

BRIDGE



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Electrical Engineering Honor Society

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The BRIDGE is published by the Eta Kappa Nu Association, an electrical engineering honor society. Eta Kappa Nu was founded at the University of Illinois, Urbana, October 28, 1904, that those in the profession of electrical engineering, who, by their attainments in college or in practice, have manifested a deep interest and marked ability in their chosen life work, may be brought into closer union so as to foster a spirit of liberal culture in the engineering colleges and to mark in an outstanding manner those who, as students in electrical engineering, have conferred honor on their Alma Maters by distinguished scholarship activities, leadership and exemplary character and to help these students progress by association with alumni who have attained prominence.

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OUR COVER—What could be more pleasant in the Springtime than a beautiful Japanese garden? This wood-block print, which introduces our special supplement, is by Hiroshige, the most famous of the Japanese wood-block artists. Normally, each color is printed with a separate wood-block but the wood-blocks are not available now and we wouldn't know how to use them if they were. Our cover was printed by Process Color Separations.

# OUTSTANDING CHAPTER AWARDS

First Place

University of Maryland

Regional Winners

Ohio University – University of Missouri-Rolla  
University of Southern California

by ALAN LEFKOW, Chairman

The competition for the most outstanding chapters of the 1970-71 academic year ended with the panel of judges announcing the following victors:

National and Eastern Regional Winner—Gamma Xi chapter of the University of Maryland.

East Central Regional Winner—Delta Epsilon chapter of Ohio University.

West Central Regional Winner—Gamma Theta chapter of the University of Missouri at Rolla.

Western Regional Winner—Upsilon chapter of the University of Southern California

In addition to the recognition of a job well done, each winner will received a beautiful engraved plaque for display at their school. In noting, it's commendable that Upsilon has won the Western Regional title for the past four years and Gamma Theta the West Central title for six of the past eight.

Winning chapters don't necessarily have the most activities but, more aptly, the most worthwhile and noteworthy.

But in evaluating the annual chapter reports, not all the weight is placed on activities: The effort put into preparing the report is also considered. Factors such as writing style, organization, appearance, etc., are included in the judging. However, activities are given the most weight and has ultimately been the outstanding aspect of the winning chapters.

Noteworthy activities were not limited to the winners; many other chapters had worthwhile and interesting projects. The following is a highlighting of some of these activities from this past competition.

Gamma Xi—University of Maryland: The chapter is soliciting funds and has started construction of a "Randsight" type reading aid for the partially blind. The system, which uses TV as a vehicle in its implementation, will be donated to an appropriate institution upon its completion.

Gamma Beta—Northeastern University: The brothers have set up a course of instruction for nurses at a local hospital

on operation of an electroencephalograph.

Delta Theta—Pratt Institute: The chapter performs a worthwhile service to a local hospital by weekly visits to the patients as well as giving biannual gift-giving parties.

Upsilon—University of Southern California: to fund the chapter's activities the members work for the faculty at their homes (e.g. gardening) at the rate of \$2 per man-hour. The money earned includes funding their outstanding E.E. sophomore award which has a novel addition: besides a \$50 award to the winner, \$100 is awarded to the winner's high school.

Gamma Theta—University of Missouri at Rolla: The chapter has presented precision electronic equipment to a diagnostic clinic that specializes in the treatment of speech and auditory defects in children. The brothers are also designing additional equipment for the clinic. In another activity, they make a cash award in a local high school science fair to an entrant in the E.E. area.

Why, I thought you were a gentleman . . . .

# THE ENGINEER—HIS SOCIAL RESPONSIBILITY

by  
PAUL DRAGOUMIS



Paul Dragoumis is Assistant Vice President of the Potomac Electric Power Company, Washington, D. C.

## *The Accomplishments of Engineering*

The greatest fruit of engineering endeavor has been the application of primary energy to the amplification of our cultural, intellectual and physical capabilities. This energy helps provide us with life's necessities at a cost so low that for most citizens of industrial nations, earning the elements of survival is a part time affair. Thus, indirectly, technology is every bit a benefactor of the arts, as was Haydn's patron who provided the composer with both life's necessities and luxuries allowing relaxed attention to the creation of musical splendor.

Energy and technology have provided transportation capabilities to satisfy our most gregarious and explorative instincts, and communication capabilities to not only fulfill our needs but to actually obfuscate communication and usher in a new—and not necessarily welcome—era in which, Marshall McLuhan said, "The Medium Is The Message". Despite the jokes that have been made about that line, the impact on human history of the pervasive information transmission, storage, and processing capability, in my opinion, will be greater than that of almost any communication that could be made via that technology. Energy and technology are also giving us the tools for avoiding or creating genetic disaster, and for avoiding or creating improvement or disaster in a host of areas.

Given the foregoing, one ought to look for the engineering profession on the highest of pedestals, that occupied by the medical profession, those magicians of the curative and invoicing arts and technologies. Better look again! As we descend, we see the law, science, economics, social science, and others before we find engineering in the boiler room with ac-

counting, and grade and secondary school education. Is this justified? If so, is it recent? Can it be corrected? Should it be corrected? What are the remedies? Can they be effected?

## *Is It Justified?*

Let's turn to the first question. Is this poor standing of the profession in any way justified? My reaction ten years ago would have been a vehement no. But, by the time I had been in the profession for 6 years i.e. by 1962, I had doubts. Now, I feel sure that we are getting what we deserve.

Perhaps by his nature, and most certainly by his training, the engineer too often has either an underdeveloped social-aesthetic sense, or a narrowly channeled one. Additionally, and this is readily appreciated by both technologists and non-technologists, there is a substantial aesthetic aspect—rather narrowly constrained though it might be—to engineering endeavor, be it the design of a polymeric molecule of made-to-order properties, a single shaft, 80 yard-long turbine of 1100MW rating or a 150 nanosecond monolithic core memory for a computer system.

I contend that there is sufficient aesthetic value in even the most specialized area of technology to have satisfied needs in those areas of many myopic engineers virtually since the birth of the profession. This, plus the then-apparently unlimited world resources, kept our professional forebears from concerning themselves, except on an "urgent need" basis, with interfaces between their activities and those of the balance of mankind's and earth's processes. If the early innovators could be excused on the grounds that such social-aesthetic concerns were premature, how can we absolve of serious guilt, the engineering profession of roughly the last 30 years?

Who keeps designing systems that discharge slag and raw biological wastes to our waters? Whose works killed Lake Erie? Whose automobiles and heavy vehicles are making life in the cities less bearable? Who stacked people vertically in cities and every which way in

subway cars without concern for the tolerability of such a life? Whose ingenuity made the disposable bottle and can an economic matter without a thought of disposal? And, who decided on bulldozing almost every tree in sight on the basis of a straight techno-economic balance in housing and commercial ventures?

I can almost hear you murmuring that the engineer was a mere pawn in these endeavors. Perhaps, but only perhaps. I could better forgive him were the archives of his profession bursting with his pronouncements of warning or dissent; his calculation and proposal of tolerable psychological, environmental and aesthetic burdens, and clamor for standards. Such material is present but the paucity is an embarrassment to us all. In fact, when asked recently for assistance in locating such material, a librarian at the United Engineering Center in New York, which houses many of the libraries of the engineering societies, replied that there wouldn't be anything like that in a collection of the engineering profession's literature.

In 1963, the editors of "Machine Design" magazine polled engineers to determine their self-images. The engineers polled thought they were technically able (40 pts.—top rating); had a desire to excel (20 pts.); were persistent (13 pts.); honest (11 pts.). On weaknesses, the engineers thought they were weakest in ability to communicate (28 pts.); poorly motivated (18 pts.); not given to social amenities (16 pts.); not interested in their community (10 pts.).

More recently 411 representative professional engineers were polled to determine attitudes. The following highlights were extracted verbatim:

- 1) "The results (of the survey) of themselves are interesting in that they tend to confirm the public's view of the engineer as conservative, money conscious, disinterested in intellectual matters outside his profession, law-abiding and humorless".
- 2) "More liberal arts education for engineers got short shrift from this group—they

were mainly interested in the type of non-technical courses that help a man get ahead, not those that might expand his intellect.

- 3) "Disinterested in political and sociological theory and background though these men appeared to be, they held strong political opinions".

So, despite the fact that the current era can be described as one of growing social-aesthetic—environmental concern, the image and self-image of the engineer is one of a low level of concern for the "outside world".

This is the albatross. The way we handle it is the key to the future standing of the profession.

#### *Is It Recent?*

Was there an era in which the engineer was held in very high esteem? Possibly but disdain of the engineer is not new. Freidrich Klemm in his book *A History Of Western Technology* quotes Plato's attitude:

"The engineer. . . . is not at all behind the General or the Pilot or anyone else in his saving power, for he sometimes saves whole cities. Nevertheless you despise him and his art, and sneeringly call him an engine-maker, and you will not allow your daughter to marry his son. . . . and yet, on principle, what justice or reason is there in your refusal?"

On a more recent scale, Herbert Hoover wrote in his *Years Of Adventure* of an experience during a sea voyage from England to America:

"At my ship's table sat an english lady of great cultivation and a happy mind, who contributed much to the evanescent conversation on government, national customs, literature, art, industry and whatnot. We were coming up New York harbor at the final farewell breakfast when she turned to me and said: 'I hope you will forgive my dreadful curiosity, but I should like awfully to know what is your profession?' I replied that I was an engineer. She emitted an involuntary exclamation, and: 'Why, I thought you were a gentleman!'"

I would be remiss in my obligation to the subject if I did not note that in several countries of the world an engineer has remarkable standing. These include the Soviet Union, Switzerland, Italy, and Germany. In the case of the latter three, the engineer's standing is, I suspect, attributable to class standing of professional people, while in the Soviet Union, it is a function of their effort to establish and maintain a position of world leadership in areas of technology.

The U.S. with its massive middle class that comprises many non-professional as well as

professional elements, does not offer the same status to the engineer as does Italian society for example. On the other hand, the "technologicalization" of American society has proceeded to the point where the technologist has become as often the object of derision as of respect. This is because of the engineer's contribution to our current mess.

To this point I have devoted my efforts to showing you that the engineer is often thought of as a narrow technical expert with little redeeming social value; that there is substantial justification for this feeling, and that the engineer himself does not disagree with this image of his profession. I have also indicated that this unpleasant situation did not come upon us yesterday.

