R.S.R.S. Newsletter

No. 70 February, 1967

The Impact of the Information Explosion on Communications in Government and Industry (Pt. II)

by

H. K. Bourne

(U.K. Scientific Mission in N. America)

5. Computer Software Supply

The software, or the computer programme, is designed to simplify the use of a computer. When the computer was first introduced, it was necessary to employ specialized professional programmers, but with the increasing use of computers it became difficult to find enough of these specialists. This stimulated the development of simpler computer languages which could be used by those with relatively little training. The increasing availability of computers has thus changed the demand for software. Many tasks no longer need a professional programmer and this trend towards simpler programmes will continue.

There is already a need for cheap and simple input devices for use in the home, together with the development of a simple language which a housewife could use for communication with a computer, as the time is approaching when she will be able to make her purchases directly from the home, the whole transaction being performed entirely by computer.

The new approach in the development of software will take some years of research before its production will become economic. Software is quite expensive to develop, for example, the cost of the software for the I.B.M. 360 computer exceeds that of the engineering development of the computer itself. The budget of programming alone in I.B.M. this year is over 50 million dollars.

Programming is not only complicated and takes a long time to produce, but obsolescence is also a problem, as a programme developed for one computer may not be suitable for a more modern type.

The trend over the next few years will certainly be for simpler computer languages which can be employed by a user with little or no training, and which are not dependent on the characteristics of any particular machine. There are already 20,000 computers in the field today, and the number of these and of their users will increase greatly, for example, for banking alone there will be 80 million customers. Although the provision of general purpose computer software for so many users would be an enormous task, the supply of special software for individual problems is feasible, provided the problems themselves which require solution can be stated simply.

6. An Information Utility

Five hundred of the largest commercial U.S. organizations use data communication now, or will be using it soon. The Western Union Co. has already furnished a large computer system for the U.S. Defence network, with 18 main computers and 2000 stations on line, and the General Services Administration is installing one of a similar type. Western Union alone will spend half a billion dollars during the next five years on modernisation, in order to handle the expanded requirements in data communication. This programme will include the provision of an intercontinental microwave network costing 80 million dollars.

At present communication facilities often cost about 60% of that of the whole computer system and its peripheral equipment. It will not be long before the cost of communication and terminal devices will be as much as twice that of the computers themselves.

In planning data communications, it will be necessary to determine accurately the number and size of the computers which will be required. At present the load factor is low, as only 10% of the available computers are being fully utilized. The use of centralized computers would increase the load factor, and therefore reduce the cost of the system, but as they would need more communications, the cost of these must also be considered. There are already some 200 computer management information systems in use in the U.S.A., and this number is likely to double soon. Other examples of large computer systems are the Air Weather Service from the Scott Air Force Base, Project MAC at M.I.T. and the New York Stock Exchange installation, all of which, and many others, result from the impact of the information explosion.

The formation of a new industry has been suggested, known as a "Computility", or an information utility which will make available information of any type at the push of a button. The Computility, which will gather, store, process and retrieve intelligence necessary to operate any business, would be provided as a national service. Western Union is now learning what is necessary to build such a utility, the first essential being reliable automatic message switching.

With the rapid growth in the need for more modern information services, it is believed the function of providing these should be delegated to the common carrier services. Some degree of regulation will be necessary to ensure efficient exchange of all types of information. Some of the problems include the protection of information, provision of flexibility etc. Western Union is working on the development of a system, and they are now installing a computer centre in New York, and by the end of the year there will be another centre in Chicago and one in the far West. By 1970, anybody requiring information, data processing or communication, should be able to dial in to the Computility system.

7. Regulation of Data Communications

A recent investigation showed that many small firms are reluctant ot take out patents owing to the rapid pace of technological change. The effective life of many inventions has fallen to as little as 5 years, compared with that of a patent of 17 years. Flexibility and speed in adapting to change has become mandatory, especially in electronic firms, and in those engaged in the computer field the pace of development is particularly fast.

As data processing is highly dependent on reliable communication, there is a need for some degree of regulation in connection with the new technology, and it is necessary to consider whether this should be a part of the regulatory role of the Federal Communication Commission. How should F.C.C. discharge such a role to promote the use of a computer, and how will it be affected by the "Computility"? The F.C.C. has not yet reached a conclusion as to whether or not it should exercise control in this field.

