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上海電話公司
戰後電話服務問題之報告
(譯文)

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上海電話公司戰後電話服務問題之報告

(譯文)

在過去一年中上海電話公司及上海市公用局均曾陸續接獲關於電話服務一般情形之多數質詢以及個人之欲獲得消息及統計數字者之請求答覆。茲將本公司戰後所面臨若干問題之綱要及影響本市電話服務之主要因素大略說明如下。

一、何謂電話系統

電話系統之主要部份爲用戶屋內之電話機與自用交換機及將每一用戶之總電話機或交換機接至公司在本市各區所設服務局所內交換設備之個別對線。是項交換設備分自動及人工兩種，其作用係在任何兩用戶間建立話線上之連絡。上海電話公司現有自動交換所七處及人工交換所一處。

自動交換所係由特別設計之交換器、電線、電池、電力設備及其他雜項設備複雜精密配合而成。是項設備之容量應足敷供給各該區內每一用戶之個別號碼，並有充分之交換機件俾可接受撥打號數，接通主喚用戶與被喚用戶之對線，傳發鈴聲信號，建立通話電路，最後並於通話完畢時復將所有接通之線路機件重行隔斷而恢復其自由。每次通話均須分別接通並與其他同時通話線路相隔絕。如是倘在一交換所轄境內同時有一千對話在進行中，則必有一千副完全相同但相隔離之機件鏈索在使用之中。

每一用戶倘欲與他一用戶作私人談話，必須有一專用電話機，專用對線，及交換所設備中專供該戶使用之一部份，爲傳達是項談話之媒介。由此方面觀之，電話服務與水電煤氣等服務不同。蓋水電煤氣

通常均由共用管線供給，故得避免個別分接之大部份紛繁與費用。於敷設電話線網之際，含有多至三六三六條（即一八一八對）電線之巨型電纜由電話公司局所內扇形分裝以接達每一用戶。是項電纜通常係在城市街道之地下管內埋設，俾得避免架空電線之危險及架空設備擁擠之有礙觀瞻。較小支纜復自各總電纜扇形分出接達各批房屋及小數用戶之團體。此項總分電纜連同互接各交換所之總電纜統稱為屋外分布系統。

計劃交換所內交換設備之大小與數量及自交換所中出發電纜之大小及路徑係一鉅大之工程課題。概略言之，是項計劃係將每一交換所轄區中每批房屋內所可有之用戶於數年之前預為估計，並將以個別號碼給予此項可能用戶所需之交換所設備中之線數及每一用戶通常每日所欲喚打電話之次數亦預為估定。因此該交換所之最高通話量及應付是項預期同時通話次數所需之交換器件數亦得測定，而上項設計乃得完成。

上述設計之目的在使每一用戶均能於有需要或意欲喚打時打通電話。倘同時喚打之實際次數較設計者為多，則若干用戶之喚打必遭遲延，因若干機件業經完全佔用，非至一個或數個用戶通話完畢該項機件仍歸空閑後不復能供使用。此項情形之結果即為表軌聲或接線員回答之遲延。除將交換所交換設備擴充之外別無補救之法。是項設備為電話機件中最高為貴重者，其購置時需付鉅額款項。

二、估計對實現

在本文第一節中業已提及電纜及交換所機件需要數量之估計。此種估計係根據過去數字及未來商業上與社會上情勢變遷之預測。在估計電纜需要數量時，多數地區內可有之用戶數均須預為仔細測定。因

一切估計之對象均爲價值甚鉅之設備，故必須極爲謹慎從事，務使所裝設備均屬足數而並不浪費。電話服務之優良及適合需要均有賴於上述估計之精確及預定設備之依照確定程序按時裝置。倘任何地區內之可有用戶超過所預測之戶數，或者用戶之同時喚打數量較預期者爲多，或者設備之逐步發展遭受遲延，則電話服務對於供給新服務方面觀之即將成爲不適應需要，對於服務之速率及品質而言，或亦將爲不合標準。

吾人於研考上文所述各點時必先領解電話設備爲多種材料複雜製造集合裝置而成。其中最可注意者爲銅、鐵、鉛、貴金屬、合金、棉、絲、橡膠、紙及塑體。此項設備之製造必須在有特備工具之工廠內行之。在正常之金融、原料供給、勞工、船運及全世界電話材料供給競爭情形之下，每一交換所設備單位或現有設備之擴充約須歷時十五個月始能完全製成集合運到裝就。