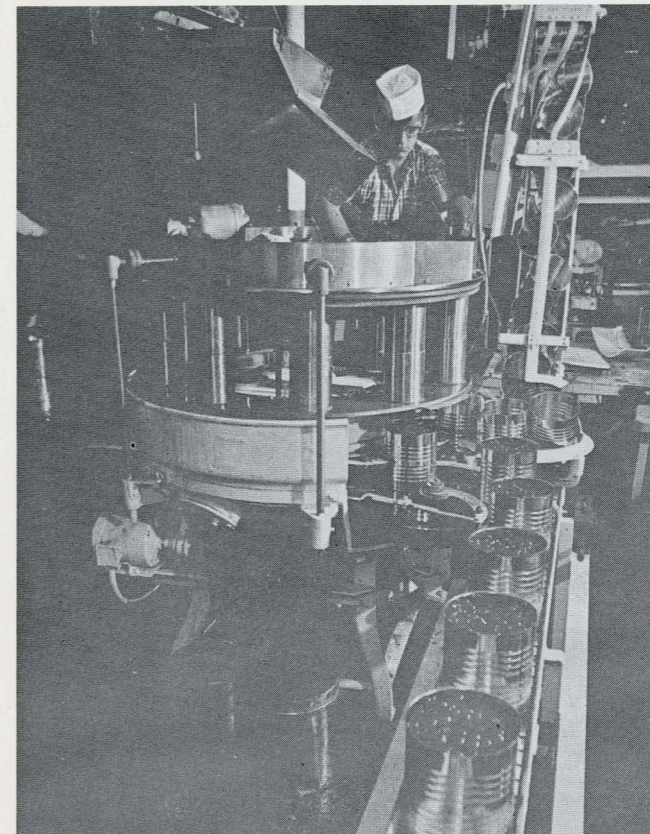
#### *Can It Be Corrected?*

If we recognize the specific nature of the problem, the answer is an unqualified yes, but I can't see a quick solution.

The term engineer has a dual origin which provides some insight into the problem. My dictionary says that engineering was, originally, the art of managing engines. Yet, the same dictionary provides another source reference, a Latin origin, from ingenium, i.e. natural capacity, invention, to produce. Thus, one path, we might surmise, evolved the word engineer from engine man, just as "oiler" evolved from oil man in the railroad lexicon. The other, totally different, focussed on invention and a capacity to produce, in other words, technological imagination and creativity. If these two ingredients are lacking, engineering becomes a trade. I am sure all of you have seen many degree-bearing engineers who are, in fact, sub-professionals. Being a sub-professional is certainly no dishonor, but it is different, not identical with being a professional engineer. There is far too little distinction made by engineers and others, between engineers and sub-professionals doing technical work. The engineers joint council has long recognized this and made some inroads, but these have not had an enormous impact to date. In my judgment neither the educational process or the accreditation process for professional engineers have worked effectively.

In summary then, both educational and accreditation processes could, but hardly do, distinguish the innovative profession, engineering, from sub-professional technological work. Then, the profession ought to—but largely hasn't attracted and trained well rounded individuals. The educational process should have—but didn't often—produced a man who is as concerned about the social-aesthetic impact of his endeavors as well as his specific activity.

Having identified the problem I hope we can agree that it is remediable.



Cans for Food and Pollution

#### *Should It Be Corrected?*

At this point, it is logical to question whether this situation is really in need of correction.

We are entering a period in which social, environmental, defense and other key problems must be carefully reassessed. There will be much more discussion and hopefully more action toward ordering our national priorities. Sooner or later—probably much later—we will see increasing concern for an ordering of worldwide priorities to better serve the human race. The issues include population control; housing; poverty; allocation of energy, material, environmental manpower and dollar resources. One specific example is close to the interest of all ans members, viz. the issue of radiation releases, nuclear plant safety vs. the effects of combustion products and how one properly assesses the benefits and risks of each in the generation of electricity. There are those who agree that electric power growth should be curtailed to prevent further encroachment on our environment. On the other hand there are those—myself included—who point out that controlled minimum encroachment on our environment of electric generating plants, coupled with electric heating and electric vehicle propulsion represent an excellent chance for reducing pollution forms while growth continues unabated. Are we to allow committees of Lawyers, Sociologists, and Economists to

decide this question on the basis of our data, or will we, too, participate in making these judgments?

Then there is the question of the future of our cities. Some argue that the large city is an unworkable concept. I feel it is a vital and necessary concept, one totally workable with proper planning in technological, social-psychological, economic areas. Cities whose cultural, educational, industrial, commercial contribution to man's development is unquestioned are possible. But they won't be maintained and reconstructed by myopic technologists or verbose sociologists alone. They can only be re-established by interdisciplinary action and planning.

On the basis of the engineer's current standing, I fear he will be excluded from the deliberations toward resolution of the important questions of the day, almost all of which will have a strong relation to technology. The fact is President Nixon's three man council on environmental quality does not include an engineer. This, I believe, goes a long way toward verifying some of the arguments I have been making.

Have you noticed for example that a number of the nation's airlines, founded and originally managed by technologists, are run increasingly by Lawyers and financial people. So are many of the nation's utilities and manufacturing organizations. I have no lack of respect for Lawyers or financial people. I simply ask why is engineering not a credible background from which many can launch broad careers at national leadership levels? It isn't happening very often anymore. Why can't engineers qualify as well as and as often as members of other professions to manage major entities—corporate, educational and governmental? Why is it becoming a foregone conclusion that a Lawyer or Economist can manage any technical activity given sufficient tonnage of technologists, but the Engineer is increasingly deemed incapable of or disinterested in presiding over social affairs and affairs of finance and the law given any tonnage of Lawyers and Accountants? To be sure, there are many young Engineers pursuing an MBA today, but most of them will be considered as financial types with engineering degrees, rather than engineers with financial capabilities. It is my view that this is the natural result of our basic problems, viz. insufficient education and poor control over the standards of the profession.

Unless engineers are identified as totally responsible, concerned, communicative citizens, they will be largely excluded from the momentous decisions to be made in the future. Thus, the state of engineering must be upgraded.

# ETA KAPPA NU AWARD LUNCHEON

## San Francisco

by **MARCUS DODSON**  
Chairman  
Luncheon Committee

**T**HE OUTSTANDING Electrical Engineering Student was honored at the Award Luncheon at the San Francisco Hilton on August 25, 1971, in conjunction with WESCON 1971. In attendance were Eta Kappa Nu National Executive Council and Directors, WESCON officers, many Los Angeles Alumni Chapter officers, as well as interested HKN members and friends.

Master of ceremonies, John Holtrichter, President of the Los Angeles Alumni Chapter, introduced the honored and distinguished guests. An explanation of the award and its importance and the care in the selection of the nominees for presentation to the Jury of Award for final selection, was made by Larry Hamilton.

National president Lloyd B. Cherry made the presentation of the plaque and certificate representing the honor of "Outstanding Electrical Engineering Student of 1971" to Alan M. Usas of Princeton University. Alan, accompanied to the luncheon by his bride of a few weeks, made a short acceptance speech.



Not present but receiving certificates testifying to having been honored with Honorable Mention, were Christopher M. Bryan of Manhattan College, Frank M. Grupposo of Polytechnic Institute of Brooklyn, and Samuel J. Johnson of Tuskegee Institute.

Introduced by program chairman Marc Dodson, Dr. Uno Lamm of ASEA, retired, excited the interest of the gathering with his discourse on, "Set a Price on Our Environment." (Article appears elsewhere in Bridge.) Dr. Lamm, famous for his contribution to the HVDC technology, was responsible for the introduction of nuclear power systems to the Scandinavian countries and was the recipient of honors from many organizations, including the Swedish Society of Inventors, American Society of Swedish Engineers, IEEE, and many others.

### Identification.

Left column, top to bottom:

Award Luncheon Chairman Marc Dodson (left) with Outstanding Student Award Winner Alan N. Usas and bride.

John Holtrichter with National President Lloyd Cherry to the left, keynote speaker Uno Lamm to the right, and Marc Dodson on far right.

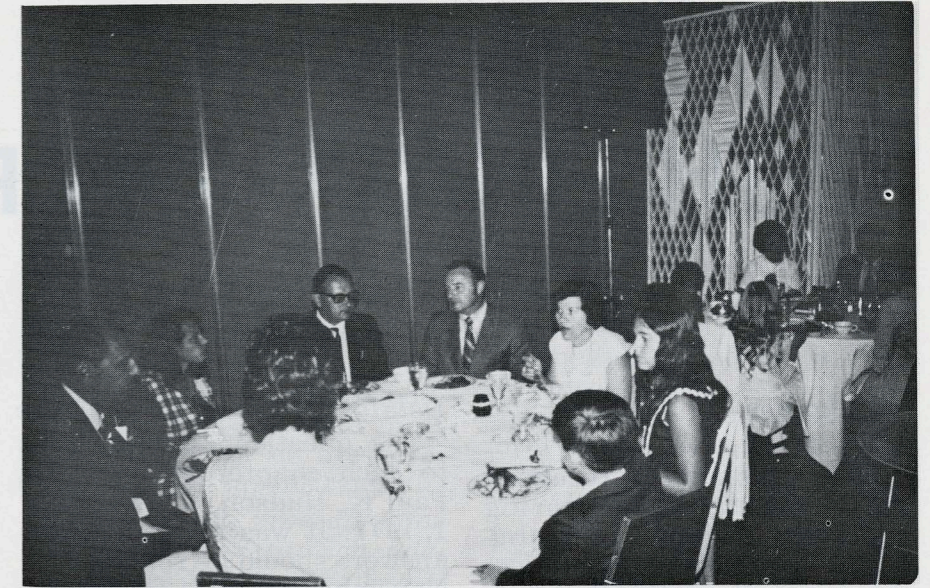
Uno Lamm, keynote speaker, with John Holtrichter, Jr., at left and Marc Dodson at right.

Right column, top to bottom:

Director Bill Murray (center, facing left), past Los Angeles Alumni President Mel Mezek (next to Murray), O. William Muckenhirn, University of Toledo (to left), and other guests at the Award Luncheon.

Larry Hamilton, Chairman of Outstanding Electrical Engineering Student Award Committee with winner Alan Usas and his bride.

Los Angeles Alumni President John Holtrichter, Jr., and wife presenting orchid to bride of award winner Alan Usas. Alan is at left.



# THE INITIATION RITUAL

by LARRY DWON  
Assistant Editor — Bridge

## Introduction

One of the subjects receiving appreciable attention during regional visitations is the Initiation Ritual of the association. As a result of this interest, including some very adverse and some very complimentary comments about its format, it was decided to survey all Eta Kappa Nu Chapters for a consensus of opinion. Of the 125 chapters contacted, 27 returned the questionnaire with very diverse and some interesting opinions and suggestions.

These comments and other inputs now provide a good basis from which to consider appropriate revisions to the ritual.

## Major Conclusions

Based on the survey data the following major conclusions prevail:

- 1) There is a clear difference of opinion regarding procedures, language and length of the ritual.
- 2) There is an overwhelming opinion that the basic thought content of the message in the ritual is good and that it should not be changed appreciably.
- 3) There is room for bringing the ritual up-to-date and for making it a more mature ceremony.
- 4) There appears to be a need for some flexibility in order to allow each chapter to choose the procedures best suited to its purpose within reasonable constraints that should be set by national officers.

