Our commitment to today's technology takes diverse forms

7. Manufacturing

AT HCL, we use the state of art in every aspect of our operations. Take manufacturing, for instance.

HCL's entire manufacturing efforts have always included products based on the latest technology that have not only set the trend in the market but have also become the exemplars of high quality. HCL's unbreakable manufacturing record in just five years includes over 500 desk-top programmable calculators, more than 500 8-bit and 16-bit minicomputers, and 1500 data entry units.

In one of the most modern factories of India, 51 highly trained engineers with more than 600 man-years of experience, 31 supervisory staff and technical assistants, and 68 operators and mechanics, are busy in a centrally air-conditioned and generator-supported environment specially designed to facilitate production and material flow.

Even though HCL uses only the very best components and peripherals, its manufacturing process involves detailed and rigorous material testing. HCL is one of the very few companies to use automatic soldering to ensure high quality and quantity; production and superior finish, individual components as well as total systems undergo exhaustive soak testing to warrant completely error-free machines. Data entry machines are soaked for at least 7-10 days, 8-bit minicomputer 9-12 days and 16-bit minicomputers for 10-15 days to give a record 97% up-time.

HCL's packing ensures dependable despatch to every corner of the country—from Satna in the West to Dulpian in the East, and from Srinagar in the North to Kovipatri in the South. All this, strictly monitored by our own computers.

HCL's entire production, geared for high-quality, high volume, multi-type manufacture, will soon extend to peripherals also.

Perhaps the most significant recognition of HCL's technical capability is in Singapore's first ever computer manufacturing operation, through the HCL-subsidiary, Far East Computers Limited.

Manufacturing—one of the many facets of corporate competence.

HCL HINDUSTAN COMPUTERS LIMITED

Siddharth, 96 Nehru Place, New Delhi 110 019.

Over 1000 installations in 158 locations in India, Singapore and Malaysia.

HQ News

CSI Elections 1983-84/85

The Nominations Committee is composed of Shri V.V. Bhal — Chairman, with Prof. V. Rajaram and Dr. Srikantan as members.

In accordance with the bye-law sec. 5, it is intended to follow a time bound programme giving maximum time to the members of the Society to consider and suggest suitable names for the appointments shown below.

Appropriate groups of members as well as individual members may send proposals for consideration for those elective posts to the chapter chairman or direct to the Chairman, Nominations Committee, Shri V.V. Bhal, Director, Associated Cement Companies Ltd, Cement House, Churni Gate, Bombay — 400 020.

Last date for receipt of proposals by chairman NC is October 15, 1982. Proposals or nominations must contain acceptance of the notice to stand for election to that office, as well as a brief biographical sketch with a short statement of intent as to what the candidate wishes to do during the tenure of his appointment.

Kaira District Co-operative Milk Producers' Union Ltd., Anand:

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1. 1004 Data Processor with Reader/Punch
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Kaira Dist. Cooperative Milk Producers' Union Ltd., Anand 388 001
Gujarat.

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CSI Communications

No. 48, August 1982

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CSI Communications is published on the 10th of every month.
Regional Conference Below the Himalayas

Inaugural address, Regional III Convention on CAM/CAM June 1982

As president of the Computer Society of India, I have, for quite some time, been worrying over the fact that the annual conventions and conferences of computer societies are becoming more and more manageable, due to increasing costs. Technically, they are yielding diminishing returns. The position of finding the highest common denominator of interest for the group is becoming more and more difficult. Depth of coverage also suffers, due to the limited number of papers presented. Various locally organized regional conventions and seminars have therefore been suggested to supplement the national conventions. The last two years have seen a number of such conventions organized by the regions and divisions of CSI, through which the society has seen a marked growth in its membership. The less orthodox and so on.

The present convention is one in this series and judging by the topicality of its theme, its relevance in the Indian context and the technical content, it is one of the best. I am therefore deeply indebted to the organizers for giving me an opportunity of releasing myself with it. It is also of personal significance to me that almost exactly two years ago, I participated in a similar regional convention in the southern region. The last time, I was taking over office as President of CSI. Today, I have the great pleasure of doing it again, in the Southern Region, thus being the President of CSI for the second time. I see no other possibility, the South Indian Physicals have been rather weak.

