# From the President of TUG

## The 17th Annual TEX Users Group Meeting ΠΟΛΥΤEX July 28 – August 2, 1996 A Travel Report

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*The rain had just stopped when the Lufthansa plane, which flew me from Geneva to Moscow (via München), touched down on Thursday, July 25th, at about 5 p.m., at Moscow's International Airport Sheremetyevo. I arrived at about the same time as Yannis Haralambous (from France) and Robin Fairbairns and Sebastian Rahtz (from the United Kingdom). In the arrival hall we were met by Barbara Beeton and Mimi Burbank, who had arrived the day previously from the United States, and Irina Makhovaya, CyrTUG's Executive Director. In no time we boarded a minibus and we were on our way to Dubna, about 120 km more to the north, where the TUG'96 Conference was due to start the next Sunday morning. It was about eight o'clock when we arrived at the Hotel "Dubna", ideally situated close to a park on the banks of the Volga River.*

### Preparations and Board Business

The next morning we were met by with Dr. Vladimir Korenkov, the vice-Director of the Laboratory of Computing Techniques and Automation (LCTA), where TUG'96 was going to take place. He showed us the conference facilities and the computer infrastructure connected to the Internet. Later that morning several of us were interviewed by the local Dubna television station. After lunch we had the first session of the TUG Board Meeting. The six Board members present in Dubna would meet over the whole duration of the Conference to try and come up with a business plan that would guarantee that TUG could function optimally in the near future taking into account its limited financial resources. I shall come back to the issues below when discussing the Business Meeting on the Monday.

Saturday we continued the Board meeting the whole day, with a brief interruption around 6 p.m. for attending a Welcome Party for the participants to the Conference, most of whom arrived that afternoon.[1] It was with great pleasure that we could greet old friends, whom we had not met since last year's TUG or EuroTEX Conferences or got to know new faces.

### The Conference starts

The formal opening of the Conference took place the Sunday, at 12 o'clock in the Conference room on the top floor of the LCTA building. The participants were welcomed by Dr. Vladimir Korenkov and Prof. Evgueniy Pankratiev (President of *CyrTUG*). Then the scientific Secretary of JINR (the Joint Institute of Nuclear Research, of which the LCTA Lab is a part) gave an informative introduction about the activities of JINR as an international laboratory. It counts eighteen member states and celebrated its 40th anniversary just a few months earlier (LCTA similarly celebrates its 30th anniversary this year). Finally, it as my turn as TUG president to thank all participants for coming to Dubna and to formally open the TUG'96 Conference.

The first presentation was by Irina Makhovaya, *CyrTUG*'s Executive Director, who retraced the history of the use of TEX in Russia, and, in particular, the role of *CyrTUG*. This first morning session was closed by Yannis Haralambous (France) who showed the relation between ligatures in high quality typography for Latin-based alphabets and Arabic calligraphy. He presented his Al-Amal system for Arabic typesetting. It uses fonts built with METAFONT to benefit maximally from METAFONT's optical scaling capabilities and covers the complete Arabic character set of Unicode.

Just before lunch in the Institute's canteen the photographer took a group picture of all participants in front of the LCTA building.

We started again around one hour later with two presentations about problems related of Cyrillic encodings and font sets. First, Serguey and Ludmila Znamenskiy showed how the many incompatible Cyrillic language encodings pose severe

1: TUG'96 was attended by 77 participants, 51 from Russia, and 26 from thirteen other nations. We had one representative from Belgium, Canada, Hungary, Norway, Spain, and Sweden; two from the Czech Republic, France, and the United Kingdom; three from Germany and the Netherlands; four from Switzerland and the United States of America.

problems on computer networks for the exchange of (TEX) files. In the framework of the "Russian TEX" Project a new font family (called "RF", for "Russian Font") and associated tools were developed to allow more natural and simpler typesetting in over sixty Cyrillic-based languages written in the Russian Federation. The next speaker, Olga Lapko, described the LHFONTS package, whose main aim was to make available Cyrillic letters as extensions of the standard Computer Modern fonts, but taking Russian typographic traditions into account. Together with the Ω Project, a set of well over 256 characters were created to cover the Cyrillic part of the Unicode table. Several characters which are not included in Unicode have also been drawn. All these characters are available in two 256-character font sets, with the different encodings and ligatures handled by special header files, which are generated by a TEX job following user's instructions.

