession is retracted. He says Congress has but one exclusive right in that respect, and that is, to regulate commerce with foreign powers. There is certainly, their other powers are only concurrent. But to take off the force of this obvious conclusion immediately says that the laws of the United States are supreme; and that where there is one supreme there cannot be a concurrent authority; and Congress can usurp the powers of the states. This is the absurdity of the arguments of the Union are supreme, those of the states must be subordinate; because Congress is to be the supreme. The Union is curiously sophistry. That two supreme powers cannot act together is not an argument, because they are aimed at each other at or at one indivisible object. The laws of the United States are supreme, and they apply to all their proper constitutional objects; for that is the very idea of an indivisible object. These supreme laws may act on different objects without interference; but they can only act on different parts of the same common object with perfect harmony. Suppose two governments should lay a tax of a penny on a certain article; has that article a right to fix on the other, controllable power to collect its own tax? The meaning of the maxim, there is no law supreme but the law of nature, is that this — two powers cannot be supreme or co-ordinate. This means is entirely pervetted by the gentleman.
JUSTICE AND THE FEDERAL CONSTITUTION

JOHN MARSHALL
Chief Justice — The Supreme Court

The honorable gentleman, Mr. Hay, has expatiated on the necessity of a due attention to certain maxims to certain fundamental principles, from which a free people ought never to depart. I concur with him in the propriety of the observance of such maxims. They are necessary in any government, but more essential to a democracy than to any other. What are the maxims of democracy? A strict observance of justice and public faith, and a steady adherence to virtue. These, sir, are the principles of a good government. No mischief, no misfortune, ought to deter us from a strict observance of justice and public faith. Would to Heaven that these principles had been observed under the present government! Had this been the case, the friends of liberty would not be so willing now to part with it. Can we boast that our government is founded on these maxims? Can we pretend to the enjoyment of political freedom or security, when we are told that a man has been, by an act of Assembly, struck out of existence without a trial by jury, without examination, without being confronted with his accusers and witnesses, without the benefits of the law of the land? Where is our safety, when we are told that this act was done without an abstract, because the person was not a Scotian? What has become of the worthy member of the House of Commons? Is this an hour! Shall it be a maxim that a man shall be deprived of his life without the benefit of law? Shall such a deprivation of life be justified by answering, that the House was not at liberty to take such a step, because he was a bad man? Shall it be a maxim that government ought to be empowered to protect virtue? He then stated the necessity and possibility of obtaining amendments to the Constitution. This, though a strong maxim, is not the only one that will mitigate against previous amendments. This is, though a strong maxim, is not the only one that will mitigate against previous amendments.
APPROVAL OF THE FEDERAL CONSTITUTION

BENJAMIN FRANKLIN
Patriot

I confess that I do not entirely approve of this Constitution at present; but, sir, I am not sure I shall never approve of it, for, having lived long, I have experienced many instances of being obliged, by better information or fuller consideration, to change opinions even on important subjects, which I once thought right, but found to be wrong. It is therefore that, the older I grow, the more apt I am to doubt my own judgment of others. Most men, indeed, think themselves in possession of all truth, and that whoever else differs from them, is, in so far, to be pitied. But there are many private persons think almost as highly of their own infallibility as that of their sect, very few express it so naturally as a certain French lady, who, in a little dispute with her sister, said: "But I meet with nobody but myself that is always in the right."

In these sentiments, sir, I agree to this Constitution with all its faults — if they are such — because I think a general government necessary for us, and there is no form of government but what may be a blessing to the people if well administered; and I believe, further, that this is likely to be well administered for a course of years, and can only end in despotism, as other forms have done before it, when the people shall become so corrupted as to need despotism, being incapable of any other. I doubt, too, whether any other convention we can obtain may be able to make a better Constitution; for, when you assemble a number of men, to have the advantage of their joint wisdom, you inevitably assemble with those men all their prejudices, their passions, their errors of opinion, their local interests, and their selfish views. From such an assembly a perfect product can be expected.