在推測未來用戶人數及其可能同時喚打數量之際，吾人必須考慮有如下述之問題：（一）有若干人將欲依照所假定之費率取得服務？（二）每一用戶平均將打電話若干次？（三）依照最高通話量計算，繁忙時間中將有若干同時通話次數？此三問題中尙包括下列兩問題：（一）經濟及金融情形是否將有變更？（二）電話服務之成本是否將有變更？上述各問題不特影響關於可有用戶（及未來設備需要）之預測，即對於現有用戶及現用設備亦屬有關。

三、上海之電話情形

上海電話公司之政策在供給高級電話服務並備置各項便利使申請新裝電話之合理者均能如願以償不受遲延。所謂「高級」電話服務者，其意義中包括任何兩用戶之話綫均能立予接通不受可以覺察之遲

延。

目前上海之電話情形，就上述兩項目的觀之，均屬不能令人滿意，其情形如下：

(甲) 因表軌聲或接線員回答之遲慢，在若干營業時間內不能於有需要或意欲喚打之時即行打通電話。

(乙) 申請新裝電話不能照裝。

甲款所列情形之原因爲現有用戶欲圖喚打較交換所機件預定所能應付者更多之同時通話次數。

乙款所列情形之原因爲電話公司對於每一申請供給電話服務案件所必需之原素——例如電話機、電纜對線、交換所機件等——缺乏其一種或數種。在交換所機件之短缺方面，就大多數地區內之現狀言之，包含兩種情狀，即爲電話號碼之短缺及(或)機件之負載過量。此項負載過量現已存在，倘再增加新用戶，則必更爲加甚。

其他目前本市人士對於電話服務之批評當在第六節中討論之。

四、電話服務情形不能令人滿意之原因

電話用戶之使用量及可有新用戶對於電話服務之需要常與電話與其他通訊方法相較之便利性及通話費用相隨變更。上海電話公司線網之原來設計係建立於正常之人口增加及城市發展之條件上，並係依照正常經濟情形及合於現實之費率而決定。是項費率通常必須在用戶獲得服務應付費款及公司供給服務應有利潤兩方面觀之均屬公允。此種正常情形現已不復存在。因此現有用戶常圖喚打較目前設備預計所能應付者更多之同時通話次數，而新裝電話之需求亦超過於設備能力所能供給。



自民國二十六年八月中日戰事開始以來，上海之經濟與金融情形均已經過重大之變遷。由於此種經濟及金融變動而來之若干因素對於電話服務業已發生且仍在發生影響，此項因素爲：

(甲)本市人口業經鉅量增加，因此多數商店及住家均合住一屋。其結果爲原備一家商店或住家使用之電話現則供二三人以上或二三家庭或小商店共同使用。

(乙)三十六年九月份上海一般民衆日常生活必需品之平均價格較諸二十五年之基價增高達三四、四〇〇倍。在此同一時期中，即自二十五年至三十六年九月，輸入材料之價格，依照外幣計算，亦幾增加一倍。目前上海電話公司於購取同量之必需材料時必須付給加倍之外幣。同時公司尚須照章依照生活指數支付職工薪金。

(丙)在民國二十五年時營業電話通話一百五十次之月租費爲中國國幣十元。此項費率係由電話專家四人所組成之國際性團體所建議訂定。三十六年九月中是項電話免費通話一百次及額外通話五十次合計一百五十次之月租費爲國幣四五、〇〇〇元。三十六年月租費較二十五年僅增四、五〇〇倍，而在此同時期中一般生活指數則已增加達三四、四〇〇倍。此兩數字相較大小懸殊，顯見現行費率完全不符合實。因此電話費用在目前生活支出中已成爲無足輕重之一項，而三十六年七月中平均每一用戶所打電話次數遂較二十五年十二月份增多百分之六十八。

(丁)上海電話公司與世界各國多數其他電話公司同樣採用向用戶收取按次計算之費率。此項費率之用意在使電話服務與其他貨物處於相似之地位。在正常情形之下電話用戶必能依照其個人之需要及性情而限制其使用量。蓋通話費用倘具有現實性，則電話用戶必不致將其電話隨意借給多數非用戶使用。但目前上海電話每次通話費用與其他物品及服務相較實屬過於低廉不合實際，以致非用戶之使用電話及