I have seen that the theme chosen for this convention is "Region". This is a theme which I am sure the President-elect: Technology can play two roles of varying types of roles. It can help the extensive and intensive. The extensive role consists in the use of technology for improving the lives of people as a whole. The intensive role consists in the use of technology to help the individual grow. I think many of us have not seen that earlier, while the intensive role improves the efficiency of production of using machines and intensive services.

Computer Technology is primarily, utilised in the intensive role. Many earlier attempts to utilise this technology for extensive use, have not had the desired effects. In recent years, the term "regional" has been in use, copying the pattern set in the western world.

The term "regional" has been in use, copying the pattern set in the western world. The problem, however, is that such uses for "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact that the term "regional" has been in use, copying the pattern set in the western world. It is a fact
Announcing the HP 3000 Series 44.

The new HP 3000 Series 44 extends our computer family's performance range dramatically. It has the power to handle 4 megabytes of memory, 1.3 billion characters of on-line disk storage, up to 96 terminals, 4 line printers, 7 synchronous datacomm lines and 8 mag tapes. In five minutes, on-line users can access an IMAGE data base 1,560 times to enter or update orders. At the same time, the computer will respond to 51 inquiries into the data base and generate formatted reports for all of them, with subtotals and totals. It can even compile a 1200-line COBOL program 1.5 times. And read, sort and report a 9,000-record file in 3.5 minutes.

For more information, write to the Electronics Division, HP Packard, 4142 Veer Savarkar Marg, Prabhadevi, Bombay 400 025.

Computer commentary:

Computing Versus Commuting by R.S. JAIHARI Senior Executive (Accountancy) Indian Dairy Corporation, Bandra.

Analogy helps understanding of various systems. Computer systems were compared to electric public transport systems in the last issue of the commentary. Published in February, 80 issue of the Management Accountant. The author here makes an attempt to compare the existing computer systems with transport systems. Goods produced have very little value at the place of origin or production. They gain value only after reaching the market place for use either in industry or for sale to customers for human consumption. Agricultural products, gain value after reaching the market and industrial products can be made after transporting raw materials from the place of origin or market to the processing point and further transportation of the finished product to the consumer. An analogy of the computer system can be drawn with the transportation system and the following comparison may be presented.

1. DATA is like the raw material at the place of production.
2. PROCESSING can be compared to transporting from origin to destination and it is the distance over which the goods are transported to give it value.
3. INFORMATION can be compared to the material in the marketplace i.e. VALUE. Processing converts raw data into information which is of value and can be used. Similarly, transportation converts raw material into goods of better value.
4. SOFTWARE can be compared to the mileage of the road. Software will depend upon the symbols and the roads in a transportation system. Without the symbols in the form of a transport system, the first thing we have to plan is the design of the symbols and the procedures which need to be devised in the computer, with the proposed program.
5. HARDWARE is compared with the modes of transportation and the software is actually used in the engines, railways, roads and air craft. The design of the transport vehicle depends upon the roads to be carried and the distance to be covered and the design of the various input output devices and the computer core processing unit also depends upon the volume of data and the processing of information and the time in which any one is delivered and in which the output is required.
6. LIVESTock is compared to both the systems and assess the productivity associated with its functioning and who make it useful. This aspect also needs the same amount of planning and maintenance as any other part of the system. With the above comparisons, the transportation system offers a good analogy in the computing systems.

Functional Analogies

The various personal covetances whether mechanical or powered, for commuting can be compared to the mechanical or electronic calculations. The public transport system offers good comparison with the computer. The processing capacity for long distance transport is limited by the amount of the available fuel. Railways bear the maximum burden of transporting passengers and goods over long distances over land.

Automobiles, scooters and auto rickshaws in common demand within cities, can be paralleled with electronic calculators of various capacities and functions serving the computational needs of individuals such as office workers, students, business concerns. Similarly, like trucks which come in various capacities, Electronic Accounting Machines and Microprocessor based mini-computers satisfy a demand greater than that for the electronic calculator. For inter-district and inter-state transport, the various transport systems can be compared to scientific computations involving huge calculations on a small amount of data, whereas the sea, rail and road transport can be compared to Business Data Processing involving large amount of Data with lesser Processing.