It therefore astonishes me, sir, to find this system so near to perfection as it does; and I think it will astonish our enemies, who are waiting with confidence to hear that our counsels are confounded like those of the builders of Babel, and that our States are on the point of separation, only to meet hereafter for the purpose of cutting one another’s throats. Thus, I consent, sir, to this Constitution, because I expect no better, and because I am not sure that it is not the best. The opinions I have had of its errors I sacrifice to the public good. I have never whispered a syllable of them abroad. Within these walls they were born, and here they shall die. If every one of us, in returning to our constituents, were to report the objections he has had to it, and endeavor to gain partizans in support of them, we might prevent its being generally received, and thereby lose all the salutary effects and great advantages resulting naturally in our countenancing foreign nations, as well as among ourselves, from our real or apparent unanimity. Much of the strength and efficiency of any government, in procuring and securing happiness to the people, depends on opinion, on the general opinion of the goodness of that government, as well as of the wisdom and integrity of its governors. I hope, therefore, for our own sakes, as a part of the people, and for the sake of our posterity, that we shall act heartily and unanimously in recommending this Constitution wherever our influence may extend, and turn our future thoughts and endeavors to the means of having it well administered.

On the whole, sir, I cannot help expressing a wish that every member of the convention who may still have objections to it, would, with me, on this occasion, doubt a little of his own infallibility, and, to make manifest our unanimity, put his name to this instrument.

POLITICAL AND ECONOMIC RIGHTS

> Right to worship God in one's own way.
> Right to free speech and press.
> Right to peacefully assemble.
> Right to petition for redress of grievances.
> Right to privacy in our homes.
> Right to keep and bear arms.
> Right to protect our liberty against excessive bail.
> Right to trial by jury.
> Right to protection against unreasonable searches and seizures.
> Right to a speedy and public trial.
> Right to contract and enter into covenants.
> Right to the service of government as a protection of our property.
> Right to freedom from arbitrary government regulation and control.

When you leave your houseboat on the lake, and board a shikara (little boat), you can go to the mainland in the famous "Garden of Love," whose beautiful marble pavilions, terraces and fountains have survived over four centuries. Or stop to stroll through the avenues of cascades of the "Garden of Pleasure," or to see the "Garden of the Morning Breeze," which is the oldest of those in Kashmir.

If you want a change, you can take excursions into this Himalayan area, which is dotted with lakes — some of them afloat with lotus blossoms, others still and crystal clear.

On Gulmarg, a nearby mountain, you can play golf on a course which is 8,500 feet high. Or you might want to go on a shikar (hunt) and try your hand at shooting snow leopard, tiger, Kashmir stag and a host of other animals.

The city of Srinagar near Dal Lake, where many of the houseboats are moored, is a must on the itinerary of travelers to this area. One of the most unique sights here are the houses with their gay flowering rooftops.

The bazaar of Srinagar is somewhat akin to a Hollywood epic showing scenic spots of the East. Men in fur caps and women in tent-like robes bargain endlessly under the awnings which cover the stalls. Horse-drawn tongas (carriages) clip by, and old men in turbans survey the scene as they draw thoughtfully on their hookahs (pipes). The stalls in the bazaar display a magnificent assortment of wares — carved woodwork, hand-painted paper mache items, shawls, carpets and semi-precious stones.

Kashmir has other beauties, too. The air is soft and soothing, the valleys are rich, the pastures green. A doctor might bottle this atmospheric and scenic "tonic" for the world weary, if it only could be bottled. But the charms of Kashmir can't be packaged. It may be easier and less expensive than you've realized, though, to go there and enjoy them for yourself.
MORSE & CORNELL…

Morse agreed to hold the failure secret but still insisted that there be no more attempts to pry into the failure of signals to pass in time be known.

The next day Morse ordered more men to the pool to pull the cable and told the drivers to keep the men going as rapidly as possible, to make a new code might be made. Ezra himself guided the men to the pool. When it was time to tell his relatives he watched until he saw a big rock they thought was entirely firm. Ezra then went to the pool himself instead of guiding the pool around the rocks, he headed the pool into it and the pool broke.