非必要之喚打業已使按次計費辦法通常對於使用量所能發生之控制力完全喪失。是項不足敷之費率使電話服務之租用爲本市任何居民力所能勝，即經濟情形最爲艱難通常對於電話服務決屬無意申請者，現亦可享是項便利。具體言之，自民國三十六年七月一日以來，住宅電話包括免費通話六十次之月租費僅爲國幣一八、〇〇〇元，較一包紙煙之代價多出無幾。營業電話包括免費通話一百次之月租費爲國幣三〇、〇〇〇元，約合紙煙兩包之價。

(戊)上述事實可以一言蔽之。目前上海通常之電話用戶對於電話服務費用以貨幣價值計算已視爲毫無重要，故遂不事限制其使用量。其結果爲通話量負載遠過當初設計施工時所預料。同時此項低廉費率復使對於新裝電話之需求亦遠超過當初設計施工時估計之正常發展。

(己)高度喚打率及若干繁忙時間內電話使用集中之其他造成原因如下：

(一)上海之交通擁擠，使電話問訊較親身走訪易於實行。

(二)經濟及金融情形之混亂，使若干營業時間內發生鉅大之電話使用量。

上述各項非常情形均非本市電話設備計劃裝置之時所能預見或預料，此言似應認爲合理。

材料及設備之短缺復使服務效率更受影響。本公司之擴展計畫，自戰事以後，業已爲財政關係及全世界材料缺乏之故，而遭受阻礙。復興工作亦經在萬難之中勉力進行。自民國二十八年九月迄今八年之中，公司機件及交換所設備之容量，基於全非公司能力所能控制之原因，僅獲擴充約百分之十。即此擴充工程亦係在歐戰發生以迄三十年十二月之期間內舉行。該期終止之時公司財產爲日人所劫取。在此戰前之短時期內，因公司新添設備主要供給來源之比法兩國被德軍佔領之故，擴充工程亦受掣肘。至於太平洋戰事終了以後，公司訂購新設備及主要維持與復興材料之努力，復因不能十足預付現款與世界各國

其他買主競爭，而遭受嚴重阻礙。

五、維持問題

在戰前情形之下上海電話公司之正常維持標準足與美國電話電報公司及英國郵務部相媲美。此項標準之保持有賴於零件及材料之源源補充。在民國三十年十二月日人佔有公司財產之時，備用零件及維持材料之存貨足供正常運營之用。但此項存貨不久即爲日人耗用罄盡，且在日人佔據四年期內並未加以補添。在此四年中日人對於普通維持工作，例如轉動部份之加油，屋內電線及連接用戶電話機與鉛包電纜電線之更換，電池之維持與更換及其他重要例行維持工事，幾乎完全擱置未辦。

其結果爲本公司於三十四年九月收回財產之時，全部電話設備均在極可惋惜之情形中。數千具之電話機均待全部修理及更換零件。交換所設備之大部份已瀕於完全停頓之危境，其中尤以旋轉式交換器及聯動器爲甚。供給電話通話所必需之直流電力之蓄電池均已損壞達於危殆，其供電量亦遠在正常標準之下。本公司當局盡力利用其萬國電話電報公司組合公司地位上所有之優勢始獲交到若干主要零件及緊急修理所需之材料。復經公司職工殫思竭力，宵旰從事，乃始將是項緊急修理及若干損壞零件之更換工作舉辦完竣。目前本公司設備容量雖尙多欠缺，若干機件雖仍岌岌可虞，但設備效率則已恢復達於足堪滿意之程度。

爲舉辦上項緊急復興工程起見，經添僱職工二百餘人給以對於設備裝置及修理工作方面之加緊訓練。自戰事終了以來經更換之引入電線幾達二百五十萬呎，更換屋內電線達一百五十萬呎，更換電話機繩及自用交換機繩達四萬餘條，修理或更換電話話筒幾達四萬具。此外各交換所設備經予以全部檢查潔除