After the coffee break Karel Píška gave a list of over fifty languages written with the Cyrillic alphabet. He discussed how the many encodings, which are mostly based on the Russian language, are not always convenient to code the many different glyphs needed to write these languages. In collaboration with Olga Lapko of *CyrTUG* Karel proposed a possible layout for an 8-bit "Modern Cyrillic" Computer Modern Roman TEX font. The next speaker Jörg Knappen, presented two papers. He started with his own work on the latest version (1.3) of the DC fonts. Jörg emphasized that this version is a (hopefully) last step towards stability and completeness, and will culminate in the release of version 1.0 of the EC fonts. Then he introduced us to the nice work of Fukui Rei, who was unable to attend the Conference himself. Fukui Rei has developed a package for processing IPA (International Phonetic Alphabet) symbols. His TIPA (TEX IPA, or Tokyo IPA!) package is fully LATEX2ε-compatible and defines LATEX's T3 encoding, for which is provided full support. Amongst it many features let me mention that it offers the 256 symbols in several font styles, has extended macros for handling accents, diacritics, tone letters, easy input of phonetic symbols, and the possibility to draw vowel diagrams.

The day ended splendidly with a joyful Welcome Party, with a lot of good food, Russian Vodka and excellent wines, plus numerous good-humoured toasts (little improvised speeches given by most participants), and not-so-Russian dances. The sun was already setting (it was well after ten, Dubna lies at a latitude of 56° North) when we started leaving the Institute's Canteen, where the Party was organized, for our 15-minute walk back to our hotel.

## Monday July 29th

The Monday morning session started with a report by Yannis Haralambous on the progress made in the Ω project and in particular the ΩTimes and ΩHelvetica fonts. These fonts will be a publicly available virtual Times and Helvetica-like font set, based upon real PostScript fonts. When finished, the Ω fonts will be a superset of the alphabetic part of the Unicode code set, including supplementary glyphs, like ligatures, for producing output of the highest typographic quality.

Richard Kinch's presentation continued on the subject of Unicode. He talked about his TrueTEX system, which extends TEX and its associated tools to embrace the 16-bit Unicode encoding standard. In particular, he explained how he implemented the extensions on a PC using the Windows Graphics Device Interface and TrueType scalable font technology.

The next two talks were delivered by Alexander Berdnikov. The first one was about how the parameterization of the Computer Modern fonts can be used to generate Multiple Master instances of the CM typefaces. He described his `mff.sty` package, which allows one to specify new fonts dynamically from inside a LATEX document. Various parameters such as weight, width, height, and contrast can be specified and METAFONT code will be generated to represent the chosen typeface. Alexander showed the outcome of some interesting experiments with variations of these parameters. Then he went on the talk about recent work on his VFComb program that facilitates virtual font management. It assembles ligature tables and metric information from various fonts and combines it with user-defined metric, ligature and kerning data. In particular, is deals gracefully with non-Latin fonts, where the characters must be composed from elements from different physical fonts.

The morning session on encodings was closed by Peter Ovchenkov, who discussed the problems with moving Cyrillic text files between operating systems. The present situation is quite complex since many encodings for Russian coexist, as do almost as many different TEX fonts. In general, it is not too difficult to translate text files from one encoding to another, but problems arise when dealing with DVI files and fonts. To get around these problems Peter proposed adoption of a standard font encoding, and an identical TEX internal encoding. Then the only system-dependent part remains the transformation from the input to TEX's internal representation (this can be achieved, for instance, by using emTEX's Code Page mechanism, or by applying a patch to the CWEB code on UNIX).

After lunch, Dag Langmyhr presented his StarTEX system, which is a new TEX format specially developed for non-expert users of TEX, such as students and administrative staff. Robustness and simplicity are the main goals, with special attention being paid to the handling of error messages. Commands are specified between angular brackets (à la HTML), thus making it trivial to hide TEX commands and the behaviour of TEX's ten special characters from the user. This offers a more intuitive and less error-prone system, yet at the same time retains the typographic quality of the output (since TEX is the underlying processing engine). For this innovative work Dag got a prize as one of the most innovative articles.

Gabriel Valiente Feruglio presented a list of journals which accept papers marked up in LATEX. He emphasized that the possibility for scientists and students to submit texts in LATEX is important for the survival of LATEX in the academic world. Gabriel gave a clear overview of the pros and cons of submitting material in LATEX. He mentioned faster delivery, reduced proof-reading leading to a shorter publication cycle, with higher control over the final layout and increased availability as positive points, while the rather huge investment in learning the LATEX language and running the paper correctly, with all external picture files, packages, etc. was considered as a drawback. He concluded with a discussion of some of the common problems encountered in the publication process. He hoped that, one day, a generic approach will be available, with different journal layouts merely being options of a general "publisher" class file, without the author having to introduce changes in the source.