Then word was passed to the public that laying the conductor had been halted for the pool had broken. No mention was made of the failure of signals passing as already explained at the beginning of the ground. Ezra once went to consult the famous Joseph Henry who had made important discoveries in the electrical field and soon to be made director of the newly organized Smithsonian Institution. Henry suggested that the telegraph conductor be supported on wooden poles, using the glass device which had been developed to support lightening rods to protect cables. This was done and on May 24, 1844, the first official message was sent. The completed line with quotation from the Bible regarding the waters God had wrought.

Some people considered the telegraph a fraud and would not believe the messages which had actually been transmitted electrically. Some members of Congress voted against the bill in favor of the gripes. Morse was not elected to serve again at Washington. The further development of telegraph service in America was by private financing.

After the completion of the Washington-Baltimore line Ezra Cornell devoted his whole time to establish telegraph communication with other parts of leading cities of the country. He saw that the project was a world-wide business to monitor weather conditions. Ocean mining is having its problems in that, at present yields, the cost of obtaining the minerals from the ocean is prohibitive. It is still a very difficult task to man and equipment and to from these rigs. Its cost is prohibitive. The same is true of ocean mining for offshore drilling and industry and is capable of producing well ahead equipment operating at depths as low as 600 feet. Most of today's offshore drilling is done at much greater depths. By the time oil is recovered, the cost of recovering oil at thousand foot depths beyond the edge of the continental shelf.

PHILADELPHIA

ALIM LUNCHEONS

on the first Thursday of each month,
OCTOBER to MAY
AT THE ENGINEER'S CLUB

Everyone Welcome!!

GAMMA, Ohio State University—During the past year the Chapter initiated eleven new members at Industrial Nucleonics. For this the Gamma Chapter received the office research and manufacturing facilities as well as a series of slides showing how new and interesting. Pledge drive included preparing the annual National Pledge of Honor to the Engineering Department. After completing this task, the Chapter met on May 31st at The Covington Inn in Worthington on memorabilia.

Other KHC fall projects include department coffee hours to promote student faculty communications and ground work on obtaining active participation of graduate students in KHC at Ohio State.

Early in Winter Quarter, Gamma Chapter sponsored two tours for joint engineering students to North American Rockwell and one flight simulation facilities were viewed.

D.T.A, Illinois Technology—During the fall semester the Delta Chapter initiated six members into the fraternity. The banquet was held on Dec. 16, 1968 at George Diamond's Steak House. The guest speaker at the banquet was the National Vice President of KHC Midwest Region. His talk was about the projects organizations to the high school students and college freshmen with the ever widening field and challenges of electrical engineering.

IOTA, University of Missouri—The Iota Chapter of Kappa Nu at the University of Missouri conducted tours of the engineering program on University Day last fall. Some 4300 high school students visited the University and were held annually to give them an opportunity to learn more about the engineering program at the University of Missouri at Columbia.

The initiation ceremony for new electees was held in the chapter room and completed by members of the faculty. After the initiation of the largest pledge class in the history of the chapter, it held a banquet and invited the Missouri Alpha Chapter of Tau Beta Pi.

Other KHC Tour was born on December 10, 1944, in Cedaredge, Colorado, where he received his primary and secondary education. He attended the University of Wisconsin and received the Bachelor of Science in Electrical Engineering degree from the University of Wisconsin. In 1917, he received the Master of Science in Electrical Engineering degree from the General Electric Company in Schenectady, New York. The Doctor of Philosophy degree was awarded him by Iowa State University in 1932.

Dr. Edwin B. Kurtz, former President of the American Institute of Electrical Engineers, was elected as a Professor and Head of Electrical Engineering at State University of Iowa. Recently received two important honors. The Public Utilities of Iowa set up a fund of $12,000 in the Iowa University Foundation to make possible an annual Engineering College lecture on some aspect of Electric Power. It is called the Edwin B. Kurtz Lectureship. The first lecture was given by Dr. Philip Sorn, Emeritus Member of Kappa Nu.

PI, Oregon State University—This last year the Oregon State University once again had its fall initiation complete and distributed. The departmental student faculty directory, which we sponsored. Following the initiation, a banquet was held. The speaker was a student who received the highest honors who had just returned from a year at teaching at the University of Oregon and had answered the many questions his comments were made during the tour of discussing with him what things he had. During the two tour, we had conducted tours at Oregon State University, a day when high school students came down to look at the school.