## Details From the Questionnaire

The questionnaire was sent to each chapter by Professor Paul K. Hudson on September 1, 1971. It was requested that answers should be returned by November 15, 1971.

The following sections summarize the responses received to the nine questions raised in the questionnaire:

### 1) Instructional Preface Comments

Each ritual includes as a preface some instructions "To The Officers of Active Chapters". This is the instructional preface to which the questionnaire referred. Some chapters did not understand the reference and did not answer properly.

The consensus of the replies was as follows:

- No comment given .....10
- Instructions are OK .....10
- Presently clear and explicit .....4
- The question is unclear.....5

To the question "what additional information should be included", the following replies were made:

- No comment given .....24
- Candidates should be briefed before ceremony

Add background history of chapter.

### 2a) What should be done about the raps?

- The consensus of answers to this question was:
- Do not eliminate .....16
  - Eliminate .....3
  - Make optional .....2
  - No comment .....5
  - Initial 3 raps OK, others serve no purpose

Raps add atmosphere  
Raps serve no purpose to ceremony.

### 2b) What should be done about characters (Wheatstone, etc.)?

The consensus of answers to that question was:

- Eliminate them .....14
- No comment given .....3
- Continue to use them .....7
- Superficial and inappropriate
- Vital part of tradition
- Ties ritual to electrical engineering

OK but arhaic  
Should be left in but contemporary figures of importance should also be mentioned. Symbolically right for occasion. Stilted, corny.

### 2c) Would names of actual people performing ceremony be preferable?

- Yes .....18
- No .....4
- No comment given .....3
- Corny but impressive so leave as is
- Use Mr. President, Mr. Treasurer, etc.

Changing to actual names would detract from initiation message

Sometimes it is impossible to determine who the people in the initiation team would be, last minute arrangements might be difficult.

Officer's names are not as significant as the men who founded electrical engineering  
Presently, the officers who lead the ceremony are given fictitious names (Volta, Ohm, etc). If they were instead to use their real names, in fact,

their first names and even nicknames, we believe the tapes would feel more closely tied to the people who are inducting them. This would create a less formal, more closely knit, and much more meaningful ceremony.

### 3) How would you propose that candidates and initiation team be assembled for ceremony?

The consensus to this question was as follows:

- Use present procedure .....14
- No comment given .....6
- Let V.P. meet with them, order them for seating arrangement (if desired), brief them on what will take place, and then conduct them directly to their seats at appropriate time.

In a functional orderly fashion, without undue ceremony.

Leave it up to each chapter.  
Definitely in some other way than at present-it is just boring and comic.

As a practical matter it is usually very difficult getting one conductor for each candidate.

### 4) What suggestions on seating standing sequence of candidates and initiating officers?

The consensus to this question was as follows:

- Present method just fine...16
- No comment given .....7
- Abolish it

Leave it up to each chapter  
It is sufficient that everyone should sit or stand together.

Officers remain seated during ceremony, candidates stand while oath is administered.

### 5) Should the oath be administered before or at the ceremony or at all?

The consensus to this question was as follows:

- OK at the ceremony .....17
- No comment given .....7

The oath administered to each initiate in turn is much more impressive to the initiate than administering it to the group as a whole. However, for a large chapter, this could be lengthy.

If the ceremony is adapted to a banquet the oath should be omitted.

In place of the oath, the promise, which is presently administered by Wheatstone just prior to the oath, would be entirely adequate if a phrase relating it to the principles of HKN were included.

Some of the wording could be changed slightly, e.g. delete "I bind myself in brotherhood".

This is probably the most impressive part of the ceremony so by all means retain it.

### 6) Is present procedure for signing constitution adequate?

The consensus to this question was as follows:

- OK as is .....21
- No comment given .....5

Maybe something a little more dramatic like lighting a candle could be done here by each of the initiates as he signed to symbolize joining the organization.

Change to signing the membership role.

Except for the part where Ohm calls out the name of each candidate as he signs the Constitution and the procedure whereby Faraday conducts the candidates to Ohm this section is generally adequate.

### 7) Do you recommend use of robes?

The consensus to this question was as follows:

- Yes .....8
- No .....10
- No comment given .....6

Make it optional but some dress standard should be specified .....2

What is spoken and thought during ceremony is far more important than robes.

Robes seem to set apart a ceremony from just another gathering

Let robes be worn by presiding officers.

Robes add dignity.  
Too corny.

### 8) Comments on Text

The following comments were received:

OK as is .....10  
No comment made .....3  
The ceremony is very moving. The Dean of our school commented that he liked it the best of all the honor societies.

It's tough to memorize the long parts possibly because the language used is not conversational but very formal. Leave the text the way it is, except for making it sound a little less formal.

We feel the present general form of the initiation is very good.

References to he, him, his, men, etc. should be changed to include women.

The majority of comments were related to individual words and phrases which are slightly archaic or awkward, e.g., "usurp" and "flaunt". Also it was observed that by the time a student becomes a junior he ought to be able to associate electron and electronic with electricity.

Its references to other members should be made using their names. It should also be shortened and informalized enough to avoid its condescending attitude.

Long ceremonies defeat their purpose. We feel the present ceremony can be cut at least in half without losing effect and, in fact, with gained effect.

The general formality of the ritual might be lessened by inserting an open discussion half-way along as to how HKN can enhance the characteristic of leadership, cooperation, and initiative. This could stimulate the tapes and leaders to think together about the qualities that the HKN member should strive to develop.

The framework of the ritual is now based largely on stressing to the tapee that he has been chosen by three guidelines—scholastic record, hard work, and the ability to work in harmony with other men. Of course, the only clear guideline is scholastic record and so many students will be tapped who have not even shown signs

of the latter two qualities. To be fair to those who do possess these qualities, the ceremony should *stress* that the tapee has been chosen only on his academic achievements, but that ability and accomplishment in this area shows potential for, if not already developed, qualities of initiative, hard work and cooperation with fellow men. In this respect, the assumption that the tapees are even possibly worthy of these qualities should be *eliminated* and the entire ceremony used to expound on the tapee's use of the organization to find and/or amplify these qualities.

The text is good as it is. However, it might be reduced in some areas, but not at the expenses of the ideas currently contained in the ceremony.

Eliminate the first part of the ceremony involving the raps and admission dialogue. Let V.P. conduct candidates to their seats. The President can call the association to order and ask the V.P. for the candidates qualifications and the ceremony can proceed as in the present ritual starting in the middle of page 2 with "Gentlemen, your records ..."

The most worthwhile sections of the text are those which discuss the history, ideals and objectives of HKN, and those which give some indication of what requirements the candidate has fulfilled in being chosen as a member. The discourse on ethics is too long and could be better stated in more concise fashion. The section on behaving with modesty and fellowship toward nonmembers as a new member is unnecessary. The explanation of the symbology is entirely to elaborate.

The text is outdated and needs to be revised, modernized. The characters of Wheatstone, etc. may have added to the seriousness at one time, but these days such dramatics seem to broder on the comical, and even take away from the seriousness of the occasion.

Tradition is very necessary,

and the heritage of electrical engineering is worthy of mention, but contemporary issues should also be mentioned, and the text should be continually updated.

The present initiation ceremony is a remnant of times past. It is no longer fashionable nor inspiring to appeal to lost traditions in the name of Ohm, Watt, Faraday. Our Chapter would like to be able to address our initiates with a more serious message. The fraternity inspired gimmicks of the present ceremony detract from the purpose of the initiation. Initiations should be a recognition of the achievements of the members. The initiates should leave with a feeling that they have learned a little more about their newly chosen profession. If the initiation program was amended to a more flexible format then each chapter could tailor the initiation to its needs. At our chapter we would prefer a three part program:

- A) Recognition of the achievements of the new members
- b) A program of instruction not normally found in the department such as a presentation by a guest lecturer or a demonstration.
- c) A social mixer welcoming the new members.

Whatever comes of the questionnaire, I hope that the present ceremony is scrapped and a more mature program results.

The main objection is to the use of the characters (Ohm, Coulomb, etc.). Otherwise the ceremony is quite good.

The abundance of puns found in the text almost make the ceremony into a joke. An initiation should be inspiring and dignified ceremony. Phrases like "...sliding along the path of least resistance" are silly and unnecessary. How can we expect our members to take HKN seriously if the initiation is such that they giggle and laugh all the way through it. HKN is an organization with

high ideals and an important purpose. Its initiation should reflect these things.

The formality should be retained but the language updated.

#### 9) Other Comments

The following additional comments were made:

None - 11

We feel that each chapter should have the authority to modify the ceremony to fit the maturity level of the chapter (within reasonable limits to be set by national guidance).

We would like to see another ceremony suitable for use at a banquet where family and guests would be in attendance. It would not need to be as formal as the ritual, yet it should retain the basic ideas of the ritual, but adoption to a banquet atmosphere.

A triangular seating arrangement is suggested for the formal ritual, where the officers sit on one side of the triangle, the candidates on another and members and guests on the third.

To say the initiates have all the necessary qualifications for HKN is not quite true. In a school as large as Auburn the initiates are almost solely chosen by their grade point averages. Instead of saying you possess such and such qualifications we should instead stress the responsibility each new member will have in society, and the qualities that a successful engineer needs should be emphasized.

Coulomb should control the movements of the initiates. Put Coulomb on the inside of the door, so they don't have to shout through the door. (Reference to question 3)

The general changes made to the initiates are good and need little revision but the characters, raps and pretended secrecy should perhaps be eliminated altogether.

Everybody liked the ritual as it stands because it is "impressive" to the new candidates.

The goals of the organization could be more effectively rea-

lized through an informal initiation such as a picnic. We see no reason to make minor changes in the present initiation, it should either be changed a great deal, or not at all.

Perhaps the days for secrecy are now over. The complete ceremony needs to be informalized and perhaps should take the form of an explanation of what the organization is, its history, what is expected of the members, etc. All done in a more informal and attractive atmosphere. Perhaps the ceremony should be largely taken over by a film, which in an interesting way provides the necessary information.

Our chapter seemed to feel that some changes would be desirable in that it would make for a more natural and convincing presentation.

The chapter as a whole seemed to feel that some changes would be desirable in that it would make for a more natural and convincing presentation.

The chapter as a whole seemed to feel that the initiation ritual was a bit corny, but strangely enough felt that this was good and only makes the ceremony more impressive. The consensus seems to be that it should be left basically as it is, with minor changes if any at all.

*Editor's note: Reader's comments on this matter are most welcome.*

As required by the Post Office, the BRIDGE mailing list is now set up numerically by Zip Codes which is not the same thing as alphabetically by states and cities. Therefore, when you send an address change to national headquarters you must send the old address and old Zip Code number as well as the new address and new Zip Code number.

