HISTORY OF THE PNEUMATIC MAIL IN VIENNA

By Dr. Hans Hajek

1 At the 60th anniversary of the pneumatic mail system in Vienna I was asked by the Postal Administration of Vienna to write a history of the Viennese Pneumatic Mail. I have therefore tried, With the present book I have tried to bring a short summary of the history, mainly considering the postal installations.

Since there had been relatively few direct sources for the history of the pneumatic mail, especially as far as certain periods are concerned, I am especially grateful to department counsellor Ing. SCHARTEL (general manager of the Post and Telegraph Administration), councillor to the government SONTAG (Postal Administra- [illegible] to the [illegible] expedient [illegible]

2 [illegible]

3 PREVIOUS HISTORY AND THE START OF THE VIENNA PNEUMATIC MAIL.

The steep rise of the telegraph communications at the begin of the seventies of the 19th century was the main reason why the existing instalments for the telegram delivery in Vienna became obsolete which caused increasing complaints. While the telegraph service during the earlier decades restricted itself mainly to the business houses of the Inner City, which could be easily reached from the Telegraph Central Station, the repeated lowering of the service fees generally accelerated economic activities, all classes of the population in the whole territory of the city It goes without saying therefore that the telegram delivery by messengers on foot from the Telegraph Central Station to the farther away district needed much more time and that such time consuming delivery caused increased criticism, especially since the expediting over the wire from sending office to the delivery office during the last years could be effectuated much quicker than previously through liberal construction of direct trunk lines to distant places and through perfections of the telegraph apparatus. 4

When even the doubling of the number of existing telegram delivery men did not decrease the delivery time to any desirable extent, it was tried at first, to utilize the local network of the Private Telegraph Company which had existed in Vienna since 1869, as a go-between mediator for the official government telegrams. The result was not very encouraging because they found out, that the relay of longer telegrams took so much extra time and caused such a jamming especially during the busiest hours of the day, that the loss of time was even larger than the delivery of telegrams from the Telegraph Central Station by messengers on foot. Moreover the government had to pay to the Private Telegraph Company for the mediation (inclusing delivery) of each single telegram a rather steep fee, viz. 10 Kreuzer.

One could have forgotten the utilization of the network of the Private Telegraph Company, if one would have expanded the government network . Against such a consideration was the fact that even such a network would not have sufficed for the strong assault of metropolitan traffic during certain hours of the day/ On the other hand, if they had actually expanded the network to such a degree to would have been sufficient for all needs, then such a network would turn out to be not economical for the bigger part of the day and the efficiency would not be fully utilized most of the time. The result would have been very uneconomical indeed.

5 But not only the telegram delivery, but also the expedition over the wire of such dispatched telegrams from the many stationsof the Private Telegraph Company and the few government delivery stationsaway from the Telegraph Central Station to this station did not suffice any more to the needs of communications.

Faced with such a situation, only the construction of a Pneumatic tube system could bring any satisfying remedy.

As we can read in a report that was submitted to the Parliament on January 21, 1874 and called "Motivation Report for the construction of a Pneumatic tube network in Vienna", already in 1872 a holding company had asked for the concession to build and run a Pneumatic tube network. But granting this request had been postponed endlessly, until the well remembered financial

crash after the World Exhibition in 1873 happened and the negotiations went astray. In spite of the unfavorable financial situation of the government in 1874 it was decided now to construct such a pneumatic tube network at government expenses.

At first a decision had to be made which system for such an enterprise should be chosen. As models only the pneumatic systems in London, Berlin and Paris could be considered.

Hayhurst PEI says 1853/74 for back mail 1853 central station to cable ends

The pneumatic system in London, founded 1853 was such that from the Main Telegraph Office a separate double-track of tubes lead to each single Pneumatic Station, in which a circulating stream of air had to be kept up during the whole duration of the system being in business. One track of tubes served for the transportation of pneumatic containers from the central telegraph office to the respective other pneumatic station ; the second track of tubes served, similar to a railway with double tracks, for the returning of the container. One could put such containers in, short invervals into the ~~[illegible]~~ apparatus, from where the slid into the tubes where they met the circulating air stream and thus were sent forward. Thus the traffic of the trains was not necessarily tied to any planned time table.

used public 1Dec '76

The pneumatic tube system in Berlin was built in a similar way, it also depended on a steadily circulating stream of air. But this system distinguished itself from that of London among other things by the fact, that all pneumatic stations were connected with each other by a by a common double-track . The Berlin system was built in 1865 and consisted until 1875 of four pneumatic stations. Similar to the London Pneumatic system it was considered only for the [dispatch of telegrams]

The working results of both of the two systems, mentioned above were so unfavorable that Vienna could not decide to build its system after any of the two systems. The main disadvantages of such a system with a constantly circulating air stream were the high expenses for such a system, because during the hours with little traffic too much working power was wasted; furthermore ~~from the air that~~ was constantly compressed through the tubes,
7 water condensed easily, which in winter caused formation of ice and in summer it could penetrate into the container. and thus damage their contents, the telegrams. Moreover the construction costs of such a system were very high on account of the double tube tracks.

Hayhurst says service opened 1865 Times article says construction began 1866. Used public 1 May 1877.

The pneumatic system of Paris avoided almost all these disadvantages; it was constructed in 1866-1867 and had been greatly expanded since then. The pneumatic air pumps were not immediately connected with the transportation tubes, but with very large air reservoirs in which the air was either compressed or rarefied. Normally the air in the tubes was not moving; only when a "train" of containers had to be transported, the valve of a certain air reservoir was opened, thus producing an air stream in the transportation tube which forwarded the train. Therefore such a system was very economical. Also the costs of its construction were much smaller, because every pneumatic station was connected with another station only by one track of tubes. The danger of condensation of water was not as great, because the air circulated in the tubes only temporarily. Furthermore the tube network could be expanded easily with relatively modest means, because in many cases the erection of costly machineries was not made necessary, only the construction of a suitable air reservoir from which the newly constructed tubes were supplied with the necessary transportation air stream. The air reservoirs, it is true, had to be connected with special air tubes to the

8 already existing "machine house". The compressed air or the vacuum had to be transported through the air pipes from the machine house to the air reservoirs.

Paris model but Vienna the first to go public.

Considering all these advantages described above, the pneumatic system of Vienna was therefore decided to be built after the model of Paris, only with some minor deviations. The construction was confered upon the firm of Ing. von Felbinger (Vienna) and Crespin (Paris); ~~it started some time in~~ 1874 and was finsihed middle of February 1875. On March 1, 1875 the pneumatic system was opened up for public use. Its total costs including the costs of all machineries, apparatus, the construction of the containers etc. as well as including the costs of buying the necessary territory for the machine house Gumpendorf, amounted to 364.700 florins.

Responsible for the introduction of Pneumatic Mails was especially councillor Dr. Militzer of the Department of Commerce.

In the following paragraph we bring partially the regulations of the Telegraph Decree Nr.3 of March 19, 1875 about the "Begin of operations of the pneumatic tube system and introduction of pneumatic letters in Vienna", from which the pneumatic stations as they existed at that time and the principal regulations for the transportation can be taken, as following:

"To facilitate and accelerate the dispatch of telegrams and delivery of telegrams in Vienna, a pneumatic tube systems has been constructed which was opened up for public use on March 1
9 of this year.

The pneumatic tubes connect the following 10 stations:

1) K.k. Telegraph Central Station
2) K.K. Pneumatic station Laurenzer-Building
3) K.k. ~~Telegraph Office Kärntnerring~~ P.O.Leopoldstadt
4) K.k. P.O. Landstrasse
5) K.k. Telegraph Office Kärntnerring
6) K.k. P.O. Wieden
7) K.k. Pneumatic Station Gumpendorf
8) K.k. P.O. Neubau
9) K.k. P.O. Josefstadt
10) K.k. Pneumatic Station at the temporary Stock Exchange on Schottenring.

The first nine stations, for the time being, are open for business from 8 A.M. until 9 PM and pneumatic trains are running during that time at intervals of a quarter up to half an hour. The station at the temporary Stock Exchange is open~~s~~ only at Stock-Exchange business time.

There is no additional fee above the normal tax for the telegrams on account of the new accelerated way of transportation.

Finally also written messages will be transported through the pneumatic tubes during the business hours from 8 AM until 9 PM if the sender and the addresse are located within the "wall belt" (Linienwälle) of Vienna.

Such pneumatic letters as a rule are supposed to be written on special official postal stationery which is for sale at the above stations or if it is written on thin writing paper, in which case the sender is instructed to put the letter in an envelope on which
10 a franking stamp is [illegible] printed. Such envelopes are also available at the Pneumatic Stations.

The pneumatic letters must not be heavier than ten grammes. The postal rate is 20 Kreuzer Austrian currency. [If the sender wants a receipt for [illegible] his letter,] he will get a stamped receipt for having posted his letter against an addi-

Charge for receipt 6kr.

tional fee of 5 Kreuzer Austrian currency."

11 II.
1875 - 1895.
(PERIOD OF THE ORIGINAL PROVISIONS FOR THE PNEUMATIC STATIONS).

1.) Expansion of the Pneumatic network.

In 1875 seven out of the ten Pneumatic Stations as they existed at that time, were connected with each other by a circular tube line, the remaining three pneumatic stations, that is the Stock Exchange, the P.O. Leopoldstadt and the P.O. Landstrasse were annexed to this circular line by radial connections (see supplement 1).

Steam engines for the air pumps existed only at the Telegraph Central Station and in Gumpendorf. The engines at the T.C.St. (consisting of a principal and a spare machine) could each furnish 26 HP, the two engines in Gumpendorf each 11 PS.

The total length of the pneumatic network at that time was 14.011 meter, of which 11.802 meter consisted of transportation tubes for telegrams and letters and 2209 meter consisted of the two air pipes which furnished the compressed air and the air vacuum from the machine house in the T.C.St. to two air reservoirs at the Lauren Building.

12 As one can see from the above description, the original system was not exactly a large one, but it was sufficient for the first years of its existence for all need. But when the Pneumatic Mail was used more and more for the transportation of pneumatic letters, pneumatic postcards, railway avisos, etc, when Vienna's population kept growing and when the suburbs outside the wall belt attained increasing importance, a corresponding expansion of the pneumatic system became an absolute necessitiy.