及一部份之刷新。是項設備中之鉅數細巧零件亦經調整或更換。在開始時期中，復經集中精力將商業區內一百五十五所重要辦公大廈中之電話纜線及電話機予以全部修理或更換。

下列材料已於戰事後訂購以供復興及維持之用：

	全部價格	
	已交部份(註)	未交部份
(甲) 電話機自用交換機等	美金 五六四、〇〇〇元	四二四、〇〇〇元
(乙) 屋外機件(電纜等)	美金 五八七、〇〇〇元	四五七、〇〇〇元
(丙) 交換所機件	美金 四七三、〇〇〇元	三一、〇〇〇元
(丁) 工具及雜項	美金 九五、〇〇〇元	二四、〇〇〇元
總計	美金一、七一九、〇〇〇元	五〇三、〇〇〇元

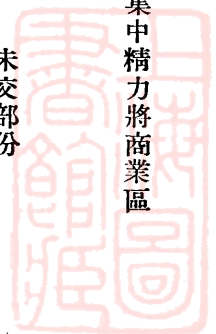
(註) 三十六年九月三十日以前交到。鑒於交到部份僅佔全部定貨約百分之三十，足見因全世界對於電話設備競爭而發生之遲延，而復興工程尚須大量舉辦亦可概見。

六、本市公衆對於電話服務之批評

除表軌聲或接線員回答之遲慢與申請新裝電話之難於裝得外，茲將公衆對於電話服務之批評予以引述，並將公司之答覆一併叙明於下：

六，一、批評：「電話分機不能裝得。」

答覆：除電話機短缺外，公司之政策在儘量減少現有話線上之增加話機，因此項增加必使現已存在之電話交換所過量負載益形加甚。



六，二、批評：「營業或住宅遷移地址時，移裝電話何以需時如此之久？」

答覆：公司已悉電話服務之賣買頗爲盛行，若干電話用戶願意將其所得服務售給他人。此項交易通常祇能在申請改動服務地點時始能發覺之。故公司對於此種申請不得不詳爲調查，有時必須經過若干時間始能調查完竣。此項手續對於真正申請遷移者及非法轉移者同樣使用，但此實爲不可避免之煩惱。依照公司規定政策，電話過戶而並不遷移地址者可准予辦理，惟過戶後六個月內不得將電話遷至他處。遷移地址而又須更換用戶者則不予准許，其目的蓋在保護先前合法申請者之優先權。

真正申請遷移而須將電話服務自一個交換區遷至另一交換區（即更改電話號碼）者，有時亦可發生遲延。其原因爲所遷入之交換區或者缺乏剩餘設備（例如電纜對線或電話號碼）。因此該用戶必須俟至有剩餘時始能接裝。此項剩餘常須俟另一用戶放棄服務時始能獲得，但申請遷移一經查明屬實，而需用之剩餘設備亦有着落，則移裝工作通常必於六日內辦畢。

六，三、批評：「用戶欲獲得電話服務，遷移電話，或修理障礙者必須付給「小費」。

答覆：公司對於若干不法之徒之活動已經聞悉。對於數次案件經查有充分證據者，並已給予嚴厲處分。但公衆對於此等違法者事實上頗多與之通同作弊，即退一步言之，亦多不願將一切希圖索取「小費」之憑證正式報告公司。公衆倘能與公司全力合作，則此項索取「小費」之活動即可迅予根除。

六，四、批評：「公司自認短缺話機，但用戶之欲自購話機裝於公司之話線上作爲分機者，輒遭拒絕」。

答覆：公司不能准許此項辦法之理由如下：

（甲）此項辦法將立即造成電話黑市，並引起多數之話機被竊案件。

(乙)此項辦法之結果將使粗劣及(或)不合標準之機件與公司話線連接，使公司之交換所機件不能妥善運行。其結果為傳音之不良及其他技術上之缺點。

(丙)有若干次用戶自行覓得話機並未經通知公司私自裝置，因私裝話線與用戶房屋內或房屋附近之電力線接觸之故，遂至發生交換所設備遭火焚燒等之貴重損壞及使細巧機件發生障礙。

六、五、批評：「喚打」○九「時接線員不肯告余所欲知之號碼並堅囑余查閱電話簿。」

答覆：此說不確。「○九」電話號碼問訊處接線員經給予訓令請詢問已列入電話簿中之號碼者查閱號簿；倘詢問者不允照辦，則仍將所詢之號碼告之。此項例行辦法之目的在鼓勵用戶使用新近印行之電話號簿，並藉此減少交換所設備之過量負載及為查答未列入號簿內號碼之「○九」服務便利之過分使用。在三十六年六月中「○九」問訊處每日所接獲之詢問約有二千次係關於已列入電話號簿中之用戶號碼，但關於未列入號簿中用戶號碼之詢問則不滿五百次。