BETA ALPHRA, Drexel Institute—On December 2, 1968, the Beta Alpha Chapter Union College will exhibit the twenty-two new members. On January 4, 1968, (Continued on Next Page)

WHO'S WHO IN ETA KAPPA NU

Chairman of the Board of the American Electric Power Service Corp.

In addition, many of Dr. Kurtz's friends and former students have been elected to establish the Iowa University Foundation. He received an award for the outstanding senior E.E. Student. The award is known as the Edwin B. Kurtz Merit Award and is administered by The Beta Iota Chapter of Kappa Nu.

Dr. Edwin B. Kurtz was born on December 10, 1944, in Cedaredge, Colorado, where he received his primary and secondary education. He attended the University of Wisconsin and received the Bachelor of Science in Electrical Engineering degree from the University of Wisconsin. In 1917, he received the Master of Science in Electrical Engineering degree from the General Electric Company in Schenectady, New York. The Doctor of Philosophy degree was awarded him by Iowa State University in 1932.

Dr. Kurtz is the author of seven books and forty-six papers. In addition to being a National President of Eta Kappa Nu, he has served the Association conceiving and assisting in the establishment of many different projects, such as the HMK Visiting Committee. Ed is definitely one of our oldest and best friends.
CHAPTER NEWS (continued)

RA sponsored the second annual student faculty "sea" held at the RA. Current activities of the chapter include maintaining a list of graduate school catalogs, tutoring undergraduate students, sponsoring a Husky basketball tournament (HKN and faculty currently tied at one), sponsoring basketball and bowling with other fraternities, and maintaining a student lounge in the EE building.

BETA DELTA, University of Pittsburgh — This fall the Beta-Delta chapter inducted fourteen new members into the chapter. Their pledge duties included bringing our files up to date with their work and their use in the department. The engineers for Engineer's Week which comes in the middle of March. At this time the University gives the engineers an opportunity to show what they can do. There are games, dances, and exhibits. Each department carries in ability, enthusiasm, and attendance. Each Beta-Kappu Nu traditionally spearheads the effort of the Electrical Engineering Department's Engineer's Week. This year the Beta-Delta chapter was named the winners of the competition.

DELTA SIGMA, University of Notre Dame — Delta Sigma had an active freshman and sophomore class this year. The activities involved included a series of campus wide events for freshmen and sophomores. These activities included many social events, as well as many educational and professional events.

GAMMA THETA, University of Missouri — Had a new active sophomore class this year. The chapter is in the process of expanding the membership and looking for new members.

DELTA KAPPA, University of Maine — The activities of the chapter in the fall were very successful. The student members of the chapter met regularly and discussed various topics related to electrical engineering.

DELTA OMEGA, University of Hawaii — The Delta Omega chapter started their activities for the fall with a successful "Meet the Faculty" event. The members of the chapter met with the faculty to discuss various topics related to electrical engineering.

EPSILON IOTA, San Jose State College — The fall semester of 1967 has witnessed an increased student interest in Epsilonsota, as indicated by accepting to membership the largest group of pledge students this year. On January 5, 1968 the initiation and initiation banquet were held for fourteen new members and two graduate members. With such enthusiasm and interest Epsilonsota should be able to maintain peak membership in the coming semesters.

Several other projects, including a field trip and the possibility of publishing a brochure for the Epsilonsota were considered. There has been no definite action taken on these proposals.

EPSILON KAPPA, University of Miami — Delta Kappa had an active freshman and sophomore class this year. The activities included a series of campus wide events for freshmen and sophomores. These activities included many social events, as well as many educational and professional events.