The expansion of the network was started towards the end of 1879 by connecting the Fruchtbörse (grain exchange) which at that time was still located at the Börsegasse, with a tube line via the Stock Exchange with the T.C.St. In 1880 a trasnportation tube was laid via the P.O. Zieglergasse to the P.O. Fünfhaus, thus for the first time part of the suburbs were included into the pneumatic network. The year 1883 brought the opening of the Pneumatic stations at the Rathaus (Town House) and the Reichsrat-Building (Parliament).

The additional expansion of the pneumatic network went on according to a general planning, whose main purpose was the accessibility of the suburbgs for the tube mails.

At first the construction of one line must be mentioned, which connected the T.C.St. with the P.O^{s}. Lazarethgasse, Währing and Hernals in 1886/87, while in 1889 [redacted] it was expanded farther to P.O. Josefstadt via the P.O^{s}. Ottakring and Neulerchenfeld, connecting them there to the already existing pneumatic network.

The construction of the new (now the second) circular belt line had been possible without adding any machine house, but at the P.O. Josefstadt two more air reservoirs became necessary, which were connected with air pipes to the T.C.St.

13 A third circular line was constructed towards the end of the eighties by laying a transportation tube from the pneumatic station Gumpendorf and [illegible]

the line lead back to Gumpendorf via the P.O. Westbahnhof [illegible] which had been included into the tube network in 1889. The construction of this circular line was likewise done without any erection of a new Machine House, but it made necessary two new air reservoirs in Gumpendorf.

After these important connections in the suburbs had been established and after die P.Os. Wien 59, 63 and 66 (according to the Post- and Telegraph Ordinance Nr.5/1892 the post offices received numbers rather than local names) - had been connected to the pneumatic network by laying a loop track; in that year another great [illegible] project was started: the including of the Railway Post Offices Vienna 24, 26, 41, 69, 76 and 77.

The respective constructions were essentially made in the years 1892 to 1894 and they necessitated among other things also the construction of a Machine House in the IIIrd district (Mohsgasse) and in the IInd district of that time (Webergasse), as well as the laying of air pipe lines between the machine house 14 Webergasse and the new air station at the Northwest Railway Station (Nordwestbahnhof), furthermore between the machine house Mohsgasse and the new air station at the South Railway Station (Südbahnhof). The steam engines (principal and spare) on Mohsgasse furnished 25-30 HP, those on Webergasse 15-20 HP.

In the South of the city the laying of corresponding transportation tubes was accomplished by connecting the P.O. Wien 4 with the offices Wien 128, 77 and 76 and by continuing the track via the P.Os. from Wien 76 via the P.Os. Wien 53 and 54 to the Telegraph Office Wien 57. On this track the P.Os. Wien 41, 45 and 74 were annexed with the help of short branch-tracks in the years 1894 and 1895.

In the North of the city a radial track existed already since the founding of the pneumatic system from the Pneumatic Station Laurenz-Building to the P.O. Wien 23 (Leopoldstadt), to which in 1889 the P.O. in the new building of the Produktenbörse (Grain Exchange) at the Taborstrasse had ben also included. This radial track was extended in 1895 up to the P.O. Wien 68 via the P.Os. Wien 28 and 24 and the Telegraph and Pneumatic Office (T.u.R.A) Wien 129. One year laster, to the track between the P.Os. Wien 23 and 28 was complimented with the construction of a loop-track to the P.O. Wien 27.

Furthermore the laying of a tube line from the T.C.St. via the P.O. Wien 15 (Bräunderstrasse) to P.Os. Wien 15 must be mentioned, which occured in 1894. This line was expanded in 1895 via the P.O. Wien 49 up to the Telegraph- and Pneumatic Office (T.u.R.A.) Wien 128.

In the second decade of the existence of the Vienna 15 Pneumatic System there occured also the construction of three private tracks.

The first line was built in 1888, it connected the T.C.St. with the Private Telegraph Station at the Stock Exchange. This line belonged to the Viennese Private-Telegraph Company, but it was kept up by the Postal Administration for an annual lump sum of 600 florins and occasionally also repaired.

The two other installed private tracks lead from Telegraph- and Pneumatic Office (T.u.R.A.) Fleischmarkt to the Ministry of Finances (Finanzministerium) and from the T.u.R.A. on Mohsgasse to the State Printing Office; they had been built at the expenses of the Finance Department and they served for expedition of letters between the Parliament building (Reichsrats-

gebäude), the Finance Ministry (Finanzministerium) and the
State Printing Office (Staatsdruckerei). Here too the Postal
Administration kept up the installation; however the finance
department did not pay a lump sum for this service, but a fee
of 0,6 Kreuzer for every container-kilometer.

As one can see, the Pneumatic network had been expanded
towards the end of the eighties and during the first half of the
nineties of the last century to a great extent. In 1895 there
existed, besides 3 Private Stations, already 43 Pneumatic Stations
thus even more than at the present time in 1933. The length of
8 the transportation tubes amounted to approx. 48 kilometers in
1895 (not including the Private Lines), thus it had quatrupled
in comparison with the year 1875; the air pipes had a length of
more than 10 kilometer in 1895, thus reaching almost five times
the length of the air pipes in 1875.

16 For a comparison it might be mentioned, that the newly
built pneumatic system of Berlin, constructed after the model of
the one in Vienna in 1876, showed forth at its erection [redacted]
15 Pneumatic Stations and a length of tracks of about 26 km,
which was thereafter expanded up to the year of 1895 to 51 Pneumatic
Stations and 104 km length of tracks (Magazine for Post and
Telegraphy, Vol. 1899 p.67).

2.) Utilization,- rules and -possibilities.

The pneumatic expedition of letters and postcards was
permitted in Berlin from December 1 1876 on, in Paris from May 1,
1875 (Magazine "Austrian-Hungarian Post"/, Vol.1883, p.173).
In comparison, in Vienna letters could be sent already since
4 March 1, 1875; as for correspondence-cards, it is true, only
since August 1, 1879 could they be sent by pneumatic mail. As
for the rules of transportation of letters, the already beforementioned
Telegraph Ordinances Nr.3/1875 (see the end of part I)
contains the respective directions, while the Telegraph Ordinance
Nr.16/1879 mentions the introduction of telegraph correspondence
cards. The pneumatic postcards costed 10 Kreuzer and they could
be bought, like the envelopes for pneumatic letters, at first
only at the Pneumatic stations and they were permitted only for
addressees in the Vienna districts I to IX with the exclusion of
the Brigittenau and with the inclusion of the Prater proper.

37 The year 1880 brought essentially new directions.

At the occasion of the opening of Pneumatic Station in
Fünfhaus, at first the free express delivery of pneumatic mail
for Fünfhaus, Sechshaus and Rudolfsheims, and the express delivery
against payment (by paying a special messenger fee /"Botenlohn"/)
for Gaudenzdorf and Meidling was introduced. With that ruling
the principle as it existed up to that point, was annulled, that
addressees of pneumatic letters and postcards had to live within
the line-walls of Vienna.

Even more important was the decree published in Telegraph
Ordinance Nr.9 of July 10, 1880, concerning the establishment
of letter-collecting boxes especially
for pneumatic mail. Already shortly before the Postal administrati
had ordered, that pneumatic mail, found in ordinary mail boxes
had to be sent immediately to the next Pneumatic station by
special messenger for for the proper disposition; since the
emptying of the new pneumatic mail boxes [redacted] was ordered
every 20 minutes since 1881, thus so much more often than the

ordinary letter boxes and since the public was given greater security, that pneumatic mail actually was forwarded through the pneumatic tubes by using those special, little red pneumatic mail boxes, an enormous increase of the local express communications was made possible.

Actually the display of special letter boxes remained an Austrian speciality, imitated only later on after a Pneumatic
18 system was constructed in Prague in 1899.

While the postal stationery for the pneumatic mail were available exclusively only at the few Pneumatic Stations up to July 1880, they could be bought, beginning with July 1 of that year, also in the tobacco shops.

The year 1880 also brought the introduction of pneumatic <u>reply postcards</u> @ 20 Kreuzer (Tel.Ord. 9/1880). Although the messenger who delivered such postcards, had been instructed to wait five minutes for a reply and then carry it back to the next Pneumatic Station, these reply postcards never became popular.

A further step for better utilization of the Pneumatic establishments was the permission for so-called Railway Depot Correspondence. Starting with July 1, 1883 pneumatic letters and postcards were accepted by all Viennese post offices and pneumatic stations, written to addressees outside of Vienna. They were sent to a certain Pneumatic end station; from there they were sent by express messenger to the railway station, so that they could reach, when possible, a certain mail-carrying railway train. (Circ.Regulations 10/1883).

Such mail had to be franked, for the pneumatic transportation as well as for the postal transportation fully. Correspondence cards, which were only franked with 10 Kreuzer were treated as
19 untransportable, but letters that were franked with only 20 Kreuzer, received postage due stamps and were then forwarded at once.

To this railroad-depot-correspondence it must be mentioned yet that in cases "worthy for consideration" such mail did not have to be written on official pneumatic stationery and still if all other conditions were followed, they would be forwarded by pneumatic tubes for respective forwarding.

Pneumatic railway-depot-correspondence in reversed direction, thus if they arrived from other towns in Vienna and should be then forwarded by pneumatic mail to the proper delivery pneumatic station, were not permitted up to 1899.

The here mentioned regulations show therefore that in the seventies and partially in the eighties only such mail was sent through the pneumatic mail and then delivered by express messenger, which, apart from the railway-depot- correspondence to outside places, were addressed to Vienna or to suburbs and which had to be delivered only within a certain circumference from the pneumatic exit station. Thus for instance, the delivery of such correspondence by pneumatic mail messengers was executed stil at the begin of 1887 only in the districts I to IX in Vienna, then also in Fünfhaus, Sechshaus, Rudolfsheim, Gaudenzdorf and Meidling, because the
20 Pneumatic establishment did not reach any farther.

By regulation of May 6 1887, H.M.Z.2444 it was then ordered that pneumatic could also be sent to such addressees which were living in the remaining postal suburbs of the so-called Viennese City Post Rayon, thus to places where the pneumatic system did not go, for instance to Hietzing, Ottakринsdorf or Floridsdorf. Here it must be mentioned that the later Vienna districts XI to XXI had belonged already before the incorporation to the Vienna City Post Rayon. (The territory of the districts XI-XIX was incorporated in 1890, the XXth district in 1900 by separating it from the IInd

district; the territory of the XXIst district was incorporated in 1905). Such pneumatic mail correspondence for postal towns of the Viennese City Postal Rayon outside the reach of the pneumatic system were forwarded from the pneumatic exit station like special delivery mail like postal-mail and in a similar manner forwarde special delivery without charging of a postal fee and generally also without charging for a messenger fee (Botenlohn) like a pneumatic mail within the narrowly limited territory of the Pneumatic system.