## Gamma Beta

# WORK DAY

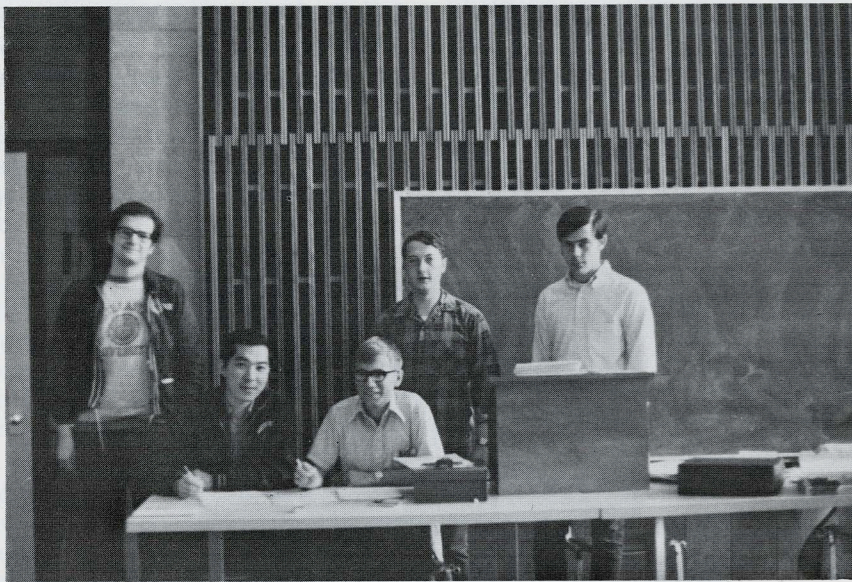
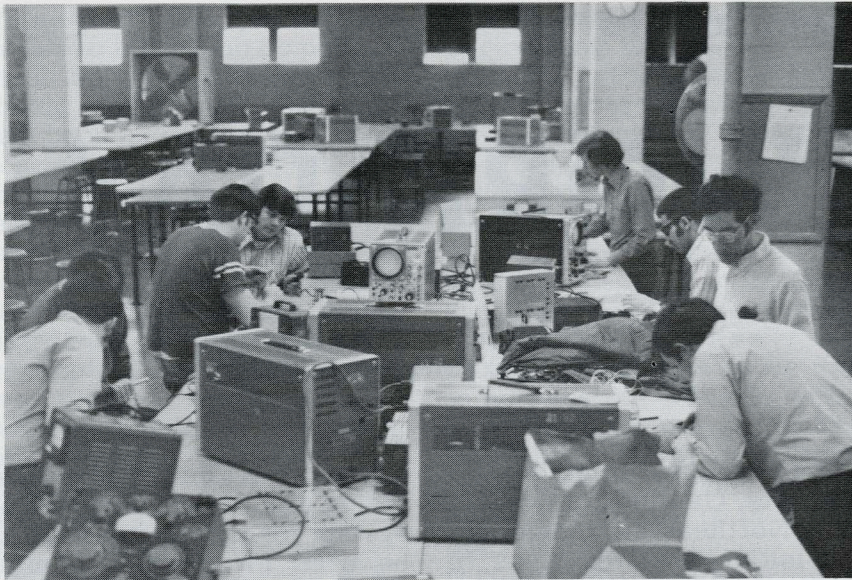
by Gaspar DeGaetano  
BRIDGE Correspondent

As a means of selecting new members, Gamma Beta Chapter of Northeastern University has initiated a Work Day in place of its old Consideration Day. By giving prospective members a chance to work on Chapter projects it is felt that they are given an opportunity to show that they are more than just Electrical Engineering students with high grades.

One project for Work Day last spring was to work on a lighting system for a room planned to be used for an E.E. lounge. Another project was to construct controlled sources for students to use in their laboratory courses. The room to be used for the E.E. lounge adjoins a room which Gamma Beta presently used as a Tutoring room to assist E.E. students.



Two members at the tutoring blackboard—Dave DiPietro, left, and Frank Antczak.



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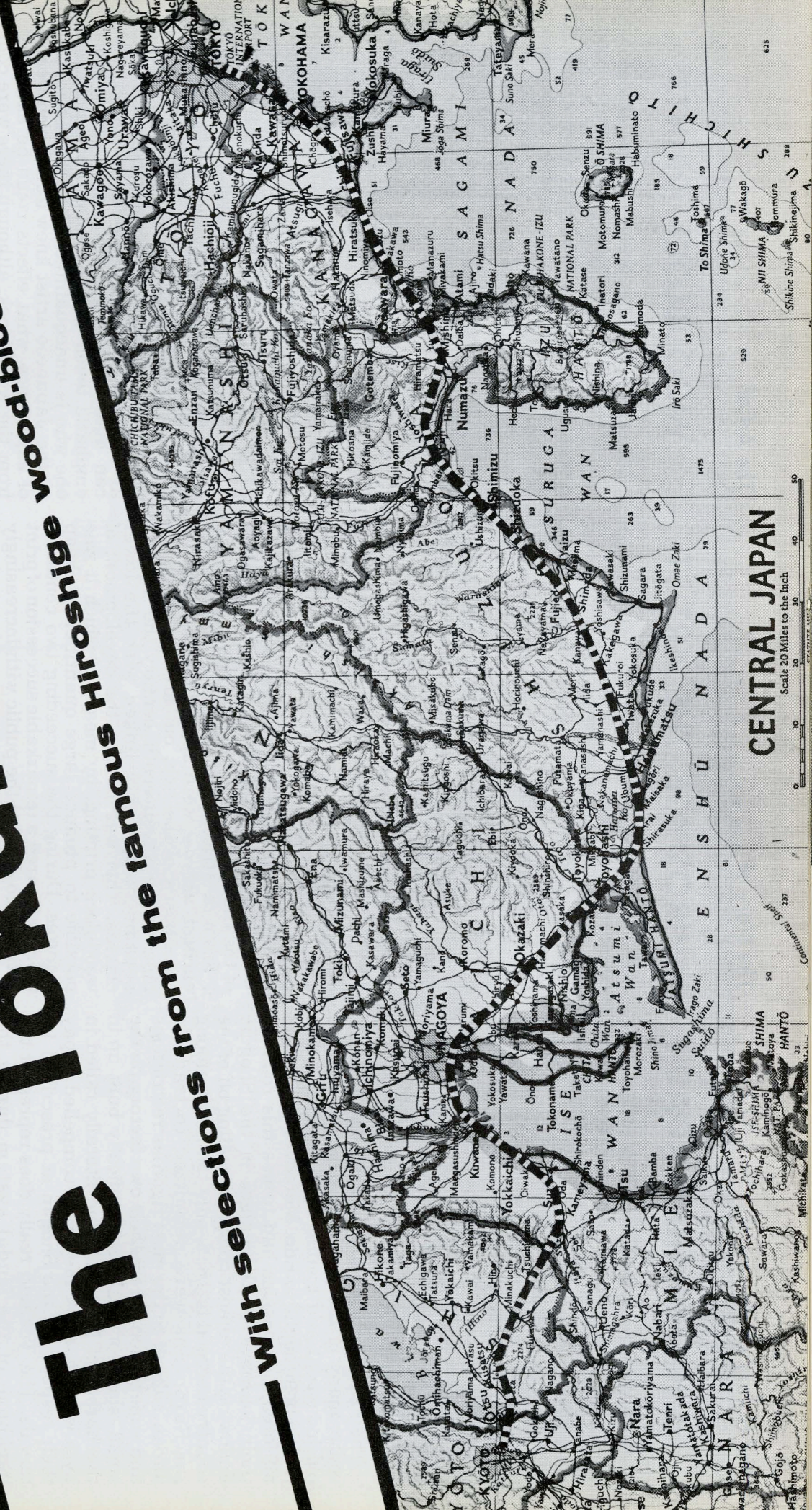
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# Historic Of The World Pathways Of The World

# The Tokaido Road

Part one — with selections from the famous Hiroshige wood-block prints





### THE TOKAIDO ROAD

Of the five great highways that led from Edo (later Tokyo) to the provinces, the Tokaido (the East-Sea-Way) was the most important. It was the shortest route between Edo, the seat of the ruling Shogun, or governor, and Kyoto, the seat of the highly esteemed but powerless Emperor—the worldly and the spiritual centers of the Japanese islands. One of the significances of the Tokaido Road is that it permitted a great geographical separation of these two centers and therefore reduced the risk of conflict between the two.

The Tokaido was also an important trade route; many of the goods manufactured in the old industrial and trading area around Osaka had to be brought to Edo. Moreover the staff of all foreign embassies had to use this road for their journeys to the palace of the Shogun. Following the almost complete sealing off of the country decreed in 1616, only the Dutch among the Europeans were permitted to trade in Japan, subject to the most rigorous restrictions and supervision. From their own factory on the small island of Deshima, artificially built up in the harbor of Nagasaki and literally railed in by a wooden fence, they were compelled to pay their respects to the Shogun at prescribed intervals. The Tokaido really does represent the backbone of the feudal system during the Tokugawa period, outlined below.

In 1603, after years of civil war which culminated in the historic battle of Sekigahara, the victorious general Tokugawa Ieyasu was elected to the hereditary office of Shogun, and invested with full imperial authority. This event marked the beginning of a new era in Japan. In order to assure the succession of the Tokugawa family, Ieyasu (1542-1616), and more particularly his grandson Iemitsu (1604-1651) passed certain laws which, while they may appear strange to us, nevertheless se-

### HIROSHIGE THE ARTIST

The world-famous woodblock prints of Japan belong to a type of art known in Japanese as *ukiyo-e*, "pictures of the floating world". This somewhat whimsical name is eminently appropriate, for the subject matter of *ukiyo-e* came for the most part from the very temporal world of commoners in old Edo, the capital of the Tokugawa shoguns. In one sense, to be sure, this was anything but a "floating world", since it was a world of peace, of reasonable prosperity, and of political stability, but at the same time it was also a world of gaiety—a world of Kabuki plays, wrestling matches, geisha houses, drinking bouts, clandestine love affairs, off-color novels, and, above all, changing fads and fashions. The *ukiyo-e* themselves were an intrinsic part of the world they depicted; they were produced by commoners for the enjoyment of other commoners, and they were completely subject to the fickle tastes of the times.

From a strict historical point of view, the earliest *ukiyo-e* were apparently intended for the houses of the rich, but around the beginning of the seventeenth century the medium became inseparably linked with the lower classes. This was due to the development of woodblock printing, by means of which it was possible to produce large quantities of cheap pictures. During the succeeding two centuries there appeared a remarkable succession of print artists who dazzled the public with increasingly elaborate pictures of actors, courtesans, and scenes from the theater. The government viewed this art as frivolous at best and subversive at worst, but despite occasional attempts to circumscribe it, it continued to flourish just as the Kabuki theater and the geisha quarters flourished.