DELTA SIGMA, University of Notre Dame — Sigma had an active freshman class and sophomore class this year. The activities included a series of campus wide events for freshmen and sophomores. These activities included many social events, as well as many educational and professional events.
The Great Sahara Mousehunt

Collins and Mogg, Plemont

25TH MARCH

THE MEN HAYE rigged tarpsaulins, one by No. 4 so that Taffy and John can work without being fried alive and one in front of No. 5 for to loaf and lunch. Francis has taken Winston and Hank and two others to make a reconnaissance and see if they can find the marked track for Uweinta. The big group about to go out for digging the car out they should be able to find the track about ten kilometers ahead. A marked track consists of an iron post on the top of a dune, outcropping or any available high point. Alternately cars of rock are used; these are so obviously heaped up by man that they cannot be mistaken. The markers are approximately five kilometers apart and each should be visible from at least one kilometer away. A car that goes off course cannot be relied upon as they are sometimes blown down by the wind, and sometimes stolen for tent poles by Bedouins.

Livy returns from an errand on the way back after his car repairing the speedometer; he is very sweaty and hot-looking when seen at all. Catherine and I have made Bikini tops from the bright orange distress-signal flags. We want to roll back into Bengazi with impressive tags. When the reconnaissance party has returned we all crowd under the tarp and eat bread-and-cheese, peanut butter (a discovery for the British who pick at it suspiciously but declare in favor), sardines packed in oil, which we decide has once seen the inside of a petrol-drum, and simmered fruit. Livy regales with stories of officers, none of whom does he seem mad about. "Noon," he says, "sum of them air verra wet, excuzin' me, Minter Bikib goin.'" There is no enthusiasm dialog from the other men. Livy is simply looking at the sand and they are made quite happy hearing how hard an American soldier's life can be. Winston spends the afternoon napping with a book from his 'required reading' shacking his head to keep the light out. Charlie is sun-bathing behind one of the cars. He is very fair and will probably burn and thus can be his own first patient.

Unlike the wastes of Southern California, Arizona and New Mexico, this is no living desert. In some places—and this is one of them—it is completely devoid of water, but here and there you see a meandering stream track; in others, seemingly as arid, there are thousands of them. The water is perfect for the camel, the goat, the camel, and the goat. At times the stream is a torrent into the real desert, though Hank thinks that they occasionally do, during the season when birds migrate.

Livy says that he has seen mice hunt here; an average realization of the immensity of the desert. It seems reasonable enough that a man or animal could die of thirst; but should not a bird, figuratively and literally, be above this? But even they are not, poor things. However swift their flight they have to sometimes hundreds of miles to find water, and all of the time fighting air so thin they must use twice the energy and develop a thirst twice as great as they normally would. Every bit of shade, outcropping of rock, the hulk of any abandoned truck, the north side of any jettisoned oil-drum harbours a few dried-up feathers or a partially finished mound of white bones. For some reason rainfalls and swallows suffer the most. Perhaps what I first thought was inquisitiveness was a desperate search for shade, for they often come into camp. On several occasions we have put water for them, but none of us have seen them take any. Hawks and hawksman, to survive in this country should be like heroes and the devil, or perhaps both. There is no food to drink avoiding, as food will not sustain you but only cause great agony. You can see seven days without food and go on for another day. You are not trapped by them; you are in time in any case. By no means drink alcohol, blood or urine, all of which contain a heavy residue of protein. If you have a camel available you can cut into his stomach and drink the liquid which, while not Coca-Cola, is apparently better for you than whisky, blood or urine. It is also said that if you gut the animal and crawl into the drum slowly enough they will get off the gas and may even sprout your chance of survival. Catherine and I wonder if it's worth it. We also think that a rescue unit might insist on your walking home.

The sun is boiling hot but the shade pleasantly cool. Despite the lack of life in this desert an armour-plated insect with striped and spiky double antennae is still on the prowl. It's different but it seems to want my toes. I've moved twice but it only follows me around. I'm afraid it's going to want to come to Tiberius with us. Anyway, I don't understand what it lives on out here where there is nothing. Livy thinks that it may have come in the car from Kufra, which gives one to think of what else may be in the cars. It's interesting that at all. At all. At all. I'm not to travel in No. 2. She says it looks gaunt and hungry. The boys say if I'd just stop fidgeting about they will find it out if it is a carious. I have retreated to the car where I am pretending to read. Not that I am afraid, of course. I notice that the others have all found excuses to turn themselves off, leaving our six-legged enemies to scramble for what they can find for themselves.