Furthermore it is (for the traffic development) important/to mentions also the reduction of pneumatic rates for letters from 20 to 15 Kreuzer simultaneously ~~and/the new~~ introduction of a new pneumatic stationery "lettercards for pneumatic express delivery" (Circ.Ord. 12/1887 of 9-24-1887). The following paragraph 8 will show the the steep increase of the use of letter cards.

21 About in the middle of the nineties, the pneumatic expedition and delivery of such correctly franked letter mail was finally also permitted, which, without regard to the destination place, were written not on official pneumatic mail stationery.

With that, the essential regulations for the public use of the pneumatic system in the years 1875-1895 has been carried together.

As for the internal use of the pneumatic mail it still must be mentioned, that the system, besides for the transportation of telegrams, for which actually the pneumatic system had been actually built for in principle, also was used for the dispatch of official mail, of railway delivery avisos, and, since 1891 als for the dispatch of miss-directed letters of the ordinary postal kind, for the Viennese City Post Rayon, when a quick forwarding to the correct delivery office was to be secured. The delivery of such miss-directed correspondence had to be effectuated by special delivery messenger without any extra charge ("Normalien"-collection 1891, Nr.60, and in 1894 inculcated anew). It cannot be established for sure nowadays, when the pneumatic transportation and special delivery of misdirected postal mail was canceled again; we can however assume with a certain probability that this occured at the end of the nineties, when the trains of the Vienna City Streetcars were used to a large degree and thus the postal traffic network in Vienna had become even denser.

22 3.0 Collection

The introduction of pneumatic mail letter boxes in 1880 was originally only planned for the Inner City but was expanded already in 1881 for the entire territory of the pneumatic system to favorably located places for them. The number of pneumatic mail boxes increased steadily and towards the end of 1895 already 427 of these mailboxes were used in Vienna.

As for the emptying of these pneumatic mail boxes, this was done daily (on Sundays as well as weekdays) every 20 minutes between 8 AM and 8,30 PM up to 1885, in the following years from 7,40 or 7,30 AM until 8,30 PM and from 1891 on - on account of the expanded train traffic - between 6,30 AM and 9 PM.

In comparison to that, the yellow letter boxes of the postal kind were emptied - for instance - at the begin of the eighties in the densely populated inner city district I-IX daily between about 6 AM and 9 PM, 13 times, in the Xth district and in the suburbs 5 to 9 times. At the begin of the nineties

a 14th

a 14th collection at 10 PM was consequently introduced in the inner districts on week days, while the number of collections on workdays in the outer districts was increased to 7-13 times of emptying; on Sundays in the inner districts only 8-9 times, in the outer districts 1-5 times boxes were emptied.

23 On account of the different times of emptying and especially because of the shorter intervals between emptying the pneumatic mail boxes, the emptying of the ordinary (postal) letter boxes and of the pneumatic boxes had to be done by different mail men. For emptying the pneumatic mail boxes the so-called pneumatic mail collectors were used. They had to deposit a security bail of 100 florins; they received during the first year of their employment daily wages of 1 florin which was gradually increased to 1 florin 30 Kreuzer after the fifth year of employment; they were given one service uniform which, after it was worn for several months, became their property. The wages were calculated only for actual service; for days of absence (vacations, sickness) they were deducted. The employment contract could be terminated mutually by giving notice 14 days in advance. (See service instructions for the pneumatic mail collectors).

4.) Installation Service at the Pneumatic Stations.

In order to show how awkward and time-wasting the procedure was at the reception, at the forwarding and at the delivery of the pneumatic mail, we shall give you in the follwing a few important regulations of the corresponding "Instruction" from 1883 which were in force essentially until the year of 1910:

24 "Each Pneumatic Telegraph Station must keep for itself and for the rest of pneumatic stations each one pad of 100 receipts which carry the name of the different destination-stations in printing.

When accepting pneumatic correspondence, the mail has to be canceled and marked with the "Instradierungs"-code ("recording-code" is my guess, since the Italian word "instradare" means "to bring on its way, to introduce") in the upper left corner with colored pencil for the purpose of recording (?). After this is done, the receipt from the top of the pad must be detached, which carries the name of the destination station of the mail piece; whereupon the imprinted number of the detached receipt must be entered on the mail piece, but the receipt on its turn must be stamped with the post mark (location and date) and the part of receipt that says "dispatched with train.." must be filled in by hand (!) with the actual dispatch time.

On the receipt one has to enter furthermore at the respective printed notation, whether it is a pneumatic letter or a pneumatic postcard; furthermore, the space before the printed word "Empfangschein" the letter " S " must be written if the mail piece came from the pneumatic letter box, but the letter " A " when it was official service correspondence.

The mail pieces, thus adjusted must be rolled together for each separate station together with its receipt from the pad and tied in such a way that the "Instradierungs"- (recording?) annotation is clearly visible and each pad-sheet must be laid in such way that the unprinted side faces towards the outside. Now the mail pieces are ready for being dispatched.

25 The "Umkartierungsstationen" ("sorting out stations??") must write on the receipt facing outwards the chronological sorting datas. (Very unclear to me even in German, sorry).

For the incoming pneumatic correspondence pieces, a "Streichbögen" (scratch sheet ?) with the number 1-100 must be readied for each station from which pneumatic mail can be expected, which thus corresponds to the receipt pad of the dispatching station. On the incoming correctly "instradierten" [redacted] (dispatched?) mail pieces first of all the actual arrival time must be entered on the receipt at the place where it says "arrived with the train", then on the mail pieces the location-and-date-postmark must be stamped. Furthermore on the "Streichbogen" (scratch sheet?) one has to enter whether it is a letter, a postcard, a mail coming from a collecting box etc.

Before the mail pieces are made ready for delivery, they must be entered each separately in the "Verdienstverzeichnis" (merit list ??) of the telegram delivery man, as well as in a summary way (collectively?) on the telegram dispatcher-protocol.

Incoming pneumatic correspondence, for which a second, third or multiple "Weiterinstradierung" (re-dispatching procedure?) is necessary for whatever reason there might be, must receive a new pad receipt ......"

It is quite obvious that these awkward procedures as
the were prescribed, often were completely disregarded. The
so-called "Instruktion" tried to prevent this by demanding for
each "Fehlinstradierung" (miss-recording?) or for each defective
adjustment of the bundles or of the receipts a fine of 20 Kreu-
26 zer and for each missed postmark of a shipment fines of
50 Kreuzer up to 1 florin.

The treatment of those shipments of mail at the Pneumatic stations was the duty of the "Manupulationsdiurnisten" (manipulation clerk?) as well as the service on the machinery in general. Since almost every Pneumatic Station was also equipped with telegraph apparatus, the "Diurnisten" (clerks?) also had to know how to write on a telegraph. They did not belong to the servant class, they formed a special group of clerks and could be compared, as far as their service position was concerned, approximately with the "Offizianten" (office clerks?) of later times.

All clerks which had to work on pneumatic apparatus, had to pass a corresponding examination.

5.) Delivery.

At the present time the express letter delivery service
is regulated in such a way that the delivery man of the pneuma-
tic station generally has to start for work at at an exactly
fixed time for express delivery, for instance at 7,10, at 8,10,
at 9,10 etc. In those days it was different. It was a basic rule
that pneumatic mail and telegrams which arrived at the pneumatic
offices immediately after arrival,and without waiting for another
train, they had to be delivered; incoming shipments could be only
stored away for a short time if on account of a specially heavy
traffic, as a matter of exception, not a single delivery man had
27 come back from previous deliveries.

27 The receivers acknowledge the reception of the telegrams and the pneumatic mail pieces on the pad-receipts.

The delivery was done by telegram delivery men, whose service contract was regulated similary to that of the pneumatic mail collection messengers. But they did not receive wages by day, only by number of pieces, generally 4 Kreuzer.

Starting with 1886 the telegram delivery men had to pass a special service examination; at the same they had to prove, among other things, that they mastered the German language orally and in writing, that they knew all post- and telegraph offices within the territory of the Vienna City Post, that the knew the most important streets, alleys and squares, the office location of the different authorities, legations, consulates, the addresses of the important holding companies, of the newspaper editor's offices, etc. (Since the war start no more service examination is demanded from the pneumatic mail delivery men.

How necessary a smooth and immediate delivery of telegrams and pneumatic mail was just during that time period with which we deal here, is best proved by the circumstance, that at the begin of the nineties, in the districts I - IX deliverytrips were made on workdays from 8 AM until 7 PM; 8 and on Sundays from 8 AM until 5 PM: 3 ordinary trips; in the remaining territories of the Vienna City Post Rayon the mail 28 on work days was delivered 4-7 times, on Sundays almost everywhere twice; even during the previous decades the number of ordinary delivery trips essentially never was any differently. It is therefore clear that such a generously planned ordinary delivery service demanded as a supplement a specially quick express delivery if this should be of any value on the whole.

6.) Traffic of the Pneumatic Trains

The Pneumatic Trains ran from the end of 1875 up to 1890 on almost all lines daily from 8 AM until 9 PM at intervals of 20 minutes. At the begin of 1891 this traffic was expanded through the introduction of so-called early trains and night trains to the time period of 6,45 AM until 10 PM and since the end of 1894 through the introduction of a 10-minutes-traffic it was densified between the offices of the inner City.

Much more important than the expansion of the pneumatic train service in the early and evening hours and the partial densification of the traffic was the basic change-over from a circular train traffic system to the radial system as it was introduced in 1892. Up to then a few radial lines had already existed, but the most principal lines, as one can find it in the II. Part, section 2 about the expansion of the pneumatic mail network, were condensed to large circular lines, on which the trains travelled generally only in one direction, for 29 instance from the T.C.St. via Währing, Hernals, Leulerchenfeld, and Josefstadt back to the T.C.St. From now on each circular line was divided into several short single lines, within which the trains travelled every 20 minutes in both directions, for instance from the T.C.St. to Währing and back on the same line. By that the number of pneumatic trains was doubled and the efficiency ot the Pneumatic system was accordingly increased.