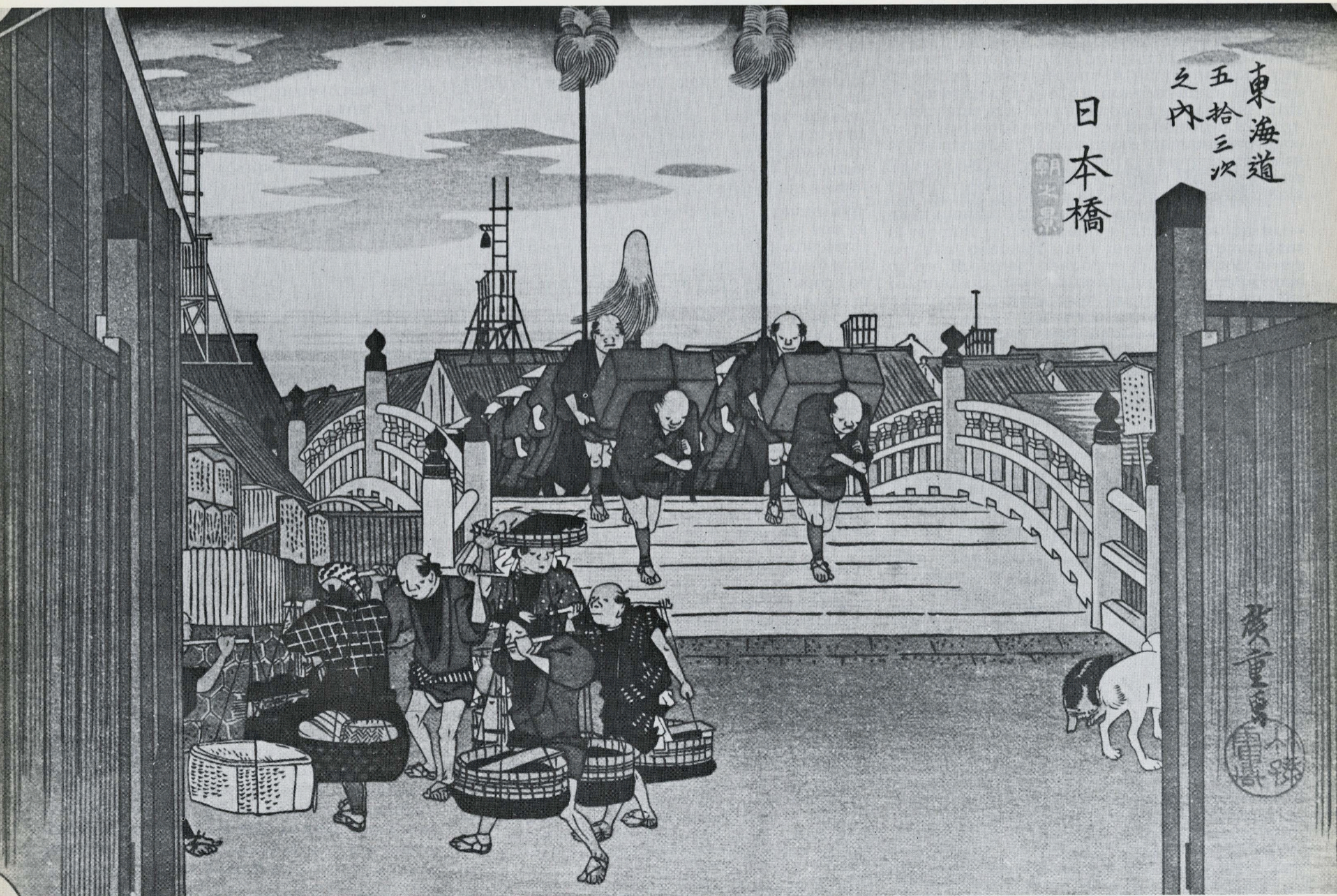
The highest point in the history of the *ukiyo-e* came in the late eighteenth century, when such masters as Utamaro, Kiyonaga, and Sharaku were in their prime. After this the art of the woodblock print would probably have gone into complete decline for lack of new subject matter, had not Katsushika Hokusai breathed new

### WOODBLOCK PRINTS

Hiroshige owed his apparent ease of expression primarily to the strictly disciplined training that he, like all Japanese masters of woodcut design for the past 150 years, had undergone. These masters regarded themselves exclusively as artisans, and accepted with dignity this clearly defined position in the social structure of their day. At an early age—in Hiroshige's case at 12 or 13—it was customary to become an apprentice, or actually to join the family of some accredited master. Among the Japanese woodcut masters, as among the swordsmiths, lacquer workers or Netsuke carvers, there were many well-known families who flourished for generations because the talented sons inherited their fathers' profession, or because the masters adopted their most talented pupils—or at least gave them the family name. The apprentice had to draw and copy for several years before he was allowed to help with his master's work.

The production of a coloured woodcut generally required the collaboration of four different masters. The first made the design, and this naturally had to be prepared with a view to the particular requirements of the graphic technique. Just as a composer who can himself play the violin will add a more emphatic touch to the violin parts than will one who is unacquainted with the instrument, so the Japanese artist knew from a rich wealth of experience what effects could be extracted from the wood-block, although there were comparatively few painters—Shunman was one of the exceptions—who cut their own blocks. The designs, drawn on thin paper and probably finished or traced by the apprentices, were pasted on to the wooden block, and it then

Opposite page: Nihombashi, the starting point of the Tokaido, in the center of Edo (Tokyo). Seen here is the vanguard of a daimyo's retinue setting out on the 292-mile trip down the Tokaido to Kyoto.



## The Tokaido Road

cured more than two hundred years of internal and external peace during which Japan could refine her culture and develop her art freely.

Icyasu transferred his seat to Edo, which was favorable situated, but at that time unimportant. After the re-establishment of the imperial power in 1868 the city became Tokyo, the "Eastern Capital". The government of the country under the general supervision of the Shogun, was in the hands of about two hundred and fifty princes, the Daimyos. In their own districts they lived like feudal lords, who, as representatives of the Shogun, collected the taxes, dispensed justice, supervised the administration, and had a specified number of nobles at their disposal.

To avoid any possibility of conspiracy, let alone revolt, they were forbidden to build fortified castles or warships. They were not allowed to marry or to visit one another without permission from the Shogun. Moreover, they were obliged to spend alternate years in their feudal territory and in Edo, and were required to leave their wives and children in the city as hostages. The Daimyos of the eight provinces in the neighborhood of Edo had to change their residence every four to six months. These measures caused Edo to flourish. In the town the princes, who were often extremely wealthy, built large palaces and led luxurious lives. The enforced journeys, too, were undertaken with a great display of pomp, and with a large following of nobles and servants. Good roads and lodging had to be available for these journeys.

In addition to the princely processions and the transport of goods, numerous pilgrims and travellers used the Tokaido—for the Japanese people love to travel, whether by vehicle or on foot.

During the Tokugawa period, therefore, Japan had well-kept and well-surfaced roads, along which travelled horsemen, pedestrians, and also clumsy ox-carts. Merchandise was transported by carriers and pack mules, unless the goods went by coastal craft. For reasons of political security there were very few bridges,

## Hiroshige

life into the medium by creating the landscape print.

Hokusai's landscapes and those of the artists who followed him were not, as a rule, pure landscapes, but landscapes with people. Indeed, instead of speaking of a shift from people to scenery, it would perhaps be more accurate to say that the *ukiyo-e* artists simply widened their focus to include people's surroundings as well as the people themselves. At the same time, it should be observed that Hokusai also added the flower-and-bird genre to the *ukiyo-e* repertory and in general broadened its scope to the extent that he must be recognized as one of the great innovators in this field. It remained, however, for Utagawa Hiroshige, who came on the scene just at the point when Hokusai was at the peak of his activities, to develop the broader meaning of the landscape point.

Hiroshige was born in 1797 and was therefore nearly forty years younger than Hokusai. He was the son of a man named Andō Gen'emon, who belonged to the firefighting brigade maintained by the Tokugawa government, and the family lived in a fire station beside the Yaesu River in Edo. As a boy the artist was called Tokutarō, but this name was later changed to Jūemon and then to Tokubei. Both Andō Gen'emon and his wife died while their son was in his thirteenth year, and, despite his youth, the boy was required to succeed his father in the family post. He was far more interested in painting than in his work, however, and in 1832 he handed the position on to a person named Chūjirō, who was according to some accounts Hiroshige's own son and according to others the son of Andō Gen'emon's adopted father Zennosuke.

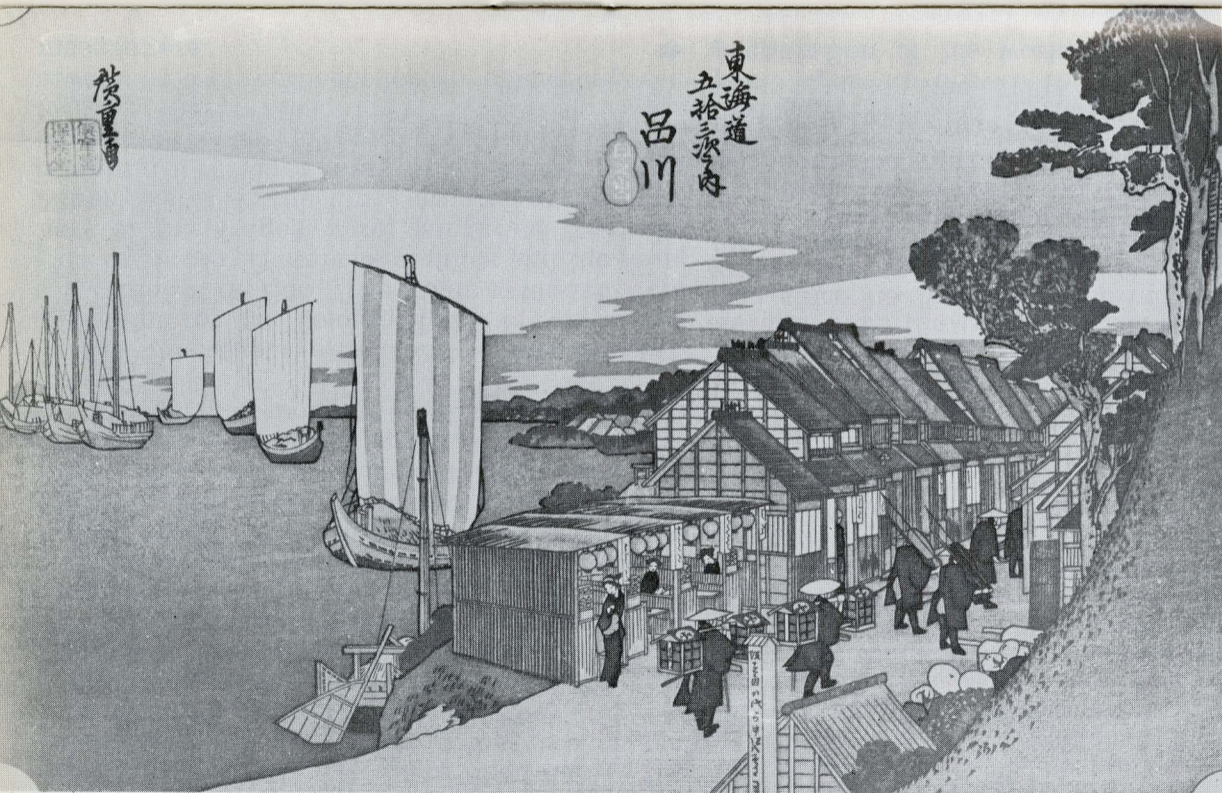
At the age of fifteen Hiroshige began studying the art of printing with Utagawa Toyohiro, and in the following year he was allowed to adopt his teacher's surname, an honor that would ordinarily not have come for several more years. Simultaneously he took the name Hiroshige, part of which came from Toyohiro's name, and since almost every artist had a few pseudonyms or fancy names, he also began signing his works with the name Ichiyūsai. Until 1828, when Toyohiro died, Hiroshige