Denis Leinartas and Serguey Znamenskiy described a new TEX shell for DOS, based on emTEX. It is more general than previous shells in that it one can manage supplementary programs like `mf-pic`, `bm2font`, to run with several configuration files simultaneously, in order to control the target directory of temporary files, etc.

Mikhail Grinchuk gave an introduction to how the Russian typographic traditions can be dealt with in TEX. In particular some peculiarities of mathematics typesetting, like repeating operators or relational signs after a line break need special attention.

## TUG Business Meeting

After a short break, I invited the members of the recently elected TUG Executive Committee to come and join me at the front for opening the TUG Business Meeting. I started by thanking the outgoing Board Members, Peter Flynn, former TUG Secretary, Michael Ferguson, former President of TUG's Technical Council, for their many years of dedicated work, and Mimi Jett, Tomas Rokicki and Norman Walsh for their contributions to TUG and the TEX Community. I expressed the hope that they would be able, in the future, to continue to contribute to the life of the TEX community. Then I welcomed Mimi Burbank, who was re-elected as a Board member for three years. The other (remaining) Board members are Barbara Beeton, Karl Berry, Robin Fairbairns (Chair of UKTUG, co-opted for one year), George Greenwade, Yannis Haralambous, Judy Johnson, Sebastian Rahtz, Jon Radel, and Jiří Zlatuška. The Board re-appointed Sebastian Rahtz as Secretary, and appointed Mimi Burbank as Treasurer, and Yannis Haralambous as vice President. Since Michael Ferguson is no longer a Board Member, Sebastian Rahtz was appointed Chair of the Technical Council. To fill the vacancy in the Technical Council, it was suggested to have Alan Hoenig, well-known for his many interesting articles in *TUGboat*, serve on it; therefore shortly after the meeting I appointed Alan Hoenig to the Board.

At the last TUG Business Meeting in St. Petersburg in Florida in 1995, I stated that I considered that our main task was to get *TUGboat* back on schedule. Thanks to the hard work of the *TUGboat* production team (Barbara Beeton, *TUGboat* editor, Mimi Burbank, Team Coordinator, and Robin Fairbairns, Sebastian Rahtz, Christina Thiele and myself), with help from Malcolm Clark and Wietse Dol for some issues, we were able to produce four issues of our journal before Christmas 1995, and caught up with the normal production schedule before Easter of his year. Moreover, thanks especially to Mimi and Christina, we were able, for the first time, to print and distribute the Proceedings of the TUG Conference at the same time as the Conference itself, so that all TUG members can profit from the information presented at that meeting even though they could not attend. We have had to make some compromises to meet the production schedule, and for reasons of cost we have to limit ourselves to 96 pages per issue.

Since last summer we have seen the success of the TDS (TEX Directory Structure) standard, which was adopted by most web2c distributions. The *TEX Live* CD-ROM has been published (as a collaboration between Thomas Esser, author of teTeX, GUTenberg, TUG, and UKTUG). It offers a plug-and-play TEX system for UNIX-based operating systems, and is built using the TDS layout. TUG and UKTUG published the Edmac Manual.

To benefit maximally from the Internet, TUG now has its own server donated by Karl Berry and connected at UMB (University of Massachusetts of Boston). From that node we run a set of mailing lists (thanks to Peter Flynn who, until recently and for many years, looked after those lists on his computer in Cork, Ireland), a (limited) ftp service, and a WWW server. We hope to develop especially the WWW service www.tug.org in the near future in order to provide a unique entry-point for all TEX and TUG-related information. As many (especially N. American) TEX users will have experienced, the SHSU CTAN node is no longer maintained, and so is severely out-of-date and unusable for all practical purposes. DANTE has pledged the donation of a Sparc station which presently supports the DANTE CTAN server in Heidelberg, which will be upgraded by a bigger machine. Once the promised machine is installed at UMB, Karl Berry and the CTAN maintainers will try to set up as fast as possible this long overdue replacement of a fully-supported CTAN node in North America. Our sincerest thanks go to DANTE for this generous offer.

Recently, illegally-changed Computer Modern font files were found to be present in some TEX distributions and on some public server sites. TUG strongly deplores the maintenance of out-of-date and corrupt data on publicly available resources and urges the maintainers to destroy the files in question as fast as possible. The Technical Council will look into the possibility of providing checking procedures to validate distributions in the future.