Finally it should be also mentioned that in 1891 on the occasion of numerous jammings of the train traffic it

was decided that the pneumatic service on the trouble-jammed lines had to be executed in the same intervals as the timetables of the pneumatic mails provided, by other vehicles - horse-driven cabbies, "confortables" (?), even horse driven street cars. (Collection of "Normalien", 1891 Nr.283).

7.) Pneumatic Apparatus and Vehicles:

During the first years of the service machines of the systems Felbinger and Crespin were used. These so-called "cannon" machines however had to be handled extremely awkwardly, and they soon proved that they were not able to fit into the steadily increasing traffic. Even the later used machines by Scharfenberg and a new construction by Felbinger, although they were already easier to be handled, did not suffice all demands because they were very expensive, demanded much space.

#) 30 Only in 1892 a new type had been created after the plans of the machine-master of the Vienna Pneumatic System, Franz Schwager: the "Model 1892" which demanded only a fraction of the space, needed for the previous machines, which were easily to be handled and did not cost as much. This model therefore was used from now on for all expansion plans and for all changes of the old machineries.

For the transportation of the mail at first zinc plated tin cylinders were used, which wore out too quickly; later on steel containers were used and starting with 1891 aluminum containers. In the same year the previously used wooden and steel "drivers" were replaced by aluminum container drivers. The use of aluminum containers and drivers which, incidentally, are still constructed today in the same way, brought a decrease of the train-weight and thus they were more economic in service.

On a trial base in 1891 also leather containers and drivers were used after models, used in Berlin. But these vehicles were abandoned again because, in tubes, where they were driven by compressed air, they offered little resistance to the unfavorable influence of condensed water.

The Post- and Telegraph-Museum in Vienna in the building of the Technical Museum is displaying such a "Cannon-Apparatus", also the improved model by Felbinger and a Schwager-apparatus and several kinds of pneumatic containers and drivers.

31- 8.) Result of the Pneumatic Traffic

In 1876 693.022 telegrams were transported by pneumatic mail, in 1883 they were 1,040,385, in 1895 ., 2,387.228 pieces. Thus the number of the delivered telegrams was increased in the period of 20 years by approximately 244%, while in the same period the total population of Vienna increased from 668.000 persons (in 1876) to 1,487.000 persons (in 1895), an increase of 122%.

Compared with the the delivered telegrams, the number of delivered pneumatic letters was in the beginning ridiculously small, in spite of the fact that the 20-Kreuzer-rate for such letters was still cheaper than the fee for local telegrams (25 Kreuzer) or the fee for a messenger. ("Dienstmann"). In the period of 1876 to 1879 the annual number of pneumatic letters

was only 6-8000 pieces.

The small volume of the pneumatic letter service can be explained however when one considers the small territory of the city of Vienna at that time, also the relative high fee (the pneumatic letter rate was 20 Kreuzer, that of an ordinary letter was only 3 Kreuzer), finally the fact, that the official letter envelopes were available at that time only at the few pneumatic stations, where one had to mail them too.

When later on the tobacco shops ("Trafiken") took over the sale of pneumatic stationery, when pneumatic collecting boxes were furnished everywhere within the territory of the pneumatic system, and especially when in 1887 the letter fee was lowered
32 to 15 Kreuzer and when in the later years the pneumatic network was expanded more and more, the number of pneumatic letters increased relatively quickly. Thus in 1890 there were already 176.000 letters, in 1895 already more than 411.000 pneumatic letters.

As it was mentioned already once before, in 1887 the pneumatic letter-card was introduced. It is certainly interesting to watch, ho quickly the letter-card became popular to the public and how it slowly displaced the much older official pneumatic letter envelope. This is shown best with the following figures which have been taken from the statistics of the Ministery of Commerce about the Post and Telegraph Department and which bring the number of sold(pneumatic) stationery. Sold were:

in 1889:	101.000	pneumatic envelopes,	75.000	letter-cards
" 1891	103.300	" "	133.900	"
" 1893	117.000	" "	165.000	"
" 1895	110.000	" "	192.500	"

The less expensive pneumatic postcards in those days were used even much more by the pneumatic system. The number of pneumatic postcards increased from 67.845 in 1880 to 1,642.249 in 1895, thus they surpassed in the last mentioned year the number of mailed letters four times.

~~Finally another~~ pneumatic stationery must be yet mentioned which was destined for pneumatic mails: this was the
33 pneumatic reply-postcard. This card, it is true, never played any important role in the pneumatic mails: Thus e.g. in 1881 only 1000 card, in 1890 only 6.000 cards and in 1895 only 4500 reply-cards were sold.

While it can be seen from the previously shown figures and especially from the supplement 3, how fast the annual total number of dispatched telegrams and letters increased, up to the year of 1895, the calculation of the relative utilization of the pneumatic system by kilometer-units of the pneumatic tubes does not furnish the same picture. The share upon the kilometer of pneumatic tubes was:

in 1875:	45.990	pieces;	in 1887::	102.700	pieces
" 1877:	64.500	"	" 1889:	114.700	"
" 1879:	65.000	"	" 1891:	100.400	"
" 1881:	86.700	"	" 1893:	93.100	"
" 1883:	96.900	"	" 1895:	98.100	"
" 1885:	110.500	"			

These figures show that the kilometer-unit of pneumatic tubes was for instance less utilized in 1895 than one decade earlier. The explanation for that can be found in the fact, that especially in the decade from 1886 to 1895 the pneumatic mail

network was especially greatly expanded and that the population of the newly opened up districts of the city had to get used gradually to the use of a new correspondence vehicle. The reason for the relative small utilization of the pneumatic mail can be also found in the development of the telephone network.

34 In order to appreciate the influence of the telephone communication upon the pneumatic mail, the following figures about the Vienna telephone may be given:

There were:

	Telephone subscribers:	local calls:	long distance calls:
in 1881	154	?	-
" 1886	723	1,201.044	234
" 1889	1799	2,215.035	34.150
" 1892	5831	15,010.738	120.330
" 1895	8343	43,345.968	238.272

These figures are taken likewise from the statistics of the Ministery of Commerce for the Post- and Telegraph department. Even if the figure of more than 43,Millions of local calls may not quite represent true facts and can be explained by doubling up of some counts, it remains a fact the the use of the telephone increased extremely fast and that a considerable part of the additional express-communication traffic was utilized by the telephone ever since the telephone network was developed so greatly.

The construction of the Vienna local telephone network in 1881 was done by the Vienna Private Telephone Company and was kept up by this company up to the end of 1894. In 1895 the government which up to that point had taken care only of the international (? long distance?) telephone communications, took over against a lump sum of 4 million florins the local telephone network and made it its property (Statistics of the Ministery of Commerce, Year 1895, p.281).

35

III. -

36

1896 - 1914

(PERIOD OF SUPPLEMENTING THE PNEUMATIC SYSTEM).

1.) Expansion of the Pneumatic Mail Network.

The basic expansion of the pneumatic mail network occured already in the years 1875-1895. Everything that has been accomplished later on with regard to the construction of new pneumatic lines, served only to a realtively small completion, although not an unimportant one, of the Pneumatic mail system.

Here we have to mention at first the new laying of a transportation tube in 1896 from the Telegraph Central Station to the Pneumatic Station Wien 129, by which a direct communication between the two machine houses, Central House and Webergasse was accomplished. In the same year the transportation tube line between the T.C.St. and the former station of the Vienna Private Telegraph Company in the building of the Stock Exchange was converted into an air tube line which made a better

institution of the domestic pneumatic mail system installed in the Exchange.

A somewhat more important construction activity started again only in 1900 by including the post offices Wien 43 and 79 into the pneumatic network and furthermore - after previous
37 instalment of a 12 HP steam engine in the new machine house Währing (1899) - the important tube connection between the P.O.s Wien 68 and 110 via the P.O. Wien 69 was built, by which construction the circle which connected those from the Central station in form of rays radiating pneumatic lines with each other, was closed in the North. Two years later the P.O. Wien 111 was inserted between the P.O.s Wien 69 and 110.

Finally there must be also mentioned the construction of the Pneumatic stations at the P.O.s Wien 117 (1903); Police Direction; and Wien 125 (1905), Wien 8 (1911), Wien 89 (1912) and Wien 25 (1913); also the laying of a direct transportation tube-line from the T.C.St. to the Telegraph Office Wien 57(1906), the shifting of the Pneumatic Station from P.O. Wien 74 to the P.O. Wien 75 (1907); the construction of two air-tubes from the Machine House Gumpendorf to the P.O. Wien 101 (1908) and the conversion to electric power in Machine House Central (1903).

The Pneumatic network had reached in 1913 its maximum expansion with a length of 82½ km, apart from the two private lines, 1843 meter long, of which 68 km were transportation tubes and 14½ km air tubes. At that time there were 53 Pneumatic Stations in Vienna.

At about the same time - around begin of the war - the Berlin Pneumatic system had 187 km transportation tubes, 103 km air tubes and 80 Pneumatic Stations (according to informations from the post administration in Berlin). The Pneumatic system in Paris had 350 km transportation tubes, 30 km air tubes and 120 Pneumatic Stations (according to Schwaig-
38 hofer's Pneumatic long-distance systems, p.192).

2.) Rules for Utilization.

Up to the end of 1899 the price of a Pneumatic postcard was 10 Kreuzer, of a Pneumatic letter 15 Kreuzer and with the begin of 1900, when the currency was changed, the respective prices were 20 Heller and 30 Heller. With § 3 of the Postal Tax Regulations of Dec.28 1906 (P.&T.V.Bl. 114/06) an increase took place and at the same time a triple arrangement of the fees was introduced which remained in force up to the war time: The fee for a pneumatic postcard went up from 20 to 25 Heller, for a pneumatic letter(card) from 30 to 35 Heller and the fee for an "other" pneumatic letter went up from 30 to 45 Heller. As for the Pneumatic stationery there was no essential change between 1895 and 1914. The outer make-up of the stationery was changed several times, to be true, but the types of stationery: Pneumatic postcard and -Reply-postcards, Pneumatic letter-cards, Pneumatic letter envelopes remained always the same.