Systems analogies

The various computer systems can now be compared to the various transport systems and the road and railway and road systems to the procedural mathematics, from flow and Fortran programming used to make computer system useful. The signaling systems used on the requirements of the computer systems used for navigation and other navigational aids for transportation can be compared to operating systems in computers.

Thus, let us bring a truck into the picture for its movement and the roads have to be built to suit the type of the truck. Similarly, while planning of installing a computer as an organisation, the first step is to review the existing procedures and practices and to modify them to suit the needs of the computer. Well defined procedures have not only to be prescribed but also to be enforced in practice. The computer operation requires following of a strict discipline, all in terms of the procedures being followed, accuracy of data and timeliness. Planning for computer is a task and requires a lot of effort in the form of systems analysis and design to carry out the various applications of the organisation.

Planning for time

In the transportation of commodities, good time has to be taken from place of production to a railway or sea port, transported to another terminal and then again transported from the terminal to the destination. It is the total time taken that is relevant for computing various alternatives of the transport system as a whole. Though the unit has been evolved so far to measure the computational speed of the computer system as a whole, every component has got its specified speed. Like a chain, the strength of which is less than the strength of its weakest link, the throughput of the computer can be limited by the amount of the output devices used in the system. Formally, the computers were being sold on the basis of power and speed of the various units. But now customers prefer to know and compare the throughput time of a particular application through the system as a whole i.e. the time taken for an application from the input stage to the final output stage.

This has been accepted as a valid test of computer and may be used in the form of bench-mark tests before choosing a particular make or model of a computer from amongst the various makes and models of available computer systems. The computing power of various systems will have to be considered to be dependent upon a number of factors. The future and the application will depend upon the number of transactions processed as well as the non-transaction items. In addition to technical details of the computer systems being prepared for an organisation, the computing power of various systems will have to be considered as dependent upon a number of factors.
The picture is now complete.

HP graphics from Blue Star.

Experience with Data Communications and Terminal Systems in India

1.0 Introduction

Air-India

1.0.1 Introduction

Air-India is the first major user of the telecommunications facilities available in India for data communications on a commercial scale. The facilities are used for various purposes involving data transmission over long distances. These facilities consist of dedicated circuits from the various Air-India offices to other locations. The circuits provide electronic communications links through the existing telephone network.

2.0 Communications System

2.1 Air-India has leased voice grade telephone circuits from the local telephone company for data transmission over long distances. These circuits consist of dedicated circuits leased from the local telephone company for data transmission over long distances. The circuits are used for various purposes involving data transmission over long distances. These facilities consist of dedicated circuits from the various Air-India offices to other locations. The circuits provide electronic communications links through the existing telephone network.

3.0 Modems

The three local lines connecting terminals to the computer system within 100 metres from the computer centre referred to above, operate without any modem but using a clocking circuit and a dedicated telephone line to transmit data to the computer centre. The three local lines connecting terminals to the computer system within 100 metres from the computer centre referred to above, operate without any modem but using a clocking circuit and a dedicated telephone line to transmit data to the computer centre. The three local lines connecting terminals to the computer system within 100 metres from the computer centre referred to above, operate without any modem but using a clocking circuit and a dedicated telephone line to transmit data to the computer centre.

4.0 Conclusion

In conclusion, the installation of data communications facilities has been successful in enabling Air-India to operate its systems effectively. The use of modems has been found to be beneficial in improving the speed of data transmission and reducing the costs associated with data communications. The problems of amplitude attenuation and delay distortion have been successfully addressed through the use of modems with appropriate equalisation. The installation of modems has been found to be a cost-effective solution for enabling Air-India to operate its systems effectively.
2.4 Performance Monitoring

The P & T telephone system is expected to conform to the CCITT M1000 8092
recommendations. For testing the following aspects are considered:

- Line analyzers to determine delay and jitter 
- Impulse noise, vector detectors to determine noise conditions, 
- Drop-out condition for error rate measurement.

2.5 Line availability

With the central system hardware and software satisfactory, the major cause for the poor performance lies in the long distances and the communication lines. The average data transmission rate in the long-distance is 4800 bits/s.

3.0 Terminal subsystem

The terminal subsystem consists of terminal control units, local terminals, unique local code terminal and printers.