In order to have all TEX users in the world benefit from the articles in *TUGboat*, the Board decided to make all *TUGboat*s articles older then one year freely available electronically as fast as copyright clearance can be obtained from the various authors. Moreover, the most recent issues will be made available to other TEX User Groups as PDF files as soon as they are printed, and the User Groups can distribute electronic copies to their respective members (*only*).

Coming back to TUG'96, it is with great pleasure that I could acknowledge donations to the Bursary Fund by GUTenberg, NTG, UKTUG, and TUG itself and a contribution in kind from DANTE. Also continued joint membership agreements with NTG and UKTUG are without doubt appreciated by people in the United Kingdom and the Netherlands, since it is a more economical and simpler than separate memberships.

At the end of the meeting some suggestions were made as to how TUG could guarantee the quality of TEX software, but lack of resources does not make this a viable possibility at present. Also, a more active role of the Technical Council in the development and the recognition of "TUG standards" was called for, and I am sure that the members of the TC will do their best to contribute in this area.

After dinner we all took a pleasant walk back to the hotel on that warm summer evening, with several of us deciding to have a *Baltica* beer and discuss TEX or other business watching the sunset on the Volga.

## Tuesday July 30th

The Tuesday morning session had to be quite short since we had an excursion planned to the Russian religious center of Sergiev Posad, one and a half hour away by bus. So we started off by listening to Laurent Siebenmann, who made a plea for using DVI files as an efficient exchange format for publishing scientific papers. To attain that aim Laurent proposed that a small set of "atomic" supplementary characters, coping with Latin-alphabet based European languages be defined to complement Knuth's CM fonts, which are supposed to be available wherever TEX is installed. For graphics inclusion he explained the notion of "multi-standard" graphics object and how "special" commands can be rendered on a given platform by a utility translating a general (to be defined) syntax for special commands into the native format for the given platform.

Serguey Strelkov then talked about the automatic preparation of indexes for the journal of abstracts *Mathematics*. The bibliographic database and text files with the abstracts are encoded in Russian. First, LaTeX is called to make a raw index. Then a perl script is run to include some relevant information in the file. Next `DviSpell`, a table-driven program, transforms the DVI file into a text file, and generates sort keys. Finally, MakeIndex and another perl program are run and include the text of the abstract inside the sorted index file.

After an early lunch we all took the bus to Sergiev Posad, where a local guide introduced us to the history of the churches and other buildings of this centuries-old centre of the Russian Orthodox Church. Most Orthodox priests come and study in the modern seminary. We visited the well-furnished museum documenting the history of Russian Church matters. On our way back our bus had a flat front tire, and this (unforeseen) event gave us the opportunity to spend a supplementary hour or two in a small Russian village in the countryside. As we arrived back in Dubna too late to go to the Canteen, we all had a pleasant picnic on the lawn in front of our hotel. We just had enough time to finish dinner before a fierce thunderstorm forced everybody to take cover, so that we all ended up spending the evening inside the hotel watching the lightning dress the evening sky in all kinds of lovely colors.

## Wednesday July 31th

The Wednesday morning started with two talks by Kees van der Laan. He first explained how natural and easy it is to handle drawing with TeX only using Papert's Turtle Graphics paradigm. In this approach all coordinates are expressed by specifying directions as points on the compass. Kees' second talk was also very "visual". He shared his enthusiasm about his first steps in METAFONT to create graphics for inclusion in TeX documents. He also considered METAPOST and PostScript and he discussed how they allow multi-dimensional objects to be represented in a convenient way. As a conclusion, he stated that METAPOST combines the best of the METAFONT and PostScript worlds, and, as Knuth himself expressed at TUG'95, Kees feels that this tool has been under-used in the TeX community.

The next two presentations discussed how TeX could be better and more directly integrated with Adobe's Portable Document Format (PDF), an optimized form of PostScript for the world of hypertext and the Internet. Serguey Lesenko talked about his `dvi2pdf` program, based on Tom Rokicki's `dvips`. It generates PDF directly, rather than indirectly via the PostScript route. Petr Sojka, and his `tex2pdf` program take a different approach by modifying the TeX program itself, so that it can generate PDF code directly. However, to take maximal advantage of these developments, it was suggested that a standard interface for hypertext on the TeX level should be agreed as fast as possible. This would increase the attractiveness of using LaTeX as a markup language for documents, combining the typographic quality of the TeX formatter with the hypertext facilities of PDF or HTML via translation programs.