## Woodblock Prints

depended upon the skill of the engraver, the second of the quartet, to transfer successfully the charm, the vitality and the delicacy of the brush strokes to the coarser wooden material. This was not always satisfactorily achieved, and some of Hiroshige's own prints deserved a better engraver. The next step was for the painter to determine the colours on the first pull, and for each colour a separate block had to be cut; many Japanese woodcuts required twenty or more individual blocks for their completion. After this the printer, the third member of the quartet, received the blocks for the printing process. Whether or not the colours, which he could alter or interchange, and the colour harmonies, including the subtler shades which were mostly produced by wiping out, really corresponded with the design, depended upon his care and sensitivity, even upon the pressure of his thumb.

Considerable importance was also attached to the kind of paper used, and so the paper manufacturer had his place in the quartet. Little need be said about this, except that in Japan paper is not merely a cheap raw material; the Japanese strive to produce the best paper in the world, and are so successful in this that even today the term "Japan paper" denotes high quality. Finally, the publishers must not be overlooked. They paid the painters, engravers and printers, and also purchased the paper. As is so often the case, the actual designer came off worst, and the artists had to work very hard to earn a living. Not one of them grew rich, and some were forced to take up other professions: Kiyonaga, one of the greatest, opened a tobacco shop in his old age, deeming this a more profitable means of feeding himself and his family than his art—even though this was so outstanding.

If, on the other hand, we look at Hiroshige's art from the sociological angle, we find that it reflects the imperturbable, cheerful friendliness of his character. Presumably his inherited office in the fire-brigade of the all-powerful government, and the commissions he received later as Inspector of the Waterways, made his path easier by assuring him a small income. The colossal number of his prints and their frequent re-printing show how greatly they were in demand, and the care he lavished on the house he built for himself suggests modest prosperity.



Left: Shinagawa, the first stage or stopping point on the Tokaido is about four and one-half miles south of the Nihombashi Bridge. Here one sees, not the first, but the last members of the daimyo procession shown on the previous plate.



Right: Yoshiwara, the 14th stage on the Tokaido. This section of the Tokaido was famous as the only place on the highway where travelers going from Edo to Kyoto found Mt. Fuji on their left. The pine trees were intended for comfort and as defense barriers in the event of war.

## The Tokaido Road

and there were also several steep passes to negotiate, for which vehicles were not at all suitable. To protect the capital, barriers were erected in the mountains at strategic points where the highway approached the plain of Edo, and these could be easily manned. At Hakone, for example, situated on the Tokaido, soldiers of the Shogun searched the travellers and the goods they carried for firearms, and made sure that on the return journey no women were smuggled out.

Japan's arable land could feed some twenty-five million people, and it is certainly worth noting that during the 250 years of isolation in the Tokugawa period the population remained fairly constant. Since all contact with the outside world was forbidden, and therefore no food could be imported, the birth rate had to be controlled; in times of crisis, such as the bad harvest years, new-born babies were killed. Harvest failures became more numerous in the latter part of the eighteenth century and this frequently led to unrest. That extensive revolts did not break out, may have been due to the calculated lack of bridges across the rivers, which formed a powerful protection.

Travellers, unless they preferred wading, were obliged to use the boats or be carried across the waterways. In Hiroshige's many pictures of fords the coolies appear as hardy, muscular men who carried on their dangerous profession almost naked, even during the cold season. Actually the danger attached to the work resulted less from the elements than from the fact that if any traveller lost his life through the fault of the coolie, the latter's own life was forfeit.

The Nihombashi (Japan bridge) was the starting point for the Tokaido Road. It was at the very center of Edo. The road extended from Edo to Kyoto. Distances in miles and the numbers of the stages were calculated from the Nihombashi. At the inns, situated at intervals of only a few hours' walk or a half-day's journey, the travellers could get food or lodging for the night. Fresh horses and boats were always held in readiness for the official express messengers.

## Hiroshige

showed few signs of departing from the traditional *ukiyo-e* manner. He turned out a number of portraits of actors and warriors, but presumably his relationship with his teacher was such as to prevent him from attempting new styles. Freed from obligations by the master's death, around 1831 he began to show an interest in landscapes and flower-and-bird pictures. In the same year, he began to write the name Ichiyusai with different ideographs from before.

Hiroshige's virgin effort as a landscape artist was an album of ten prints entitled *Famous Places in the Eastern Capital*. Though this was fairly well received, it did not prove impressive enough to enhance his reputation as an artist, and he was forced to wait for a second opportunity.

This was not long in coming, for in 1832 he was able to make his first trip down the Tokaido, or "Eastern Sea Route", which led from Edo to the imperial capital at Kyoto, and to gather much new material for his prints. It was the custom in this period for the *shogunate* to make a gift of horses to the emperor on the first day of the eighth month of each year. The date was one on which Japanese had long celebrated the harvesting of the year's rice by exchanging gifts, and since it happened to coincide with the date on which *Tokugawa Ieyasu* had first occupied the castle at Edo, it was considered particularly important by the Tokugawa shogunate. Hiroshige was apparently asked to go along to make sketches of the journey. The emperor's horses are pictured in the print entitled "Fujikawa", and it would appear that the procession shown is actually the one to which Hiroshige belonged.

There is some question as to whether this was the procession of 1831 or that of 1832. Since the drawings Hiroshige made on the way began to appear in print form in 1833, one can assume that the trip was no later than 1832, and since he first used the name Ichiryūsai, which appears on some of the prints, in the fourth month of 1832, some critics have concluded that this must have been the year. Still, there is no real proof that Hiroshige did not make the journey in 1831 and then spent a year working on his drawings before publishing them. It would have been unusual for a print artist to devote that much time to the preparation of his work, but Hiroshige may

## Woodblock Prints

From the few surviving pages of his diaries it is clear that he derived the same quiet pleasure from the commissioning of a picture, or from a glass of *sake* or a good meal, as he did from the beauties of the scenery through which he passed on his journeys, or the well-told stories that he loved to hear. His own poems and light verse were not above the average literary standard, nor, presumably, did they try to be so. Although they secured for him the name of poet in his own circles, literary history has so far paid no attention to them. Hiroshige never grumbled at fate as did, for instance, the more vociferous Hokusai; nor do we hear him complain of being a misunderstood artist. Even more informative, however, is his relationship to the other well-known artists of his day.

Around the middle of the nineteenth century, immediately after the death of Hokusai in 1849, three print-designers competed for the highest position—which brought to its holder the most rewarding commissions. The oldest of the three, who outlived the others, was Kunisada (1786–1865), by far the most successful pupil of Toyokuni. His outstanding fame, which lasted for many years, was based primarily on his actor- and theatre-prints, on the sophisticated colour of his costumes, which dominated the fashion of the day, and on his daring compositions—a unique school for present day poster art. The inevitable reaction has led quite wrongly to his underestimation today. Kuniyoshi (1798–1861), his younger fellow-pupil under Toyokuni, a brilliant and (especially as a draughtsman) highly talented artist, was unable to compete with him despite his efforts as an illustrator of historical works and novels. These two ambitious artists, who at times clashed in open rivalry, were both close friends of Hiroshige. All three together—or each of the two separately with Hiroshige—published sets for which they each contributed a number of prints. Hiroshige, however, also drew many individual sheets and triptychs

Opposite page: Kambara, the 15th stage on the Tokaido. This print, which was executed almost entirely in shades of black, with white patches left for the snow, is doubtless the best single print in the Tokaido series and one of the best wood-block prints ever made in Japan.



## The Tokaido Road

The Tokaido was about 230 miles long and had fifty-three post stations, excluding those at Edo and Kyoto. It took between ten and sixteen days to cover the entire distance, according to the weather and the number of rest days. During the snow-thaws, however, the swollen rivers and the streams were sometimes impassable for days, and the only alternative was to make unpleasant and laborious detours around the upper reaches. But the Tokaido was more than a mere artery, it was also Japan's busiest tourist center. Everyone met there; princes travelling to and fro, merchants, and pilgrims. Certain parts were famous for costly materials, others for good food or beautiful girls.

The publication of the book "On Shanks's Pony through the Tokaido" by Jippensha Ikku (1765-1831), the best known humorous writer of the Tokugawa period (the Tokaido here indicates the whole district of that name, not merely the road), with clever descriptions of two eccentrics walking from Edo to Kyoto, added enormously to the popularity of the Tokaido. Everyone knew the two characters, and all were curious to see with their own eyes the scenes of their adventures.

Hiroshige, in his role of Inspector of Waterways in the Tokaido area, seems to have accompanied a delegation of the Shogun to Kyoto in 1832. The fruits of this journey, the series of large-size woodcuts, "Fifty-three Stages of the Tokaido", more popularly known as the "large" Tokaido, were published during the next two years. The series brought Hiroshige, who had been little known until then, recognition from all sides. His success was based on his ability to remain true to nature and at the same time to organize it in clear compositions; on his amazing gifts of blending fantasy and reality; on the splendor and lightness of his colors; and finally, on the inner serenity that characterizes all his work. Altogether, Hiroshige, who received repeated commissions from publishers, completed or began some twenty Tokaido sets.

Highways of this sort were particularly

## Hiroshige

possibly have done so.