倘電話號簿能予充分使用。則現有之過量負載情形必可大見減少，對於一切用戶均有利益。

六、六、批評：「申請新裝電話案件現經選擇辦理，並不按照申請次序。」

答覆：此事屬實。其原因為公用局按照公眾服務重要次序立表訂定優先裝置電話機關十二類。普通申請人居此表之末，祇能於無享有更高優先權之申請人等候裝置時獲得服務。

六、七、批評：「對講電話不能裝置。」

答覆：直至最近此說尚屬確實。其原因為電話機、交換設備及一端或二端有關地點電纜對線之短缺。新近合於裝置對講電話話機之缺乏業已大見減除。但交換機件及電纜設備方面之接濟則尚有待於現在途中新購材料之到達及裝置。自三十六年九月一日以來對講電話業經裝就多線。大多數應裝未裝之申請

案件可望於三十七年早期辦就。

七、目前之擴展計劃

公司已向國外訂購在中國國內所不能製造或得到之設備及材料。其數量足使其交換所設備容量增加一萬新添話線。此外另有增添一萬五千話線之交換所設備係於去年定購，但因本公司既不能施用以外幣付款之方法，復不能獲得外匯以資抵付以本市通用貨幣付給之價款，以致是項定貨祇得由確實訂定改爲無定期延擱。第一次訂購一萬話線設備之一部份現已到滬。其餘部份之交貨則須視吾人是否能獲得外匯配給以資清付貨價餘款而定。是項外匯之獲得則更有賴於能產生足數現金以資清付貨款之電話費率。本公司目前之計劃與希望在將此一萬新添話線設備於三十七年秋季內裝就使用。此項設備及其相連之電纜電線交換機電話機等運達上海岸上之代價（不包括裝置費用在內）共需現金支出美金三、三七五、〇〇〇元。配給本公司而現已匯交製造廠家之外匯約僅合此數之半。此項新添一萬話線設備將分配於本公司各自動交換所以資救濟。倘外匯能再獲配給，則本公司擬在路陸區人工交換所內亦增添一千二百話線設備。

上述一萬話線之設備擴充尙不足以應付現有擱置未辦之電話服務申請，此亦爲公司所明知。此項擱置之申請祇能俟延壓訂購之增添一萬五千話線重予復訂後始能着手辦理。縱使付款辦法能即行籌定，並假定本公司仍能保留在製造廠家交貨次序單上所佔之地位，而交貨情形亦極爲順利，此項續增之一萬五千話線亦須俟至三十八年年底或三十九年年初始能裝置完竣。

本公司之財政問題與目前中國多數其他實業機關所有者相同。在外匯購取及金融穩定正常情形之下

，公用事業公司之費率理能產生足敷收入以資抵付運營費用、生財折舊及投資之公允利潤之用。在正常情形之下，營業收入款項之指撥，必需國外購置之新籌付款方法，及股東合理利潤之匯給，均應不受拘束。但在目前則此項情形已不存在，觀於下表所列本市電話費率與美國標準城市電話費率之比較即可見之：

	標準美國 (美金)		上海費率 (國幣)		上海費率 (美金)	
	城市費率				四萬對一合	
營業電話 (包括就地通話一百次在內)	七	二五元	三〇	〇	七五元	
住宅電話 (包括就地通話六十次在內)	三	九五元	一八	〇〇〇元	〇	四五元
額外通話 (第一批)	〇	五元	三〇	〇元	〇	〇七五元

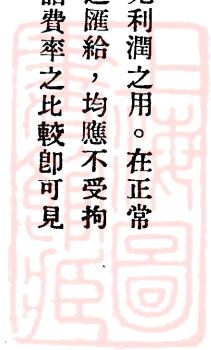
本公司依照三十六年一月一日起施行費率所收得之本年度一至八月份收入，與按照專營合約所規定應有之收入比較，相差約達美金一、四一三、〇〇〇元。截至八月底止，戰前多年運營積存未分之盈餘，經此項本年內所受虧損後，業已耗用罄盡。