3.1 Terminal Control Unit

The terminal control unit is built with a large scale integration (LSI) technology with a high-speed microprocessor that features an integrated processor. The terminal control unit is connected to a minimum of 128 dialer terminals. This terminal control unit can handle the odd characters and terminal control unit can handle the odd characters and terminal control. The terminal control unit can handle the odd characters and terminal control unit can handle the odd characters and terminal control. The terminal control unit can handle the odd characters and terminal control unit can handle the odd characters and terminal control. The terminal control unit can handle the odd characters and terminal control unit can handle the odd characters and terminal control.
Data cabling and electrical wiring

During the installation of terminals in various cities, the most commonly needed materials such as cables or conductors of the correct type could not be procured locally even in the metropolitan cities of the country, and had to be imported from Bombay. It is difficult to get a reliable locally to carry out data cabling work on a large scale. The only reliable organization which could be engaged with this work, viz., the Indian Telephone Industries, needs several weeks to prepare a small cabling plant. Data cabling and electrical wiring of terminal systems connected to outside parties had to be supervised by Air-India engineers on a round-the-clock basis, since the work done by local contractors was found to be of a very slip-shod nature. Poor quality of work and materials resulted in blowing up of components in the terminal equipment and damage to the entire wiring.

Spares

Quick availability of spares for routine maintenance is another problem. Standardization of the terminals which are developed in India both for on-line and data-transmission also does not exist. Maintenance work would facilitate pooling of spares or ordering them on loan. It is understood that the manufacturer or the customer to stock adequate spares or purchase an engineer at each location with a few terminals in operation. As a result of this, on several occasions, spares and trained personnel had to be brought from central site on an emergency basis in order to restore the operation of the terminal system in remote locations.

Test tools and equipment

Test tools and equipment for monitoring lines and detecting faults on lines, modems and terminal sub-systems cannot be procured at each location by each manufacturer or by each customer, or even for a few line terminals. In the absence of such test tools at locations, the maintenance staff take a long time to isolate the lead to the defective terminal system. It should be possible for other the manufacturers or for the P & T to rent out such equipment to operators or users to facilitate quick fault detection.

Awareness of unintrusive operation

Awareness that intrusions to a real time system used for the control of a vital operation cannot be permitted, does exist. The P & T event now does not appreciate that maintenance of data channels and failure to provide an uninterrupted supply to the channel is reported.

Co-ordinated efforts

Co-ordination between various agencies and technical specialists to narrow down to the cause of the interruption in service is most essential. Occasions are rare when disagreements between the telecom engineers and the terminal engineers, each one demanding from the other, proof that his equipment is defective before taking any action, lead to delays in fault detection and rectification. Air-India has been able to establish over the last nine months, clean and well-established procedures for contacting the maintenance staff of the P & T for fault repairs. As a result, it has been possible to bring down the outage time on this line from as much as 40 to 60 hours in the early days of the operation of the real Time Computer system to as short as half an hour during the working hours in the current situation. Similar co-ordination has also been achieved between the maintenance teams of the terminal and communications equipments and the coverage and line control staff of Air-India attending at the central site.

Power Supply

Power Supply in various cities has been a frequent cause of irritation. Not only are there frequent interruptions due to power shedding but also frequent fluctuations in the frequency and voltage even in a city like Bombay which is known for its reliable and stable power supply. Air-India has installed at the central site a UPS and a standby generator at a substantial cost for maintaining the frequency and voltage of the power supply to the computer system and operation control terminals. Similar arrangements can be made even for major terminal locations. It is not possible to make similar provisions for each and every location with a few terminals. Voltage fluctuations in the frequency and voltage of power supply which cannot be regulated by the conventional voltage stabilizers have caused damage to the components and PCBs of the terminal system and the interruptions in power supply have brought about a very bad name to the computerized reservations services. One simple step which could be taken to improve the uptime of the power supply would be to provide power supply to reservations offices using terminal systems from two individual sub-stations so that during the period of power supply cuts, at least one of the systems can keep the terminal system going. This requires an arrangement on the part of electricity companies of the importance of uninterrupted power supply for a real-time service.

Data transmission take up the tenants involved in terms of reliability and quality of transmission with the P & T, for a significant improvement in the quality of the line or the quality of the transmission can be expected in the near future.

7.0 Lessons from Air-India experience

The Air-India experience of the use of the data communications lines in India and even to commence to follow the approach given below in extending our communications terminals network connected to the real time system.