Recently something that purports to be Hiroshige's diary of his trip has been published. To date only about one third of it has appeared, and it is quite possible that many readers have accepted it as genuine, but a thorough examination of the unpublished sections shows beyond the shadow of a doubt that the work is a forgery. This "diary" gives the date of the Tokaido trip as 1830, which is quite out of the question.

Basing himself on sketches made during the journey and on earlier works dealing with the Tokaido (see below), Hiroshige designed a series of fifty-five color prints—one for each stopping place, or "stage" on the Tokaido and one each for the terminal points. These began coming out separately during 1833, and in 1834 the complete series was put on sale. The publisher at the time was the Hoen-dō in Edo, but since eleven of the prints bear the names of both the Hoen-dō and another publisher named Senkaku-dō Tsuruki, it appears that both houses took part in the work. A good guess would be that the series was begun as a joint publication, but was later taken over by Hoen-dō. The reason can only be conjectured, but it may well be that Hiroshige's series was too long to be engraved and printed by one house in a reasonable length of time. Woodblock prints constituted, after all, a sort of mass communications medium, and publishers were usually interested in speedy production. Another possible reason is that Hoen-dō, which was a first-class publishing firm, might have hesitated to put out on its own a work by an artist who was not yet recognized. If one accepts this second line of thought, one can assume that the instant success of the Tokaido prints led the Hoen-dō to buy out the Senkaku-dō's interest in it before the series was completed.

The Tokaido was and is the most highly traveled route in Japan. In Hiroshige's day it was the best of a series of roads that the Tokugawa government maintained to facilitate administration. From Edo it led down the beautiful Pacific coast, where in several places mountains suddenly meet ocean to form some of the most magnificent scenery in Japan, or in the world. Midway, near Lake Hamana, it turned north to go around the Bay of Ise, and from Miya, which is the present-day Atsuta, it preceded roughly west, through a range of mountains to Lake Biwa and then Kyoto.

## Woodblock Prints

with Kunisada, and after the success of his first Tokaido series permitted the latter to use the landscapes in it almost unchanged for his own figure scenes—and was perhaps even grateful to him for doing so. In the modern view these Tokaido sets of Kunisada are almost plagiarisms, or at any rate exploitation of another man's ideas. That Hiroshige, in common with everyone else at that time, did not take this view, is proved by the undisturbed collaboration of the two artists until their death.

The impression of Hiroshige's character that we gain from the meagre documentation is fully substantiated in his work—by the tranquillity, and the endearing frankness with which he adds interesting, often very witty details to his easily intelligible pictures. It is also borne out by the clarity with which he depicts forms that had hitherto presented many problems, and that Hokusaid himself in his earlier landscapes had still rendered in a hard and often over-pointed manner. And finally, in the quality of his work, in the lively expression of mood that he conveyed through the wood-block print—a medium that seems little suited to such effects. Hiroshige was no infant prodigy, no phenomenon in art; he never took his work lightly, never—as Kunisada so frequently did—repeated himself, or debased a successful idea. But his work radiates extraordinary warmth, charm and easy assurance. Therein, perhaps, lies the secret of his lasting and universal popularity, his worldwide fame, and the acceptance of his art as a permanent and valuable contribution to the treasures of mankind.

In 1853 an American naval squadron arrived off Edo and forced the Japanese government to abandon the self-imposed isolation from the rest of the world that had lasted for two hundred and fifty years. The first trade agreements were signed in 1858, the year of Hiroshige's death. The finest ambassadors that Japan was able to send to the rest of the world at that time were cheap woodcuts. They were to be had for a few pence, and they crossed the seas in thousands, often even as wrapping paper. They revolutionized European art, particularly in Paris. What could give a better or more vivid impression of the land of Madame Chrysanthemum and Madame Butter-



Left: Nissaka, the 25th stage on the Tokaido. Travelers proceeded on an uphill course to Nissaka, near which they passed the celebrated Night-weeping Stone (yonaki-ishi). Legend has it that one night long ago a pregnant woman from Nissaka set out for Kanaya to see her husband, but was attacked and killed on the way by bandits. Her blood fell on a stone, which ever since has wept every night in sorrow for her. The story goes on to say that the goddess Kannon appeared in the image of a priest, took the child from the dead woman's body, and gave him to another woman to raise. When he grew up, he sought out his mother's murderers and took revenge upon them.

Right: Goyu, the 35th stage on the Tokaido, is bypassed by the modern Tokaido Route, and as a result it is closer to its premodern state than any other town in the Tokaido series. In Hiroshige's time, the waitresses at its inns were known for their persistence in trying to entice customers, and in this picture the artist has depicted two of them literally dragging a pair of travelers into their shop.



## The Tokaido Road

necessary to the Tokugawa system, since the shogunate required its feudal lords to reside in Edo every other year. This was a measure designed to avoid revolt; it not only kept the provincial lords under the government's eye a good deal of the time, but necessitated their maintaining residences in two places, thus tending to limit their funds. Furthermore, since women of the samurai class were not allowed to leave Edo without permission, they served as hostages when the menfolk were in the provinces. When the daimyo, or feudal lords, traveled to and from Edo, they did so in great processions in which there might be hundreds of servants and vassals. Hiroshige traveled to Kyoto in such a procession, and it appears in a number of the prints in the Tokaido series.

Considering the importance of this route, one is not surprised to find that it had a firm place in the literature and folklore of the Tokugawa period. As early as 1658 Asai Ryo published a book called *Record of Famous Places on the Tokaido* (*Tokaido Meisbo-ki*), and in 1690 the print artist Hishikawa Moronobu produced a work entitled *Picture of the Tokaido* (*Tokaido Bumkan Ezu*). In addition there were several guidebooks which contained pictures of places along the highway, as well as a very famous novel by Jippensha Ikku called *Hizakurige* (*Shanks' Mare*), which recounted the ribald adventures of two Edo commoners traveling on the road. Beginning in 1806 Hokusai published several series of prints on the Tokaido, but since Hokusai had not actually traveled on it, his pictures as a rule showed idealistic settings in which people figured more prominently than scenery.

Hoei-dō's *Fifty-three Stages of the Tokaido* was the first set of full-fledged landscapes to deal with the highway. Unlike the guidebooks and Hokusai's anthropocentric prints, it was

designed to give the viewer the feeling that he was actually seeing the localities in question—actually taking an imaginary trip down the celebrated highway. With Hiroshige's album one could view the scenic wonders without leaving Edo, or, if one had traveled on the highway, one had here a ready-made book of recollections. Small wonder that the reprints were an uproarious hit among the common people. Hiroshige's pictures lacked the logical composition of Hokusai's, but they conveyed the lyrical qualities of Japanese nature in a much more beautiful fashion. Scenes darkened by rain, scenes clouded with mist, scenes lit by moonlight or whitened by snow—all of these testify to Hiroshige's feel for the mood of his surroundings.

The Hoei-dō version of the Tokaido series brought Hiroshige instant fame. The popularity that had been Hokusai's was transferred to him overnight, and for years thereafter he reigned supreme in the world of woodblock prints. Having gained so much from the Tokaido series, he followed his initial success with nearly forty more albums on the same subject. Of these the best known are the *gyōsho* and *reisbo* versions, so called because of the styles of calligraphy used for the titles of the prints. Aesthetically, however, the Hoei-dō version remained the best of all, and it is this which is reproduced on the following pages. It was produced while Hiroshige was still young, and it contains a number of awkwardnesses, but these are by no means important enough to alter the value of the work as a whole. The fact is that this one album contains all of Hiroshige's good features and few of his bad ones. It is the best single key to the aesthetic sense that dominated his life. When he died, in 1858, he must have done so with the comfort that he had produced at least one gigantic masterpiece. His farewell poem was:

*I leave my brush in the East  
And set forth on my journey.  
I shall see the famous places  
in the Western Land.*

The "Western Land" is the paradise of the Buddha Amida, but the poem as a whole suggests a visit from Edo in the east down the Tokaido to Kyoto in the west.

Opposite page: Okazaki, the 38th stage on the Tokaido. The bridge over the Yahagi River just outside of the town measured 1,248 feet and was the longest on the Tokaido.

## Woodblock Prints

fly than the prints of Kunisada, Kuniyoshi and Hiroshige? It is easy to demonstrate what Impressionism and the "Art Nouveau" (*Fin de Siecle*), Poster Art and, up to a point, Expressionism, owe to the Japanese craze that arose primarily from these woodcuts; even occasional misunderstandings could prove fruitful. It is enough to mention the names of Whistler and Toulouse-Lautrec, who, like many other artists, achieved fame by translating the visual conception, technique and subject matter of Japanese models into the European idiom. Meanwhile the great but poverty-stricken Van Gogh made direct copies in oil of two woodcuts by Hiroshige, the *Obashi Bridge in the Rain* and the *Plum-Garden of Kameido*. This he did to secure a handy record of the sharply contrasting luminous colours, the skillful interpretation, and the unusual viewpoints that characterize his beloved woodcut master. The few francs that he occasionally received for a painting he preferred to spend on Japanese prints, and twice he arranged exhibitions of these in the artists' cafes in Paris. Surely there could be no clearer proof of Hiroshige's greatness than the fact that, only thirty years after his death, an even greater artist copied his woodcuts so faithfully. In the meantime, it is true, the prints had not been very carefully handled in Europe, and today well-preserved examples are valuable items in almost all print-rooms. That Vienna, too, has a comprehensive collection of Hiroshige's work is due to Anton Exner, an enthusiastic art-lover and dealer, who bequeathed the major portion of his great collection to the *Österreichisches Museum für angewandte Kunst*; by so doing he virtually established that museum's important collection of Far Eastern art. It is thanks to his son, who played an essential part in collecting the Hiroshige prints, that a selection of them has been made available to the general public in this book. Werner Speiser

Last page: Shono, the 45th stage on the Tokaido. Along with Kambara, this print must be counted as a masterpiece. It is doubtful that any other picture ever painted has succeeded so admirably in conveying the feeling of a violent rainstorm. One hears the sound of the bamboo bending in the wind and shivers with the wetness of the rain.



# CHAPTER NEWS

**BETA UPSILON, University of Kentucky**—The semester started with nineteen active members. President Zemo was key in implementing this chapter's film series, which brought both technical and non-technical movies to Kentucky's student body. HKN also assisted the EE Department by taking charge of a segment of its Freshman Professions Class and teaching Slide Rule.

During this semester a good effort was made to review the by-laws and constitution. A committee was formed to recommend changes if needed. Ideas were brought forth concerning the revitalizing of our ailing IEEE chapter since it has similar goals to HKN. Our chapter also participated in a campus wide public relations workshop where some helpful knowledge was gathered.

Near the end of the semester we acquired four new members who will be honored with other engineering honorary fraternity brothers at the biennial Engineer's Honors Banquet.