自民國二十九年至今，本公司迄未派發股息，鑒於此項事實則本公司應設法吸引新資本之建議之謬，自屬顯而易見。

戰後之外匯配給及輸入管理辦法使本公司對於業務經營有條不紊之設計及施行極難辦到，或竟完全無從措手。

在吾人能吸引新資本並能勸說現有或將有之股東使肯增投資本於此項事業之前，正常情形必須復臨，而投資者對於本公司力能履行支付資金利潤義務之信心亦必先予以恢復。

此外尚有應注意者，即使此後情形能復正常，新增資本竟能獲得，上海電話公司仍將受全世界電話



設備供給缺乏之影響。在每一工廠門前現已有買主多人手持現款排隊等候。上海電話公司自亦須在此隊內排列，並在正常情形之下必須履行其他買主所能履行而且樂於履行之付款條件。

本公司現正竭其能力以圖從速減除目前電話服務之不滿意狀態。此項努力歷蒙公用及市府當局支持協助，良深銘感。但當局倘不立即採取步驟訂立使電話費率能隨時與通貨膨脹情形相適應之辦法或方式，則此項對於本市公衆有密切利害關係之公用服務之前途仍屬極爲黯淡也。

結論

於結束本文時上海電話公司欲重行申明公司關於其專營合約上載明對於上海公衆之義務有完全之認識，但此項合約對於主管政府當局亦加有確定有效之責任，其主要者爲准許公司採用能產生足敷收入俾得履行其所有債務之費率。在目前通貨膨脹情形之下，金融經濟情勢幾乎逐日變更，倘上文所述之步驟不即予採用，使公司能隨時獲得足敷之收入及足敷之外匯配給，即此目前所有之運營標準亦勢將不能維持，而服務便利之擴展則更無論矣。對此一點，公司意覺不得不鄭重聲明付諸記錄。此項結果對於本市各商業機關及全體社會均將有極重大之影響，並將使本市之經濟復興遭受嚴重之打擊焉。

中華民國三十六年九月三十日於上海

增補報告

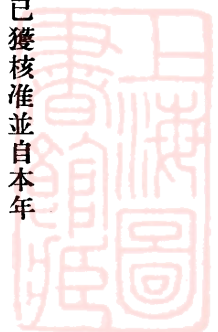
三十六年十月二十一日

一四

自前列報告寫就後本公司於本年十月二十日接奉上海市公用局通知電話費率增加已獲核准並自本年十月一日起追溯實行。此項新定價目表將住宅電話包括通話六十次之費率自每月國幣一八、〇〇〇元增至四八、〇〇〇元，營業電話包括通話一百次之費率自每月國幣三〇、〇〇〇元增至八〇、〇〇〇元。額外通話費第一批為每次國幣八〇元，第二及第三批則為每次國幣一、五〇〇元及二、二〇〇元。

是項費率使近月來本公司經濟上之嚴重情形暫時得一部份之減除。但根據過去經驗，並鑒於物價之逐月增高與通貨之繼續膨脹，此項新費率必將於若干日或若干星期之內仍成爲陳舊而完全不適用。對於此點本公司仍不能不惴惴憂懼。且在事實上此項新費率係根據於三星期以前之情形而訂定，因此即在目前已不敷產生所預期之財政效果。

基於此層原因本公司不得不將上列報告中之聲明重爲申述，其意即謂，此問題之唯一可行之根本解決辦法係將現已在考慮中之方式予以核准。此項方式對於影響工資之每月生活指數之增加，就地購取材料價格之增漲，及中國國幣對於外匯購買力之逐期變動，均能使自動發生調整費率之效果。倘經採用爲訂定費率之根據，並將估計費用依照實際費用續行調整，對於現有虧損應如何於合理期間內予以彌補，溢額收入應如何設法付還亦均加以規定後，此項方式對於用戶及公司兩方均必極爲公允。此方式之施行對於本市公衆不致給予過重負擔。在實際上，分期小數之費率增加比較相隔時期較久之大量調整對於用戶方面反屬較爲便利。而在公司方面則可藉此隨時應付其經常及緊急之財政義務。本年十月二十日公用局局長趙曾珏氏在其招待記者席上發表上述新費率時對於施行是項方式之必要會有極切當之解釋。趙氏之言曰：「任何公用事業倘無對於其投資之足敷保護及適合現實之利潤，必將不克運營，因公用事業倘無合法利潤則勢將不能獲得投資也。本市公衆對於此點理應覺悟。」