The scorpions, which Livy promised Catherine would only be around their car, are pretty invisible, though we have seen tracks where they have scarried crab-like between our beds at night. Catherine, since she first heard that both scorpions and snakes are dangerous, has been quite anxious to escape the car in order to go to bed, but now she simply casts her shoes to bed with her. She says that if they were dainty little shoes it would be all right, but she keeps stumbling over them in her sleep. Hank has not bothered to set the traps out here. In some places, he says, you never see a mouse track; in others, seemingly as arid, there are thousands of them. The water is perfect for the camel, the goat, the camel, and the goat. At times the stream is a torrent into the real desert, though Hank thinks that they occasionally do, during the season when birds migrate.

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Disappointed at last, we turn back to the mountain, as
impressive as ever except that now it is black instead of pink;
the stars rain down on it, and its base not a single light thing to
welcome us home. Have we gone further south than we thought,
we are coming into another mountain in the range altogether?
Or have things merely gone to bed and like good citizens Scots
turned out all of the lights? Hank is encouraging, perhaps
afraid that I will worry. He says: ‘We’re right on the beam.
We’ll come in north of the camp and hunt fox along the base
of the mountain. We’re right on the beam.’
I refuse to be tranquillized. None of us has ever seen the sil-
houette of the mountain from this place before, so it seems to be
axiomatic that we cannot know where the beam is, let alone be
on it. ‘We’re lost,’ I mutter crossly, and wonder just how cold
the night will be in shorts and no sweater, how hard the sand
with no cot or air mattress. The men are no better dressed
than I, and I won’t even be able to take female advantage and let
them strip to keep me warm, without having three nude men
on hand. Furthermore, being lost with a bag full of game would
be one thing; I decide that there is an ignominiousity to being lost
without having fired a shot. We come in at last to the base
of the mountain and scout along first to the north and then back-
trucking to the south. No camp, nor Ain Zawai, no beam. Hank
continues to be cheerful, Liv optimistic and John silent. As
for me, I bristle. But perhaps no one feels it but myself; I am like an
inward-growing porcupine. I don’t mind being lost but I want
not to be lost silently, so that I can enjoy the desert without undue
cheer. And of course eventually we find Ain Zawai, its little
brown boxes attracting pools of sunlight, its six adults, twenty
children, four goats, two camels, herds of flocks, all sleeping
peacefully. From here we know the way home and we turn and
turn the mountain. Even now we almost miss camp. Amongst
the boulders the cars are toys, dark and dwarf. It is midnight when
we come in and we are not particularly quiet, taking revenge
by stumbling over our beds and rattling our wash-basins and
tooth-mugs. They could have left one head-lightly-on.

Somewhere in the night a plane whines overhead. Probably
running between Khartoum and Benghazi. It is strange to hear
and think of that bubble of comfort suspended so precariously
over this hostile desert—well-turned hostesses with well-chilled
martinis, children asleep under dimmed lights, crumpled
sheets. As I search among the stars for that restless intruding red-and-
green one, I do not envy them.

(Continued)
What is there left for you to discover?

Cyrus the Great, King of Persia, built a communications system across his empire some six centuries before the Christian Era. On each of a series of towers he posted a strong-voiced man with a megaphone. By the 17th century, even a giant megaphone built for England's King Charles II could project a man's voice no further than two miles. This same king granted Pennsylvania to Admiral William Penn as a reward for developing a fast, comprehensive communications system — ship-to-ship by signal flags.

We waited for the combined theories of Maxwell, Hertz, Marconi and Morse before men could transmit their thoughts by wireless, though only in code. Only after Bell patented his telephone and DeForest designed his audion tube could men actually talk with each other long-distance. Today nations speak face-to-face via satellite. Laser-beam transmission is just around the corner. Yet man still needs better ways to communicate across international boundaries.

In a world that has conquered distance, in a world whose destiny could hinge on seconds, man is totally dependent on the means which carry his voice and thought. It is this means that we in Western Electric, indeed the entire Bell System, have worked on together since 1882.

Our specialty at Western Electric is the manufacture and installation of dependable, low-cost communications systems for both today and tomorrow. And to meet tomorrow's needs, we will need fresh new ideas. Your ideas. There is still much for you to discover right here at Western Electric.