After lunch we were taken on an outing to Kimry, a town a few kilometers downstream on the Volga, where we visited a rich museum documenting the historical development of the region. On the way we had also the occasion to see the point where the Moscow-Volga Canal joins the Volga, as well as the southern banks of the huge artificial Moscow Sea (Lake), which was created in the nineteen thirties to serve as a water reservoir for the Moscow region, and is now a first-choice holiday resort with sailing and hiking very popular. We also saw many datchas, old and new, where town dwellers spend their summer holidays, most of the time working in the garden to grow vegetables and fruits for the long Russian winter.

## Thursday August 1st

The Wednesday was the only day where we had rain for the larger part of the day, but already the next morning the sun had come back for the last "working" day of the Conference. Slephuphin was the first speaker, and he addressed some issues about methods needed for successful multi-lingual text processing. Then I gave an overview of tools to go from LaTeX to HTML or the reverse. I discussed in particular recent developments of the `latex2html` processor, especially how large documents can be treated by segmentation. For going from HTML to LaTeX there now exist two programs, `gf`, which uses the `nsgmls` SGML parser, and `htmls2latex`, which allows one to combine several HTML files into a single LaTeX source file. Moreover, the latter program lets you embed instructions to guide the translation process in the HTML source. Another interesting development which I mentioned is the `idvi` program, which is a DVI-viewer implemented in the Java-language. This means that it allows DVI-files to be viewed with any Web browser which supports the Java language. One drawback is its slow speed, since the Java language gets all its resources (fonts, etc.) from the remote host and cannot rely on anything on the local machine. It is hoped that extensions to the Java language will allow a way to indicate which resources are available locally, so that rendering speeds could be drastically improved.

After the break Andrey Astrelin presented his ideas on a C++ library for handling graphics objects and how to use them to insert graphics in TeX files. Then Alexander Berdnikov showed his work on the pmgraph package, which extends LaTeX's `picture` environment, for instance in the area of offering a more complete set of vectors, circular arcs, extended frames, and calculating automatically the size of the picture with respect to the width of the text. In the next talk Kees van der Laan reviewed the history and explained the basic philosophy of his BLUE Format. It is built upon Knuth's `manmac`, the *TUGboat* macros and some AMS styles. It can be used stand-alone, and is a perfect tool for authors to create, format, exchange, and maintain compuscripts. A converter blue-2-LaTeX is also available. As the last talk of the morning Youri Ivanov gave a short overview of the TeX setup at the Institute in Dubna.

## The Conference ends

Then came the moment to formally close TUG'96. I once more thanked all those who attended, and hoped that they enjoyed the presentations, as much as I did, and that they used the opportunity to discuss personally points of interest with the other participants. Sebastian Rahtz then awarded UK-TUG's prize in memory of Cathy Booth to Petr Sojka and Han The Thanh, for their paper on TeX to PDF which had been chosen by the audience as the work that might influence their future work most. I awarded a TUG prize to Dag Langmyhr for his innovative work on a generic SGML/HTML approach to make TeX easier to use for novices and students. Then I thanked JINR and *CyrTUG* for their extreme efficiency in organizing this year's TUG Conference, and all Russian collaborators for their hospitality. I am sure that all those present will never forget the human warmth and true friendship that was present all during the Conference.

During the afternoon the whole company went on a boat trip on the Volga (we sailed down to Kimry, the town we visited the previous day by bus), and we enjoyed the splendor of the banks of the Volga in a bright sunshine. Around six o'clock we got off the Boat in Ratmino, where the Dubna River flows into the Volga. There we were invited to a farewell picnic, with all the good food, wine and, of course, Vodka, we had come to appreciate during the past week. It was the last time we were all together, since the next day, Friday, most participants would return home. Many a Russian song was sung, a few participants took a refreshing dive in the warm waters of the Dubna River, while others just chatted, enjoying each other's company, hoping it would never end. Just before sunset, we all boarded the boat again, and were taken back to the park in front of the hotel.

## Saying Goodbye

We all had to be ready at eight o'clock the next morning to take the bus for Moscow. So, there we all stood, luggage packed, and saying goodbye to all those staying behind in Dubna or returning by car or train to Moscow (or elsewhere). It was already well past nine when we left the little town of Dubna where we had been staying for the past week and headed for the Capital of Russia. [...]

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Od red.: Michel Goosens, Prezydent TeX Users Group, nadesłał tą relację specjalnie dla biuletynu GUST. Dziękujemy.