Computer services can be provided through common carriers who are subject to F.C.C. regulations, and computers are now engaged in both data processing and communication services. Some of the common carriers are entering the computer field, for example, one proposes to provide legal information and to charge for this service. Another offers services to airlines, such as seat reservation information. The amalgamation of services, which is now arising, is rather difficult to classify and it is not yet known to what extent it is desirable that data processing companies who are entering the communication field, should be subject to regulatory control. Certainly data transmission, to and from a computer, is communication within the meaning of the Communication Act, so that the F.C.C. are bound to study the position on regulations, with a view to the promotion rather than the inhibition of the use of data communication with computers.

(This article is taken from a report issued by the International Scientific Relations Division of the U.K. Dept. of Education and Science)

Dr. K. M. Burrows

Dr. K. M. Burrows joined R.S.R.S. in January from the Goddard Space Flight Center near Washington D.C. He is now in charge of a group in Division E which will be concerned with the measurement of magnetic and electric fields in the ionosphere and magnetosphere - a task for which he is eminently well qualified. After doing post-graduate work at Jodrell Bank Mr. Burrows spent several years engaged on geophysical surveying. He then went to Imperial College, where he played a leading role in their rocket magnetometer experiments - in particular his measurements of the Sq current system formed a notable contribution to the subject. His next move was to take up a post as research associate with N.A.S.A. at Goddard S.F.C. where, in addition to continuing with rocket magnetometer experiments, he developed techniques for studying chemical releases from rockets by optical means. It is proposed that at R.S.R.S. he should continue and extend both these aspects of his past work, and we wish him every success in his ventures.

W. C. Bain

STAFF NEWS

Congratulations to:-

Mr. and Mrs. John Tyler on the birth of their daughter, Sarah Jane, on 1st February, 1967.

Mr. and Mrs. G. Thomas on the birth of their son on 6th February, 1967.

Dr. and Mrs. Eric Dunford on the birth of their son on 15th February, 1967.

Dr. Henry Rishbeth on his engagement to Miss Priscilla Davis of Hildenborough, Kent.

Welcome to:

Dr. K. M. Burrows	P/P.S.O.
Dr. M. J. S. Quigley	P/P.S.O.
Mr. A. Dagnall	P/E.O.
Mr. J. C. Rendall	E.O. (E.S.R.O.)
Mr. G. R. Vallis	E.O. (E.S.R.O.)
Mr. R. B. Haines	P/A.E.O.
Mr. B. Y. M. Moosajee	P/A.E.O.
Mrs. E. Williams	Non-Perm Grade II Typist (Winkfield)
Miss E. M. Buckner	P/C.O.
Miss M. J. Day	Non-Perm A.E.O.

Welcome to:(contd.)

Mr. P. R. Thornton	Non-Perm A.E.O.
Dr. D. T. Llewellyn-Jones	Perm/S.O.
Mrs. B. M. Proctor	Non-Perm Cook

Resignations:

Dr. J. E. Geisler	Temp/S.S.O.
Mrs. M. Young	T/A.E.O.
Mr. J. H. Scott	N/College-Based Sandwich Course Student
Mr. D. R. Madden	E/E.O.
Mrs. N. E. Dobner	N/Senior Cook

Other Changes:

Dr. G. F. Fooks	E./S.S.O. Commenced 3 years leave without pay

Obituary

We are sorry to report the death of Mr. J. W. Carrod at the age of 69. Jim Carrod joined R.S.R.S. Workshop Staff in 1963; after service in the infantry in the first World War he worked for various local firms, including the A.C.O. His first link with us was as a member of the construction company engaged in building the present Station.

Well-known and liked, his many friends in the district will miss him. We offer our sincere sympathies to his surviving relatives.

Letter to the Staff

I would like to thank everyone for such a magnificent leaving present. I was amazed when I saw it, to find that I was being given exactly what I would have chosen myself.