1. In order to provide uninterrupted line availability of the system at remote stations, especially those with large loadings on alternate routes between the central site and the remote points. If this is not possible, at least the local lines within the city need to be provided with stand-by on alternate routes.

2. Since the P & T is not in a position to carry out remote monitoring of the line quality, it will be necessary for the provision of a data communication line in India for monitoring and for control purposes using adaptive equalizers. The manufacturers of indigenous modems must provide this facility in order to provide real-time availability of the data quality of data received and transmitted on the Indian P & T network.

3. Because the problems are primarily of telephone communication lines, the use of protocols such as X.75 or X.25 which carry out acknowledgement checks at the message level is unavoidable even though this will result in poorer utilization of the line speed as well as slow response time to the terminals.

4. The Circuit Lists and lines installed at various terminals are often for serving inter-active terminals must be duplicated in order to ensure satisfactory up time of the terminal systems.

5. The software of the terminal sub-systems are computer terminals and are used in computer reservation management system at the host processor must provide features by which any change received on the telecommunications lines does not result in the restarting of the entire process of the system.

6. The minimum number of terminals which can be provided under these circumstances on a 2000 bps line would be 26 and on a 2400 bps line up to 24.

7. Until the time adequate number of users of telecommunication lines for the future that the delegates to the Convention include engineers and decision makers not only from the local organisations representing these activities but also those from many other institutions of various types which can play a prominent and positive role in establishing a healthy tradition of CAT CAM in India. I congratulate all concerned for the excellent manner in which the Convention has been conceived of and organised and thank the participants once again for giving me the opportunity of taking part in.

Inaugural Address at India

unnecessary for some areas: the wiring of back panels by wire wrapping of complex electronic systems is an example. Quality control in testing of large scale integrated circuits and complex digital systems is another major candidate for CAT CAM. Computer aided type-setting is another area, particularly for newspapers, where speed, accuracy and flexibility required that computer be used. It is neither necessary nor desirable to catalogue all the various areas of manufacturing activity which are appropriate for computerization. The point, hope I have been made from the few examples I have cited, that even CAT CAM has a future in India and that it has a more extensive role to play than is commonly supposed.

Computer Community could be from Page 5

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LIBRARY FOR BOMBAY CHAP.

CSI Bombay Chapter members will be glad to note the availability of new library facilities at the Xaviers' Institute of Management, St. Xavier's College, Masabba Marg, Bombay. The working hours will be 5.30 pm to 7.30 pm Monday through Friday and 1.30 pm to 3.30 pm on Saturdays.

Look forward to an announcement form the Bombay Chapter regarding details of procedure.

(EDITOR'S NOTE: They are going to zap you for a 100 Rs. deposit.)

CSI Communications, August 1982
Have you renewed your membership for the year 1982-83?

If NOT, please send your subscription to the Executive Secretary, Computer Society of India, (Institute of Engineers Bldg.), 15 Haji Ali Park Bombay - 400 034 immediately.

Please treat this as notification under rules 2.5.1. The payment may kindly be made before August 31. — QUOTE MEMBERSHIP NUMBER

(Renewal form printed elsewhere)

(a) Members Renewal
Rs. 60/-
Rs. 60/- + Rs. 25
entrance fee = Rs. 85/-
Rs. 30/-

(b) New Members
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(c) Students
(Only bona fide, full time students are allowed. Certificate to that effect to be enclosed).

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(MEMBERSHIP RENEWAL FORM)

To
Computer Society of India,
15, Haji Ali Park Road,
BOMBAY 400 034.

Membership No. ____________________________

Please renew my Individual/Istitution membership for the year 1982-83.

I/we am/are enclosing a Cheque/Draft/IOFs (No. ________________)

for Rs_________ in favour of

Rs. 60/- for individual, Rs. 750/- for institution.

There is no change in my/our address as shown below.

Signature of the Member (address)

Summaries of Minutes of 6th Excom Meeting Held at Bangalore on 25th June, 82.

Accounts

a) The Excom approved the Income and Expenditure Statement from December 81 to December 82. The grant of advance of Rs. 15,000/- to IMIA Conference and financial assistance of Rs. 3,500/- to Dr. A. D. Taskar (IMIA India) was attended IMIA meeting abroad was ratified.

b) Granted financial assistance of Rs. 3000/- to Prof. M.K. Ramakrishnan of FT Memes to present paper in 4th International Conference in Frankfurt.

c) Non-publication of accounts of CS-81, CSI-82 and Ednfo-82 were taken note of and the concerned officials were strongly urged to finalize it.

d) Review of National Building Progress.