It should be mentioned, that the users of the Pneumatic mail were allowed for the first time officially and generally in 1899 to use besides official stationery, whose use was urgently recommended, also ordinary cards and
39 letters for transportation through the Pneumatic Mail, as long as they were suitable for pneumatic transportation and correctly franked (Circ. V Bl.14/99). The letters at that time could not

surpass a measurement of 8½ x 15 cm and a maximum weight of 15 grammes. Two years later letters up to 11 x 15½ cm and up to 20 grammes weight were allowed. (Circ.V Bl.14/1901).

We also have to mention the repeatedly changed regulations for the Pneumatic-Railway-Depot-mail.

First of all Railway Depot mail for pneumatic tubes which went to the outside had to be fully franked for the pneumatic transportation and for the following postal transportation (Circ.V Bl.14/1899). Starting with 1901 it was sufficient when the mail piece at least was sufficiently franked for the pneumatic transportation in addition to a general rate reduction (20 Heller instead of 30 Heller for a pneumatic letter, 15 instead of 20 Heller for pneumatic cards); the ordinary postal fee could be later on demanded with postage due fees (Circ.V Bl.14/1901), decree of 6.6.1902, Post.Adm.No.63 903, Norm S). However these facilitations were rescinded again at the begin of 1907, by canceling the rate reductions for pneumatic mail, as well as returning again to the principle of complete franking for pneumatic and postal use (P.&T.V.Bl.144/06).

Finally we should mention that the railway depot
40 letters sent from outside to Vienna were permissable
only in 1899. For such types of railway depot mail there was
never a rate reduction, because they had to be sent not only
by pneumatic mail but also by pneumatic express delivery
messengers.

Starting with August 1, 1911, insufficiently, but at least partially franked pneumatic mail pieces , as long as it was not railway depot mail, were admissable against taxing them with postage due fees, amounting to double the missing rate (P.&.T.V.Bl.91/1911); by this the principle of complete franking which at least had existed for the pneumatic mail up to that time had been broken down. Railway Depot correspondence had to be fully franked even afterwards.

The compulsory franking at the Berlin Pneumatic system was rescinded at the begin of 1909 completely, as it can be read in the German Communication Paper Vol.1909, p.55.

3.) Collection

In order to improve the local correspondence, the entire
letter collection service of Vienna was regulated in 1904 anew,
by laying together the up to that time separately performed
mail collection from ordinary and pneumatic mail boxes,
which regulation increased the number of collections from the
41 yellow (postal) letter boxes from maximum 15 to 30
(Mag.f.Post & Telegr. 1904, p.73; Ord. of 16.3.1904 PDZ 30 882
Norm S). It is true that the pneumatic letter boxes from then
on could be emptied only every 30 minutes instead of every
20 minutes previously, an apparent deterioration which was
compensated however by shortening the single collection trips
from 25-56 minutes to 16-25 minutes.

The collection every half hour was made on work days from 6 AM to 8 PM, which was followed by another collection trip at 10 PM, at which only the yellow boxes were emptied. Starting with September 1912 also the pneumatic letter boxes were included into the 10 PM trips.

There was a minor disadvantage by new regulations for the collection from pneumatic boxes on Sundays. The pneumatic mail boxes were emptied from then on on these days - as well as the yellow box - generally only from 6 to 10.30 AM in intervals of ½ an hour and after that only again at 4 PM. Not included in this regulation were the pneumatic mail boxes which were hanging around the Pneumatic Stations, which were emptied on Sundays regularily every half hour up to the end of office service.

The joint collection of ordinary and pneumatic mail boxes was performed by extra servants ("Aushilfsdiener") (P.&.T.V.Bl. 95/02); The collection trip was made either on foot or by using the street car, the horse-drawn collection carriage or, 42 from 1906 up to 1912 in some collection districts by using motorcycles with side-cars.

4.) Installation Service at the Pneumatic Stations.

As it was already mentioned in Part II, Nr.4, the regulations for treatment of pneumatic mail, as they were stipulated in 1883 remained in force up to the year 1910 with only minor changes. With the "Service Instructions for the treatment of telegrams and pneumatic mail in Vienna", dated 1.9.1910, now the "pad receipts"which up to then had to accompany every pneumatic shipment from the dispatch station up to the receiver, were abolished, the same way as the "Scratch sheets" (? "Streichbögen"), the "merit lists" (? "Verdienstverzeichnisse") and the "delivery messenger protocols" at the arrival station.

By that the entire handling service was considerably facilitated. In order to have a certain controle, summary list sheet for the in- and outgoing telegrams and pneumatic mail, as well as "Bestellnachweisungen" (order lists ??) were introduced at the delivery stations. Both stationaries resembled very much the ones that are in use today.

For the service on the apparatus, after 1896 besides "manipulation-Diurnisten" (?) also post office clerks were used, which, it is true, up to the war, were never allowed also to perform pneumatic window service. The "manipulation diurnisten" were turned into the classification of ~~[illegible]~~ postal auxiliary clerks in 1902 (P.&.T.V.Bl.83/02) and in 1906 into the classification of "Postoffizienten" (some sort of postal clerks?) (P.&T.V.Bl. 39/06).

5.) Delivery.

43 According to the Circ. V.Bl.36/05 it was stipulated that beginning with Nov.1 of the same year the delivery of telegrams and Pneumatic mail for buildings outside of the closed-in houses territory had to be performed without collection of any special delivery fee, as long as the delivery location was marked with a street-name and orientation number. For the delivery of mail to offside located places with mere catastral numbers, a messenger fee ("Botenlohn") had to be paid, as well as for the night delivery, arranged by the T.C.St., of telegrams at distances of more than 5 km on this side of the Danube or a night delivery to the other side of the Danube. These last mentioned regulations which,under certain conditions, demanded the payment of a messenger fee for night delivery of telegrams,

are still valid with minor changes; they were extended also to the night delivery of express letter mail, performed by the T.C.St. at the occasion of partial transfer of express letter mail to the T.C.St. in Fall 1931.

Furthermore it must be mentioned the abolition of receipts for telegrams and pneumatic mail, introduced by the "Service instruction for the treatment of telegrams and pneumatic mail in Vienna", dated Sept.1, 1920; the pneumatic mail
44 delivery messengers now still had to enter in the "proof of deliveries" the time of delivery of each piece of mail , but no personal receipt signature of the receiving party was necessary anymore.

In September 1912 the begin of the first express deliveries at most pneumatic stations was moved back to approximately 6,20 AM, so that the pneumatic mail which had been collected on the previous day at 10 PM and sent the postal way to the pneumatic stations, could be delivered even before the incoming of the first pneumatic train.

The delivery was generally made on foot, but in the middle of the nineties bicycles were first introduced for this purpose. At first these were private bicycles which were to enable the delivery man to earn as many fees per mail-piece as possible (@ 4 Kreuzer or 8 Heller); at the begin of the 20th century lump sums for bicycles were granted and finally shortly before the outbreak of the war, even office-owned bicycles for the express delivery were introduced in larger numbers.

The procurement of official bicycles was connected with the fact that, after favorable trials at the Telegraph Central Station since 1914 also [illegible] almost all the other pneumatic stations, telegraph boys were hired for the delivery instead of pneumatic delivery messengers who, as it is known, were mostly paid according to the pieces of mail delivered. The wages of the telegraph boys consisted mostly of a daily fee (1.70 Kronen). The administration therefore was now interested more than ever in as many deliveries as possible of each delivery man and
45 therefore [illegible] permitted the purchase of bicycles. Besides a daily fee the telegraph boys also received a small gratification per mail piece which in local traffic amounted to 1 Heller and thus corresponds to the express gratification of telegram- and express delivery men of 1½ Groschen for each piece of the present time. The service employment of telegraph boys was regulated with a decree, in the P.& T.V.Bl. 38/14 published.

At the end of this chapter about delivery of pneumatic mail, a few data should also be shown about the delivery of ordinary letters.

In 1914 the ordinary letter delivery was performed on work days in the 1st district 7 times daily, in the districts II to X: 6 times daily, in almost all remaining districts 5times daily; the deliveries were made in the time from 7,30 AM until 6 PM. On Sundays already since 1898 there was only one delivery trip which was started between 8 and 8,30 AM. The number of Viennese delivery offices which, for instance, in 1906 still was 80, was reduces in 1914 to 63 on account of the gradual centralization of letter delivery service - and in 1933 there remained in Vienna only 36 delivery offices.

6.) Traffic of the Pneumatic Trains

The pneumatic trains traveled between 1896 and 1914
daily from approximately 6,45 AM until 10 PM. At the turn of
46 the century the ten minutes intervals of the Inner City also
came to the other inner districts and even to some of the
outer districts; thus, for instace in 1913 these intervals
were valid at the following lines:
Z - 11 - 15 - 50 - 57. Z - 2(=W.1) - 40 - 128 - 77.
Z - 66 - 71 - 110. Z - 10 - 64 - 62 - 57. Z - 57
2 - 15, 57 - 60 - 59 - 110; at the lines
A - 129 - 68 - 69. 129 - 24. 110 - 111 - 69 ther existed the
now ten-minute-traffic in the early and late hours. The remaining
lines, with the exception of necessity traffic to the Stock
Exchange, were observing the twenty minutes intervals.

(The above 4 lines of figures I do not understand; I therefore just copied them from the original)

On Sundays the trains ran on all lines only at intervals of 20 minutes. Since about 1903 the train service stopped after 7 PM on those days at a number of branch-lines as well as in some connecting lines and the corresponding Pneumatic Stations were closed. The delivery service for those closed Pneumatic Stations was performed by the neighbouring offices.

7.) Results of the Traffic System.

The number of telegrams dispatched by the Pneumatic System increased continuously from 1896 up to the outbreak of the war. In 1896: 2,324.300, in 1906: 3,934.732 and in the last year of peace (1913): 5,337.290 telegrams were transported.

47 A large increase of transportation figures at first up to the year 1906 can be observed for Pneumatic Postcards and Pneumatic letters. Thus for instance, in 1896 approximately 440.000 letter and 1,680.000 postcards were sent, in 1906 it was already approx. 1,528.000 letters and 2,707.00 cards, which also includes, to be exact, the express letters and cards which since 1899 following internal decrees, had to be transported also by pneumatic mail (Decree of 16.5.1899, P.D.Z.35.918; 6.10.1899, P.D.Z.65.362; 5.2.1905, P.D.Z.167 083-III b/04).