**EPSILON PSI, University of Santa Clara**—The Epsilon Psi Chapter of Eta Kappa Nu initiated eight undergraduate students from the University of Santa Clara, California on November 16, 1971.

Among the second group initiated this year to the newly formed Epsilon Psi Chapter, the seniors were: William N. Carrico, John D. Divittorio, Tim R. Smith, and Mark Van der Haeghen. The juniors were: Henry L. Catala, Thomas M. Battle, John R. Flanagan, and David M. W. Chang.

Pipestage, the setting for the installation of Epsilon Psi Chapter at the University of Santa Clara last spring, was the site of the formal initiation. Conducting the induction ceremony were: Dr. S.P. Chan, Chairman of the Electrical Engineering Department at Santa Clara and advisor Eta Kappa Nu; Dr. Frederick W. Clegg; Professor Henry P. Nettesheim; Gregory K.K. Young, president; Carol Roney, vice president and secretary; Richard Minor, the past president; and Ronald Ruebusch. The members comprising the induction team are distinguished as charter members of the Epsilon Psi Chapter.

The initiation was followed by a banquet at Rogers Restaurant in Santa Clara. After the banquet, Dr. Robert Fossum, the Vice President of Electromagnetic Systems, Sunnyvale, California and the banquet speaker for the evening presented the talk on systems engineering at the University Faculty Club. by Greg Young.

**EPSILON UPSILON, Tuskegee Institute**—Our biggest venture was to start our own monthly newsletter the "Tuskegee Engineering Review" with the Eta Kappa Nu shield on its front page. Our prime movers behind this activity were our president, Mr. Sammie Harkness and

Mrs. Margarita Sturdivant, one of our most outstanding students and pledgee of our chapter. It is most unfortunate that on the front page of our second issue we had to report the untimely accidental death of Mrs. Sturdivant. Because of her high scholastic performance and her invaluable services to our chapter we unanimously felt that she should be posthumously instituted in our chapter on January 17, 1972, the date she would have been initiated along with our other pledgees.

The first issue of our newsletter was financed through our Dean, who had faith in our chapter. The future issued we'll try to finance with the aid of our industrial friends. (This means a lot of correspondence.) The second issue was financed by Western Electric. Instead of the usual tasteless advertisements we were able to acknowledge their invaluable help in a more tasteful form on the lower right corner of the last page. We hope that we can operate in the same tasteful form in the future too.

As far as tastefulness is concerned, we are really proud of our electrical engineers. This year the editor of our campus student newspaper, the "Campus Digest" is also a senior engineering student. During the past couple of years the same gutter style flourished in our student newspaper that you can find everywhere else in the nation. With our new EE editor the style and quality of our campus news organ improved markedly and we can be proud of it again as the student voice of an academic institution. You can hear quite often the charge that engineering students are too passive and they do not get involved in the problems of the campus life and the society. This is definitely not the case on our campus.

Coming back again to our own newsletter, our major aim is to foster Eta Kappa Nu's goals in our school: to achieve high scholastic standards and improve the overall spiritual and moral standards. To do this we plan to have a regular feature in our newsletter on Tuskegeeans that we can be proud of. We will have an article on our mechanic, Mr. Amakyi, who after his tremendous works in the school, repairs appliances and built entire house (putting in the services included) entirely alone. We will have another story on Eustis Blackley, a charter member of our chapter, who used to be a laboratory assistant in the EE department and repaired radios and TVs in a local department store. In addition on Saturdays and Sundays he was a taxi driver in Atlanta. With all these activities he was able to keep up a high scholastic average and support his wife and child while he was a fulltime student. Using these kind of people as our ideals hopefully will have beneficial effects.

Our annual initiation of new members was held January 17, 1972. In addition to the cream of our EE student body we initiated from our faculty Professors Clayton, Doreswamy, and Lee (our visiting professor from IBM) and Professor Malkani (a former faculty member of our EE department, now head of the EE department at Tennessee A&I), and also our Dean, Dr. Z.W. Dybczak, whose financial support helped get our newsletter off the ground.

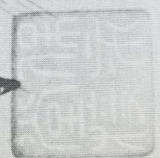
This year the pledgees were receiving the emblem of Eta Kappa Nu without the HKN letters with the Tuskegee colors. They are wearing it on their lapels. They receive the letters on the day of the initiation. These emblems were made in our home economics department. The students seem to like it. Both pledgees (without the HKN inscription) and the regular members (in the final form) are wearing it very proudly. If we get an approval from the headquarters we would like to start this as a Tuskegee practice which might become a cherished tradition in the future.

During the first semester the pledgees and members of HKN held tutorial sessions for freshmen and sophomores. On December 13, 1971 the pledgees brought in high school students from high schools nearby and held a career day for them. They took them on a tour of the engineering facilities, to classes and held an orientation session in the auditorium. During the Christmas vacation each pledgee visited his former high school and recruited students for our engineering school.

As you can see, we had a very successful semester. We were able to see the real value of an honor society in our school. In my opinion, if the action in a school is in the hand of the bottom part of the student body, then violence and destruction is the result, since they cannot offer anything better. On the other hand, if the cream of the student body, which is usually too busy in scholastic performance alone, is activated you can produce real excellence and leadership. When the youthful energies of the best students are activated into creative endeavors we can turn the tide which flooded us with the contents of the sewers during the last few years. I think this is the area where HKN could do a good job nationwide, by taking the power out of the hands of the destructive elements and putting it into the hands of the most creative ones of our academic society. At least this is what we would like to prove in our own school on a small scale with our very talented and energetic youngsters. Naturally this is not a too difficult task, if you have a Sammie Harkness type of president at hand. But I believe that every school has his Sammie Harkness around, you only have to reach out for them. by Michael Erdey.

東林園  
五祀之天  
庄野

林園



# CHAPTER DIRECTORY

Alpha	University of Illinois	Gamma Upsilon	John Hopkins University
Beta	Purdue University	Gamma Phi	University of Arkansas
Gamma	Ohio State University	Gamma Chi	New Mexico State University
Delta	Illinois Institute of Technology	Gamma Psi	Lafayette College
Epsilon	Pennsylvania State University	Gamma Omega	Mississippi State University
Zeta	Case West. Reserve U.	Delta Alpha	Wayne State University
Theta	University of Wisconsin	Delta Beta	Lamar State College of Technology
Iota	University of Missouri	Delta Gamma	Louisiana Polytechnic Institute
Kappa	Cornell University	Delta Delta	University of Denver
Lambda	University of Pennsylvania	Delta Epsilon	Ohio University
Mu	University of California-Berkeley	Delta Zeta	Washington University
Nu	Iowa State University	Delta Eta	University of Massachusetts
Xi	Auburn University	Delta Theta	Pratt Institute
Omicron	University of Minnesota	Delta Iota	Louisiana State University
Pi	Oregon State University	Delta Kappa	University of Maine
Rho	University of Colorado	Delta Lambda	Duke University
Sigma	Carnegie Melon University	Delta Mu	Villanova University
Tau	University of Cincinnati	Delta Nu	University of Alabama
Upsilon	University of Southern California	Delta Xi	Air Force Institute of Technology
Phi	Union College	Delta Omicron	University of New Mexico
Chi	Lehigh University	Delta Pi	Colorado State University
Psi	University of Texas, Austin	Delta Rho	University of North Dakota
Omega	Oklahoma State University	Delta Sigma	University of Notre Dame
Beta Alpha	Drexel University	Delta Tau	University of Southwestern Louisiana
Beta Beta	Polytechnic Institute of Brooklyn	Delta Upsilon	Bradley University
Beta Gamma	Michigan Tech. University	Delta Phi	University of South Carolina
Beta Delta	University of Pittsburgh	Delta Chi	Cooper Union
Beta Epsilon	University of Michigan	Delta Psi	Inactive
Beta Zeta	New York University	Delta Omega	University of Hawaii
Beta Eta	North Carolina State University	Epsilon Alpha	Cleveland State University
Beta Theta	Massachusetts Institute of Technology	Epsilon Beta	Arizona State University
Beta Iota	State University of Iowa	Epsilon Gamma	University of Toledo
Beta Kappa	Kansas State University	Epsilon Delta	Tufts University
Beta Lambda	Virginia Polytechnic Institute	Epsilon Epsilon	University of Houston
Beta Mu	Georgia Institute of Technology	Epsilon Zeta	Lowell Institute of Technology
Beta Nu	Rensselaer Polytechnic Institute	Epsilon Eta	Rose Hulman Institute
Beta Xi	University of Oklahoma	Epsilon Theta	California State, Long Beach
Beta Omicron	Marquette University	Epsilon Iota	San Jose State University
Beta Pi	City College of New York	Epsilon Kappa	University of Miami
Beta Rho	West Virginia University	Epsilon Lambda	Vanderbilt University
Beta Sigma	University of Detroit	Epsilon Mu	University of Texas - Arlington
Beta Tau	Northwestern Technological Institute	Epsilon Nu	California State, Los Angeles
Beta Upsilon	University of Kentucky	Epsilon Xi	Wichita State University
Beta Phi	University of Tennessee	Epsilon Omicron	University of Delaware
Beta Chi	South Dakota School of Mines	Epsilon Pi	Princeton University
Beta Psi	University of Nebraska	Epsilon Rho	Tennessee Tech. University
Beta Omega	University of Connecticut	Epsilon Sigma	University of Florida
Gamma Alpha	Manhattan College	Epsilon Tau	University of Cal., Santa Barbara
Gamma Beta	Northeastern University	Epsilon Upsilon	Tuskegee Institute
Gamma Gamma	Clarkson College	Epsilon Phi	California State Poly. Col.
Gamma Delta	Worcester Polytechnic Institute	Epsilon Chi	University of Louisville
Gamma Epsilon	Rutgers University	Epsilon Psi	University of Santa Clara
Gamma Zeta	Michigan State University	Epsilon Omega	University of Mississippi
Gamma Eta	Syracuse University	Zeta Alpha	Monmouth College
Gamma Theta	University of Missouri - Rolla	Zeta Beta	Texas A. & I. University
Gamma Iota	University of Kansas	Zeta Gamma	University of Rhode Island
Gamma Kappa	Newark College of Engineering	Zeta Delta	University of Texas, El Paso
Gamma Lambda	Columbia University	Zeta Epsilon	Florida Institute of Technology
Gamma Mu	Texas A & M	Zeta Zeta	University of Akron
Gamma Nu	Texas Technological College	Zeta Eta	Brigham Young University
Gamma Xi	University of Maryland		
Gamma Omicron	Southern Methodist University		
Gamma Pi	University of Virginia		
Gamma Rho	South Dakota State University		
Gamma Sigma	University of Utah		
Gamma Tau	North Dakota State University		

## BRANCHES OF ETA

Merrimac College  
 Naval Postgraduate School  
 University of Evansville