Serious note was taken of the lack of progress regarding the construction of the building in Madras and the fact that expected Bank Loan of Rs. 3.5 lakhs which has been assured over the last 5 years is no longer available. In view of the non-adequacy of the financial resources of the society to meet the full expenditure of Rs. 7 lakhs without Bank Loan, and the corollary strong need to recentre construction plans to fit the available resources of Rs. 3.5 lakhs which can be made available over a period of time, the following alternatives that are available be pursued:

a) On behalf of the National Body, Shri. K. K. Rastogi, Secretary, was requested to meet the Manager of the ICL to see whether the Madras Chapter could raise the balance of Rs. 3.5 lakhs which, added to the National HQ contribution of Rs. 3.5 lakhs would be adequate to complete the building as per the original plans.

b) The Madras Chapter is requested to consider in its general meeting body, all other possibilities in this regard and communicate their views to the Executive Committee.

Review of CS-81 and CSI-82

The progress on CS-81 was reviewed and appreciated satisfactorily. The Theme Computer and Productivity was confirmed. The following dates were approved - 22-23 and 24-25th June 1983.

(a) The accounts of IMIA Meeting at Delhi and Srinagar.

A new Committee was appointed to look into certain aspects of the college and lack of cooperation with the Regional Committee and the Conference Committee and Organisers.

Adoption of Amendments to Byelaws 2.4.1

The amendment of byelaws (2.4.1) raising Institution fees to Rs. 750/- which was approved by the membership through ballot, be taken note of.

Any Other Business

Computer Education and Membership — Blind People

The letter written by Prof. P.S. Rao to Dr. P.P. Gupta (No. TR/SDS/PV 58/F/CSI dated May 26, 1982) be taken note of as the proposals made therein approved.

b) Use of Affiliated to IISP in all correspondence

The letter of Mr. Jacques C. Fournier, IISP Secretary be noted and use of Affiliated to IISP in all National HQ Correspondence be approved.

c) Ratification of COCHIN Chapters

The formation of COCHIN Chapter be ratified.

d) Student Activities — Report from DVR Vithal

The announcement on student activities, earlier circulated to all the chapters and responses received to be studied by the student coordinators for future reference.

Membership Subscription Dr. D. D. Sarma

The suggestion of Dr. D. D. Sarma to halve the subscription when a new member joins the Society after December of each year be suggested at a proposed amendment to the Bye-laws at the next Excom meeting.

Periodicals of the Society

Progress made by the periodicals committee (The Journal and the Communications, that the financial position of the Communications is steadily improving and has almost reached the break-even point be noted and the suggestion made by the editors Shri. V. S. Santaram and Shri. C. B. Dagpati to be gratefully acknowledged.

The Editor of the journal Dr. S. Ramesh be requested to bring out special issues on chosen topics where specialists in that area can contribute invited articles and standard articles from other standard journals on the topic reproduced.
XVIII Annual Convention, Ahmedabad, Gujarat.
January 20-22, 1983

In a developing country like India, improved productivity must be the foremost justification for allocating scarce resources to computing. The XVIIIth Annual C.S.I. Convention focuses on the vital theme of 'COMPUTERS & PRODUCTIVITY'. A key ingredient in realizing productivity improvements is learning. The XVIIIth Annual C.S.I. Convention is designed to provide unusual opportunities for learning tools and techniques relating to computing. Alongside state-of-the-art presentations, panel discussions and live demonstrations, we are planning extended-duration tutorial sessions on a variety of timely and exciting topics.

Activities at CSI '83 will include

1. Theme sessions on 'COMPUTERS & PRODUCTIVITY'
   - Keynote talks
   - Panel Discussions
2. State-of-The-Art Presentations
   - Invited Papers
   - Contributed Papers (Poster Sessions)
3. Teach-in sessions
   - Tutorials
   - Workshops
   - Seminars
4. Technology Exposition
   - Exhibition
   - Manufacturers' Presentations
   - Live Demonstrations
   - Computer Networking
5. Student Paper Contest
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