The rate increase of December 1905 caused a grievous set-back, its consequence was that in 1907 abt. 350.000 letters and 520.000 postcards less were dispatched than during the previous year. Even up to the outbreak of the war the former transportation figures of letters and cards could not be reached again, in spite of the fact that the population of Vienna had increased from 2,879.000 people in 1906 to 2,172.000 people in 1914.

The share of official stationery for pneumatic mails decreased-~~almost-continuously~~, as shown with the following figures:

	Total number of cards, transp. with V. Pn.Mail:	Official postcards sold:
in 1905	2,516.610	1,004.469
" 1907	2,185.014	1,042.100
" 1910	1,987.013	830.000
" 1913	2,347.627	813.700

48 An even worse disproportion between the total number of dispatched pieces and the number of sold official stationery for pneumatic letters can be shown:

	Total number of letters sent with Vienna Pneum.Mail	Sold official:	
		Pn.M. lett.-cds	Pn.M. envelop.
in 1905	1,315.562	210.154	58.320
" 1907	1,182.277	310.150	50.200
" 1910	1,176.763	317.000	-
" 1913	1,321.312	291.675	10.700

In the figures for the sale of pneumatic mail stationery also these are included; that had been issued for the Pneumatic System in Prague. It can not be said, how many of such stationery dispatched in this city and therefore cannot be cosnidered for Vienna, it does not show in the statistics of the Ministery of Commerce; its number probably was small.

It should also be mentioned that between 1896 and 1914, in the same way as previously, only a few thousand pneumatic reply postcards (with paid reply) could be sold every year.

As for the relative utilization of the pneumatic system, we list the following figures to the kilometer unit of the transportation tubes:

in 1896	93.700 pieces;	in 1907	120.100 pieces
" 1901	102.300 "	" 1910	125.800 "
" 1904	115.900 "	" 1913	136.300 "

49 Thus the utilization of the system is generally a little better than it was in the decades up to 1895, whereby the circumstance plays an important role that the pneumatic system relatively was expanded only a little after 1895 in spite of the enormously accelerated intensity of the general mail traffic.

Since the pneumatic traffic naturally was in strong competition with the telephone during the here considered period, a few data about the telephone traffic must be given as following: The data up to 1901 concern the Vienna telephone traffic, the later figures the telephone traffic of Lower Austria, since from 1903 on the Viennese traffic is not anymore separatedly shown in the statistics of the Ministery of Commerce; it can be assumed however, that out of the telephone traffic of Lower Austria the biggest part fell upon Vienna.

There were:

At the end of	Subscriber (Main- & auxiliary) telph.:	Local calls	Long distance calls:
1899	11.9999	43,824.010	636.000
1901	14.969	55,033.000	810.000
1904	23.023	89,275.000	1,320.000
1907	33.000	87,945.000	805.000
1910	50.288	155,511.000	1,332.000
1913	69.551	183,359.000	1,695.000

---

50 IV.

1914 - 1933

(WAR AND POSTWAR PERIOD)

1.) Changes with regard to the Pneumatic Stations.

The expansion of the Pneumatic System, which during the last pre-war years was continued, although only to a somewhat lesser degree, was suddenly stopped by the World War ; soon numerous Pneumatic Stations had to be closed even.

During the war itself only the Pneumatic Station Wien 53 had to be closed in 1914 and, on account of the transfer of P.O. Wien 34 in 1917 the pneumatic station of that location. Also during the first years after the war only the Pneumatic Station Wien 111 - as well as a number of post offices without pneumatic stations - had to be closed temporarily during the winter months 1919/20 on account of coal shortage.

But during the period from 1921 up to 1924 the unfavorable financial situation of the government, which forced to the closing of not less than 9 pneumatic services at their post offices, became apparent with a heavy impact.

These were the offices Reichsrat, Wien 8, 10, 13, 25, 53 (the last which was closed in 1914 had been re-opened in 1921),
51 68, 85 and 111. Among the here named Pneumatic Stations only those of the P.O. Wien 68 (1926) were re-instated since then.

The hitherto end of the retrograde tendency in the status of pneumatic station was the abolition of the Pneumatic stations Wien 11 and Wien 23, which had to be ordered in accord with the economizing measures in fall of 1932.

At the present time the Viennese Pneumatic network comprises 42 Pneumatic Stations, the transportation tubes have a length of 67.124 meter, the air tubes a length of 14.100 m. May we point here again to the Pneumatic system of Berlin which owns at the present time 89 Pneumatic Stations, with a length of 252.092 m of transportation tubes, a length of 112.123 m of air tubes.

2.) Rule for the Utilization.

Up to 1916 the uniform rate for pneumatic letters, pneumatic postcards and pneumatic letter-cards which were posted in Vienna and addressed to Vienna was 45, 35 and 25 Heller. Only then when such pneumatic mail pieces went beyond Vienna, was there an additional fee for the postal forwarding, the ordinary postal rates.

This was changed with the 1st issue of the Postal Order in 1916. Basically now the fee for an ordinary letter
52 or an ordinary postcard plus a uniform pneumatic additional fee in the amount of 30 Heller had always to be paid. The different fees for pneumatic letter-cards and the other pneumatic letters was abolished. The sender was instructed, in accordance with § 98 of the Postal Order

to frank the mail piece at least that much, so the pneumatic additional fee was covered. The still missing fee in such a case, in accordance to §48 or 50 of the Postal Order, had to be paid by the addressee doubly. (The pneumatic additional fee amounted after repeated increases during the inflation period between Dec.1, 1923 and the end of 1927: 2000 Kronen, respectively 20 Groschen after Jan.1, 1928; P.& T.V.Bl.33/23 and 81/27).

With the second edition of the Postal Order (P.V.Bl. 35/22), after a long interruption, once again the full franking compulsion for pneumatic mail was required by changing of §98 Postal Order. Unsufficiently franked mail not any more could be sent through the Pneumatic tubes.

The year 1925 brought the introduction of the "half" additional pneumatic fee for such non urgent letters posted in Vienna which went outside of the city and which were to be sent in Vienna through the pneumatic tubes up to a certain railway depot post office (P.&T.V.Bl. 50/25). Actually this reduction of rate lasted not long, when the anew change of §98 of the Postal Order according to the P.&T.V.Bl.56/29, as published on Jan.1.1930, demanded, that the difference, as it existed up to that time, between express mail and pneumatic mail was abolished and the "half" as well as the "entire" pneumatic additional fee be replaced by the
53 express fee. From then on there existed a right for pneumatic transportation only when the full express rate had been paid, which, at the present time is as high as the former pneumatic additional rate, viz. 30 Groschen.

The difference between express mail and pneumatic mail was mostly this: Express mail demanded that only the express fee had to be paid at the respective destination place, but pneumatic mail demanded the express only in Vienna and in addition the pneumatic fee. Nevertheless, as it was said already in Part III, section 7.), express mail which was suitable for pneumatic transportation, was transported in Vienna since 1899 by pneumatic mail. The abolition of the difference between express mail and pneumatic mail therefore legalized for the most part a situation that already had existed and it gave the sender of express mail so to say the right for free transportation through the pneumatic tubes.

Nevertheless the abolition of the before mentioned difference between the two ways of transportation resulted in the permission that starting on Jan.1, 1930 also express printed matter, express merchandise samples, express mixed mail and express business papers, if they were suitable for pneumatic transportation, go now through the tubes too, which brings therefore a better utilization of the pneumatic system.

Furthermore we have to mention the change of §98 of the Postal Order on July 1, 1931, which stipulated that the
54 maximum measurements of letter mail, which is permitted to go by pneumatic mail, was raised from 15½x11 cm to 18x12 cm. The maximum weight of such transported mail remained unchanged at 20 grammes.

The last decade brought also the first admission of registered mail by pneumatic tubes. A beginning of this new idea was made, when starting on August 1, 1925 registered letters and postcards were accepted at the pneumatic stations in the forenoon of Sundays and equally considered holidays and had to be forwarded by pneumatic mail,

if they were addressed to places outside of Vienna and if they were franked besides with the postal and registration rates also with half of the pneumatic rate (when express mail with the express fee) according to the decree of July 30,1925, P.D.Z.11-2289/25. Moreover with the regulation Nr.15 in the " Amtsblatt" (Official News) Nr.10/1927 it was ordered, that all express which arrived from outside, when registered, as well as registered Vienna local express mail, if the were suitable for pneumatic transportation, principally always were to be transported by pneumatic mail (thus also on week-days). Thus the only thing that was left, that also registered express mail that went out of the City, be transported on all days by the pneumatic system. ; this actually was then ordered with the P.& T.V.Bl. 76/29 of-Jan.1,1930.

In this respect we have still to mention that, at the present time, also non-express mail, but suitable for pneumatic transportation, when registered, regardless of the
55 place of destination, must be accepted without any collection of addtional fees at the pneumatic stations and be sent through the tubes (P.D.Z.6-2497/30).

To the mail which even (franked) as non-express mail ~~unfranked~~ must be sent by pneumatic mail, if suited for that, belong also the airmail (P.V.Bl.33/22, 25/23, P.&T.V.Bl.34/24, 20/28 and-41/30). On the other hand, railway-avisos (for freight shipments), which had to be sent through-the tubes up to that time, do not belong any more to such favoured treatment.

Nowadays special-pneumatic stationery does not exist anymore. The pneumatic envelopes and pneumatic reply-postcards were printed for the last time during the war, the pneumatic postcards in 1921.

By postal ordinance of Oct.1, 1916 the acceptance-receipts for pneumatic mail were abolished finally. the public made very rarely use of such a procedure anyway, as it existed since 1875.

3.) Collection

Already a few days after the outbreak of the war , instead of the collection every half-hour, as it existed up to then, changed over to collections every hour with corresponding enlarged collection territories, by which measure suddenly half of the collection personnel was saved, which was then used either for other post-connected services - or for the military service.

56 When the change-over to one-hour-collections was called forth above all through the lack of-personnel - for instance since June 1915 even women had to be used for the collection service - the later much farther reaching restrictions of the collection service were mostly caused by the shortage of coal, which lead to a severe restriction of the streetcar traffic, among other things also in the evening hours and to earlier closing of office hours at the post offices during the wintermonths.

The 10 o'clock PM nightly collection was abolished in October 1915 and replaced by a 9 PM collection, which, in its place, was abolished for the Viennese districts II-IX in February 1917, which measure lead to a last collection in those districts already at 8PM starting from that date on. For the

time being the 9 PM collection for the I. district was kept up.