Little did I realize that a casual conversation with Tony one evening about the kind of carry cot it would be nice to have, and what else we needed, was being carefully noted for reference. Hence the carry cot with its transporter, which so neatly solves the problem of how to fit a pram into the van when we go away for weekends. For this and the water set too, which indulges my passion for glassware.

Thank you again,

Margaret Young

Note to Authors

It should be noticed, if it is not already clear, that it can be shown that, where there is no evidence which would appear to suggest to those who may be interested, that what occurred may be assumed to relate, perhaps, to the facts discussed, as can easily be proved, it will be seen to have been pointed out above.

W. S. Newman

SPORTS AND SOCIAL CLUB NEWS

Badminton

On 30th January, a team from the R.S.R.S. Badminton Club played a home game against Woodside Badminton Club. The result was a draw. R.S.R.S. won 2 sets, drew 4 and lost 2. In the remaining set the R.S.R.S. couple were leading 15-3, 4-2 when an injury caused the game to be abandoned. Our thanks go to our opponents for a very enjoyable evening's play and to our lady players for their excellent refreshments.

M.C.

CHESS

We played the first matches of the Smith-Rose Club on Monday, 13th February, so far it is an all-out victory for North. We are very grateful to Dr. Bramley who kindly lent us 2 chess clocks. If all goes well, we shall soon have some of our own.

We shall play again on Monday, 6th March.

Albin Zavody

SNOOKER

SMITH-ROSE CUP

The Smith-Rose cup contest ended in a victory for the North who won the series by a margin of 3 games, 6 games were played in all.

K. Slater

BRIDGE

We managed to get 16 players to turn out for the Smith-Rose match on 18th January. After some persuasion no less than half of these supported the ill starred banner of South, whose demise, sad enough in itself, was nevertheless as nothing compared with the sorry spectacle presented by the home side in the match against I.C.I., on the 27th. As a newcomer to our fixture list last year, the newly formed I.C.I. club was beaten by us by the narrow margin of half a match point. This time R.S.R.S. were beaten by 82 match points. It is indeed to be hoped that this dramatic reversal of fortune owes as much to the increased erudition of our opponents as to the presence in the home team of such as, yours sincerely,

Martin Bowman

MOTOR CLUB

A new section of the Sports and Social Club has been formed to look after the various interests of members keen on motoring. Some thirty people attended an inaugural meeting on 5th January, and the aims of the club were discussed at some length.

One of the proposed activities is to build a workshop and permission has been obtained to dismantle the old vertical radar dish near the old buildings and use suitable parts of it for the new structure. Volunteers to help at weekends will be very welcome - please contact Ted Golton.

As in previous years we plan to hold a motor rally as part of the Smith-Rose Cup competition. This will be on Sunday, 9th April, and full details will appear in next month's newsletter.

A. J. Gibson

CAMERA CLUB

At the most recent slide show, John Tyler achieved a compression ratio of 1000: 1, by cramming a twenty-one day voyage from Singapore to Tilbury into half an hour.

These shows are open to all, and are announced on the Notice Board a day or two beforehand.

Henry Rishbeth

Man-Made Noise Discussion

A one-day discussion meeting on the subject of man-made noise is to be held at R.S.R.S. on 1st March 1967. The meeting will cover both the sources of the noise and its influence on radio reception, and about 40 visitors are expected.

F. Horner

Letter to the Outstations

Dear Colleagues,

Some months ago I reported that, among other autumnal happenings, a surveyor had been seen surveying; now constructors are constructing. The mythical E spur, however many and real the problems it may have posed to those concerned with plans and money, was for some of us a dream-time thing never likely to manifest itself further than after-lunch gossip; for many of us it never existed even in this form.

It is now being built. Contractors huts have appeared overnight like so many mushrooms; one of those splendid modern digging machines, somehow evocative of prehistory and pterodactyls, has been munching away attended by its parasites and familiars, a trio of scurrying dumpertrucks.

Results so far are best described in military terms of step, trench and traverse, they are, however, impressive. At this rate we shall expand so rapidly that the risk of adiabatic cooling of the white heat of research should be guarded against. Meantime the business provides a free spectacle daily and most conveniently for such dedicated watchers of men-at-work as,

Yours sincerely,

the Editor