The culmination of restricting the collection during the winter months was reached 1918-1919 and 1919-1920, when the first emptying of letter boxes was 7 AM and the last emptying already at 6 PM.

From then on the letter collections were again improved step by step, when in March 1920 the last collection on work days was fixed for 7 PM, when starting with Dec.1,1923
57 a special night collection at 9 PM was re-introduced for the streets with denser traffic and when this became valid in 1924 for all letter boxes of the Ist district. (A.Bl.12/23 and 6/24).

A certain end of this favorable development, which was only spoiled by changing the 7 PM collection to 6,30 PM in the districts II-IX starting April 1924, was brought by the new regulations for collections in the Ist district (August 1926) and for the districts II-XX (August 1928); with these new regulations the begin of the first collection was changed from 7 to 6 AM and the last collection - with simultaneous abolition of the night collection up to that time - in the Ist district was ordered for 9 PM, in the remaining districts generally for 8 PM. The collection was centralized almost everywhere at the delivery offices. The combined collection of ordinary and pneumatic mail boxes was fixed on workdays generally in intervals of 60-90 minutes, in the Ist district 14-15 times, in the districts II-XX 11 times.

During the last period (September 1932) occured the restriction of the fore-noon collection in Vienna, forced upon by the unfavorable budgetary situation, when in those offices, where on work days in the fore-noon at least 5 times emptying was existing, the number of fore-noon collection was reduced to 3.. This was ordered for all letter collection offices in the densely built-up parts of Vienna.

In order to avoid a deteriation of the collections
58 and the removal of express mail, deposited in the red letter boxes if any possible, two "in-between-collections" from these letter boxes were introduced at the same time, which as a rule, are to be made by the express delivery messengers at the occasion of their express delivery trips at around 8 and 10 AM (P.D.Z.124.105/32). By this regulation for the first time, at least partially, one arrived again to the basic principle as it was valid up to 1904, to empty the pneumatic mail boxes more often than the ordinary boxes.

As for the Sunday collections from the letter boxes, its number during the post-war years was greatly reduced in comparison to previous years, with regard to greatly improved Sunday-rest ordered by the new social legislation. Starting with spring 1919 there were in Vienna only 2 Sunday collections, viz. at 8 and 11 AM (A.Bl.10/20), starting from January 1922 only one Sunday collection, viz. at 9 AM (A.Bl.3/1922). When it was found that the number of mail pieces, deposited in the letterboxes up to 9 AM, was extremely small, the Sunday collection was changed over to 5 PM according to the new organization of letter collecting in 1926 and 1928. Starting with September 1932 the letter collection on Sundays was done at 4 PM.

When the term of "pneumatic mail" (Rohrpostsendungen) was entirely abolished on Jan.1,1930, there were no pneumatic letter boxes anymore, only "express letter boxes". It suggests itself to install such letter boxes from now on also outside
59 the pneumatic system, for instance in Floridsdorf or in large

provincial cities, provided that the installation of such boxes at the present collection system can be considered as an expedient measure and that there is money for the purchase of such boxes.

Finally as for the collection personnel, it was classified according to the salary regulations (P.V.Bl.50/20) just as much as employment-group 1, as this is the case today according to the salary legislation (P.& T.V.Bl.39/24); moreover in most cases contract-employees are employed (the former non-classified auxiliary employees).

The use of horse-drawn carriages for the collection had been abolished during the war. In the territory of motorized letter collection which was introduced on Feb.1, 1932 in part of the XIII th Vienna district, express letter boxes are not installed.

4.) Service at the Pneumatic Stations.

Delivery.

The instructions for the treatment of mail that must be transported by the pneumatic system have not changed much since the immediate pre-war period. New are the instructions for the treatment of registered mail which in former times were not permitted to be sent through the tubes. The corresponding regulations can be taken from the "Service Instruction Nr.10 for Pneumatic Mail Service, Part I". 60

As for the delivery, it must be mentioned at first, that the numerous occurences of robbing and embezzlement of pneumatic mail forced the administration to re-introduce the receipts of addressees of telegrams and pneumatic mail (P.V.Bl.86/20; A.Bl.11/21).

In the organization of pneumatic mail and telegram delivery a new change during the first post-war years was introduced, which is still in force nowadays, which stipulated that such mail-pieces from then on must not be delivered immediately after their incoming at the Pneumatic Stations as a matter of principle, but in general only with the express delivery trips, whose times had been fixed in advance for certain hours. This change which lead to the rigid delivery-sub-districts (? "Zustelluhterbezirken"), naturally brought a certain reduction of personnel.

-At the present time the express delivery trips on week days during the time from 7 AM until 9 PM must be started every 40 minutes in the Inner City, in the remaining densely built out territory of Vienna every 60 minutes and in the thinner populated suburbs of the city under certain circumstances even in larger intervals. On Sundays the express delivery trips take place as a rule with intervals of 1½ to 2 hours during the time of about 8 AM until 7,30 PM.

61 The express delivery men must deliver not only express mail and telegrams, but under certain circumstances also air-mail franked as non-express, in which case no separate fee will be collected. - The express delivery of such airmail must be performed always, since the UPU treaty of London (P.& T.V.Bl.41/30), when airmail with recognizable urgent contents arrive on Saturdays after the last ordinary delivery trip at the delivery office. In addition, in the last time

instructions have been given on a trial base, that airmail franked as non-express, with the begin of the aviation time-tables of 1933 under similar suppositions must be delivered also on the other week-days by express messengers without collecting any additional fees.

It only remains to write shortly about the personnel of the Pneumatic stations.

On account of the separation of the administrations for telegraphy, telephony and pneumatic mails from the postal administration, the pneumatic station and their entire personnel was put under the newly created telegraph direction of Vienna in 1920, under which they remained up to the end of 1923. On January 1, 1924 the re-unification of almost all Pneumatic stations with the post offices was ordered, only the Telegraph Central Station and the Telegraph Office Wien 7 were not effected of this procedure, thus they are still put with their personnel under the Telegraph Direction of Vienna (P.& T.V.Bl.1/20, PVBl 20/23 and A.Bl.1/24).

62 The personnel for the pneumatic apparatus, as far as they were "Offizianten" (some kind of clerks ?) with a certain service time, was appointed as government clerks by ranging them under the Group D of the Service Pragmatics with the begin of 1919. According to the Postal Salary Order they ranged, if they were used only for service on apparatus, under the employment group 5, otherwise under a higher service group. When put under the salary legislation the apparatus service employees were ranged under employment group 4 and those employees which were also used for window service, under the employment group 4 or 5, in exceptional cases also in employment group 7.

The pneumatic mail delivery men ranged according to the postal salary order under employment group 3 and were then transferred into employment group 2. By the by often only contractly employed clerks were and are used for the express delivery service.

During the war women were used for the delivery service, but never for the pneumatic apparatus service.

5.) Traffic of the Pneumatic Trains.

During the war years the pneumatic train traffic generally could be kept up fairly well, even though the 10 minute-traffic was replaced by a 20-minutes-service and on some lines trains ran only when necessary and in 1917 the traffic on the line Wien 82 - Wien 127 was stopped permanently.

63 In winter 1918/19 the shortage of coal became especially perceptible and forced to the stoppage of al machinery driven by steam engines. The pneumatic trains could run only as long as the air was available, produced by electrical machines, to drive them. These were the lines Z-129, Z-66-71, Z-11-15, Z-57, Z-1-36, Z-10-64-62, Z-8, Z-7, Z-13-125, 1-25, 1-40 and R-10. (This time only I believe I begin to understand these letters: Z stands for "Zentrale" (Central Station), thus e.g. Z-129 means the line from C.St. to Wien 129, etc. "1" may mean Wien 1 (?), "R" could be "Reichsrat"/the Parliament station/). On the lines/pneumatic which were still running, there was only a 20-minutes-traffic and to the remaining pneumatic stations messenger-trips were introduced in order to keep up the telegram and pneumatic communications,

which were arranged every hour.

Only in the fall of 1920 the train traffic could be resumed generally, although to some restricted extent in comparison with the pre-war period. The trains ran now between approximately 6,40 AM until 9 PM, a 10-minute-interval existed only between the Central station and the Laurenz building, on all other lines the trains ran only at intervals of 20 minutes, while the line Wien 82 - Wien 127 as well as the private lines to the Ministery of Finances and to the State Printing Plant were not anymore re-instated. The regulations as they were ordered principally at that period for the train traffic is still in force today on week-and holidays.

A special regulation was introduced for the Sundays with regard to the decreasing number of pieces of mail to be
64 transported. After the train traffic on such days had been stopped entirely from March 1922 until late fall of 1923, it had been opened up again anew in November 1923. Since then the trains run on Sunday fore-noons during the hours 7,20 AM until 1 PM with intervals of 40 minutes on almost all lines. The train traffic on Sunday afternoons has been abolished and the 12 opened up pneumatic stations are connected with each other by messenger trips.

It must be mentioned yet that the setting up of exact pneumatic train time tables, in spite of the re-unification of the pneumatic stations with the post offices in 1924, remained a matter for the Telegraph Direction Vienna, which, moreover, had to ~~watch~~ the entire strictly technical pneumatic mail service.

6.) Pneumatic Apparatus and Vehicles.

The Model 1892 remained the last apparatus type in use at the Vienna Pneumatic System. The construction of more modern pneumatic mail apparatus which could economize the running expenses and personnel could not be considered up to the present time on account of chronical money shortage.

At the present time the following machines are working: a "cannon" apparatus (at the Telegraph Office Wien 7), 4 Felbinger machines (at the P.O? Wien 64 and 104) and 69 Schwager machines.

As for the pneumatic containers, the introduction of special "Einschreibbüchsen" (?? verbally: register-containers) in 1927 must be especially mentioned, which are constructed similar to the drivers; furthermore the introduction of special
65 "Lochlederbüchsen" (? verbally: Hole-Leather-containers) with circular number discs made of Vulkan-fibers which are used on a trial base for the immediate re-dispatch of ordinary local [illegible] letter mail from P.O. Wien 62 to the respective delivery offices and which are supposed to make possible a substantial improvement of the delivery of such mail.

The instructions as they are in force at the present time, concerning the service in pneumatic mail apparatus and the treatment of pneumatic containers and drivers are contained in "Service Instructions Nr.10 for the Pneumatic Traffic Service, Part 2".

7.) Traffic Results.

From 1917 until 1923 no official statistics of the Austrian Post, Telegraph- and Telephone Communications were kept, since the traffic was so irregular on account of steadily changing state-political and economical conditions that any statistics would have furnished only a distorted picture. Thus it is not any more possible at the present time to give a halfway reliable picture of the development of the Pneumatic Service during that period.

Beginning with the year of 1924 the utilization of the pneumatic system is marked by a constantly decreasing telegram communication; in 1924 3,923.000 telegrams were still sent out, in 1932 this figure was reduced to less than one third, viz. 1,264.000 telegrams – furthermore by the efforts to use the pneumatic system more and more for the transportation of
06.. non-express mail. With regard to the latter, one instruction must be stressed especially, to direct the "Schussmaterial" (?? verbally "shot-material" – may be urgent material ?) and if possible also the ordinary local letter mail towards the tube transportation to the delivery post office, when by doing so the next delivery trip can be still reached (P.D.Z.8-1107/24 and 0-9/11/28). The plan, designed in details during the years 1930 and 1931 to direct all Viennese local letter mail that was collected at the 8 AM and 1 PM gatherings, immediately to the delivery stations in special containers in such way that this mail can be delivered still with the 2nd and 3rd delivery trip, was actually wrecked because the containers, needed for this purpose, could not be purchased for lack of credit (P.D.Z.6-2182/31). Nevertheless the number of mail pieces transported through the tubes, of the non-express variety, is increasing steadily.

The total number of mail pieces transported by pneumatic service is decresing in the last years almost steadily. The decrese however is not quite as great as it might appear when one looks at the corresponding figures of the supplement Nr.3, since during the years 1925 up to partially 1932 several offices counted some pieces twice (double-counts). especially in 1928 there were counted 9,297.00 pieces, i.e. more than in any of the best peace years. (Moreover the statistics of foreign postal administrations show also a strong decrease of pneumatic mail traffic. Thus for instance the Berlin pneumatic system shows for 1928 a total of 9,413.000 pieces, (among them
07 3,775.000 pneumatic letters and -postcards, 4,568.000 telegrams and 1,070.000 express mail pieces), but in 1931 only 5,189.000 pieces (among them 2,030.000 pneumatic letters and cards, 2,413.000 telegrams and 746.000 express mail pieces). The decrease of pneumatic transportation of telegrams in Berlin can be partially explaining, to be true, to an increased oral delivery of telegrams over the telephone network.

The relative utilization of the Vienna pneumatic system calculated for the kilometer-unit of the transportation tubes, shows the following figures. There were transported per kilometer:

in 1924	93.600 pieces;	in 1929	116.000 pieces;
" 1925	113.000 " ;	" 1930	125.600 " ;
" 1926	115.000 " ;	" 1931	120.100 " ;
" 1927	128.500 " ;	" 1932	93.600 " ;
" 1928	138.500 " ;		

As for the share of express letters, express cards,

express printed matters etc. among the total pneumatic mail traffic, during the post-war period up to October 1932 no separate records were kept. The counts starting with January 1933 bring the following picture:

08 Transp. telegr. 83.474 pieces, i.e. 20% of total traffic;
" expr.lett. 153.950 " , i.e. 37,8% " " " ;
" expr.cards 105.524 " , i.e. 26% " " " ;
" expr.Prtd.M.
" merch.smpls
" bus.papers,
" mixed mail 6.281 " , i.e. 1% " " " ;
" other non-fficial
mail ("Schuss" etc.)
45.266 " ; i.e. 11% " " " ;
" official ~~mail 12.846~~ ; i.e. 3,1% " " " ;
(as for the word "Schuss" see my remarks on p.66, line 2-3)
407.141 pieces, i.e. 100%

12.359 pieces of mail were registered, i.e. approximately 3.9% of the transported letters.

The point should be stressed that at the present time much more express letters than express cards are sent through the tubes; thus between the traffic figures of these two types of mail a shifting in favor of the express letters has occured which has been started actually already at the begin of the 20th century but was really only then favored since 1916 when the price difference between express letters and express cards with the introduction of an additional pneumatic fee has become a very minimal.

Finally be it permitted here again to show the development of the Viennese Telephone network and telephone traffic.

According to records which the book keeping department of the Telegraph Direction Vienna placed at our disposal, the number of telephone subscribers in Vienna were:

09

At end of:	E.A.	½ G.A.	¼ G.A.	government "Nebenstellen"	private "Nebenstellen"
1914	29.724	3.205	12,301	20.779	not counted
1916	31.837	3.909	12.650	22.893	" "
1918	33.417	3.425	13.043	26.482	" "
1920	35.489	4.010	14.567	29.364	" "
1922	32.274	4.766	14.533	27.755	" "
1924	41.792	6.324	15.829	29.708	" "
1926	44.052	11.985	19.361	25.225	20.313
1928	46.567	15.463	24.337	24.739	28.024
1929	47.389	17.469	26.939	22.363	31.465
1930	46.826	19.041	31.583	21,012	33.812
1931	44.687	18.930	35.976	19.557	33.637
1932	43.303	18.669	37.954	17.363	36.428

In these figures public telephones and "Dienstsprechstellen" (? verbally: "service telephone connections ?) are not included. (Above headings of the resp. columns have been left partially untranslated. The abbreviation "E.A." may mean "Einzel-Anschluss" - probably a full telphone connection with unlimited local calls. The abbreviation "½G.A." may mean something like a "half telephone connection" with limited local calls, but I don't know what the letter "G" means. The same goes for "¼ G.A." probably an even more restricted tel.connection.)

About the Long Distance telephone communications we received the following figures from the Long Distance Telephone Office:

	Used minutes of talking:	telphone calls:
In 1920 there were	7,654.063	not counted
" 1922 " "	8,157.918	" "
" 1924 " "	9,099.345	" "
" 1926 " "	11,809.086	" "
" 1928 " "	15,973.877	4,097.575
" 1929 " "	17,787.093	4,394.244
" 1930 " "	18,576.688	4,468.703
" 1931 " "	19,988.382	4,539.768
" 1932 " "	17,093.488	3,923.431

V.

10 ## FINAL REMARKS.

It is true that the use of the Pneumatic Mails was displaced to an increasing degree by the use of the telephone. There is no use to argue either that the present Viennese Pneumatic System does not meet all demands of a modern metropolitan rapid communication system, since, with the distribution of the present air-reservoirs in the network only a part of the lines permits a ten-minutes-interval train traffic.

In spite of the fact that the communication is decreasing and that the system, in comparison with some very modern pneumatic mail systems of other cities takes a somewhat second place, the pneumatic mail in Vienna is indispensable and will remain so for a long time yet. This will be understood even better, when we think of the difficulties, caused by the difficulties of rapid transportation of express mail pieces which are unfit for pneumatic transportation between the Viennese Offices, or if we only try to examine the possible shut down of pneumatic trains on Sunday mornings. In particular the following must be said yet:

12 As for the <u>express letter mail</u>, the pneumatic system still permits the fastest trahaportation for moving it in as well as moving it out; it makes a handling of the mail possible in relatively short intervals and it assures an uninterruptes, trouble-free enterprise which can not be said about any communication above the ground on account of exterior influenceas snow, ice formation, storms, traffic jams on the streets etc.

As far as the transportation of telegrams in Vienna are concerned, it is true the the transportation over the wires from the Telegraph Central Station to suburbs of the city with little traffic, and vice versa, goes faster in most cases and is alos less expensive on account of the incomparably cheaper construction expenses than an eventual pneumatic transportation in newly constructed pneumatic lines. The expansion of the pneumatic network to such parts of the city is therefore out of question for this very reason, especially when one also considers, that the express mail communications tho these parts of the city are small.

But when it comes to traffic relations with denser telegraph communications (thus until further notice almost entirely in the territory of the present day pneumatic system), the pneumatic mail much more efficient than the telegraphy, because it permits the simultaneous dispatch of a large number of telegrams. As it has been found after calculations, the pneumatic transportation here too is cheaper than the wires. Furthermore the pneumatic mail the possibility of making mistakes is evaded, which naturally exists when telegrams have to be re-layed (re-telegraphed ?). Moreover the pneumatic system is in many respects independant from the willingness and intelligence of the apparatus personnel and for this reason alon it should be welcomed already.

72 The necessity and the usefulness of the Viennese Pneumatic mail system has been marked and proved shortly.

In the future there will be, above all, the question to utilize the pneumatic system for an increased transportation of ordinary mail, thus improving the local mail traffic to a great degree. The possibilities which are given this way are shown by the fact that the daily average in 1932 was 17.000 pieces of mail via the pneumatic tubes, while, according to a calculation of S.R. Ing. SCHARTEL at full utilization of the system, the tubes could transport daily about 225.000 pieces of mail without any difficulties.

Only in second line should the expansion of the pneumatic system be considered, if and when the financial situation permits this at all. Here the inclusion of the P.O. Wien 141 (Floridsdorf) and a few other larger delivery offices as for instance Wien 65, 107 and others should be considered above all.

Finally the question may arise, whether it would be recommendable for Vienna, in case of a sweeping improvement of the economical situation, the construction of a modern Rapid-Pneumatic-Mail-System to be considered, similar to the rapid pneumatic mail system of Berlin, whereby all stations would be directly communicated with each other by using automatic switch-steering.

73 While in the old system the containers always have to be sent to the next station there they must be re-loaded for the next line, the modern system requires two transit transportation tubes (one tube for each direction) which connect with each other all stations of the line; the containers can pas several stations until they finally arrive in the apparatus of the destination station, into which they have arrived through a connecting tube, which has been opened for them by automatic steering of the witch. The transportation from the outgoing station to the final station thus is effectuated rapidly, all the more since the containers can be transported in very short intervals one train after the other, without the observation of any time tables, as it is done in almost all modern pneumatic systems.

Since in Vienna the pneumatic transportation of telegrams between the Telegraph Central Station and the farthest situated pneumatic station takes, at the most, only 22 minutes, including the switch-over, one really can not speak of any necessity of the construction of such rapid-lines in Vienna.

However, seen from poit of view of efficiency, it would be extremely desirable, when a normal economic situation returns again, when the ten-minutes-train traffic could be re-introduced as it existed before the war, applied for a larger number of lines, and when, simultaneously, we could return again to the former delivery system, which did not permit any temporary storing of telegrams (and express mail) that have arrived at the delivery station.