附錄 (各項統計)

甲、三十六年七月份各自動交換所之同時通話需要量

交換所	設備預計可以應付數量	記錄實有數量
中央區	八八六	一、〇七〇
西區	五四一	六三〇
北區	四七一	四七〇
匯山區	一九一	二〇〇
畢助區	三九五	四二〇
敏體尼蔭區	六〇一	六七五
福建區	六三八	七八〇

觀於上列一表可知何以在若干交換區內表軌聲之接獲頗為遲緩，其中最可注意者為一字開始號碼之中央區及九字開始號碼之福建區。在福建區中同時通話需要量較該交換所之設計容量超出百分之二十強。

乙、未經照辦之電話服務申請 (截至三十六年七月十四日為止)

交換所	總線	分機	自用交換機	對講電話接線機	對講話線	總計
中央區	一、〇九二	五三九	八九	二二	一、一三三	二、八七四
路陸區	八六四	一一〇	二	一	九	九八五



西區	二、一六九	四二一	八	一	二九	二、六二八
北區	二、七三八	一四四	三	！	二〇	二、九〇五
匯山區	一、九六七	九八	七	二	一三	二、〇八七
畢助區	一、五二二	三八三	四	！	四二	一、九五—
敏體尼蔭區	一、三九二	二八七	六	一	四一	一、七二七
福建區	一、一三四	二一八	一八	四	四六八	一、八四二
各區總計	一二、八七八	二、二〇〇	一三七	二九	一、七五五	一六、九九九

丙、話務統計

民國二十四年	一四〇・八三	九九〇・六
廿五年十二月	七〇・七七	一〇〇〇・〇
廿七年十二月	九〇・九七	一〇〇〇・〇
廿九年十二月	一一〇・四二	九三〇・三
卅一年十二月	九〇・二八	九四〇・六
卅二年十二月	一〇〇・七八	六二〇・四
卅三年十二月	九〇・八九	三七〇・八

全電話系統平均每線
每日接通電話次數

全電話系統五秒鐘內
接獲表此響百分數

說明

施行一律費率

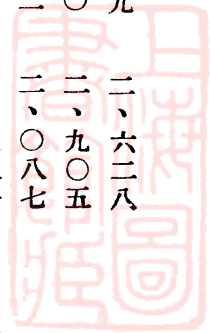
按次計費

按次計費

中日戰爭

公司被日人

估據



卅四年十二月	九・一七	八三・〇	戰後時期
卅五年十二月	一一・八四	八一・一	全上
卅六年五月	一三・〇八	七九・三	全上
卅六年六月	一三・二四	八二・六	全上
卅六年七月	一三・〇七	八六・二	全上
卅六年八月	一二・〇四	九〇・四	全上

應予注意各點：

- (一) 在卅三年十二月經日人三載之不良管理後，每線通話次數雖低，而表軌聲情形仍極為惡劣。
- (二) 觀於二十九年十二月及三十六年五六兩月之數字，可見倘用戶能減少其喚打次數約百分之二十，表軌聲之良好情形即可恢復至百分之一百。

丁、七月至九月季用戶障礙報告統計

	二十九年	三十年	三十六年
(甲) 設備上之障礙	三〇、四六五	三六、四六九	五四、三七二
營業話線障礙二小時	六三・四	五四・四	六九・六
內修好百分數	八一・三	七五・三	六五・六
住宅話線障礙四小時	三一、四六四	四二、三八二	六〇、四四二
內修好百分數	三一、四六四	四二、三八二	六〇、四四二
(乙) 非設備上之障礙	三一、四六四	四二、三八二	六〇、四四二



上列三時期內在使用中設備之相差約僅達百分之十。三十六年內在使用中之設備較三十年所有略見減少。

甲項下設備上之障礙與二十九年及三十年數字相較增高百分之七十八及百分之四十九。在三十六年中因更換零件之短缺，乃不得不採用臨時設法修理辦法，其結果遂使障礙發生更見頻繁。

乙項下之主要障礙均為過量負載之結果，例如表軌聲之遲緩或不能接獲表軌聲，及延續之話線不空等。

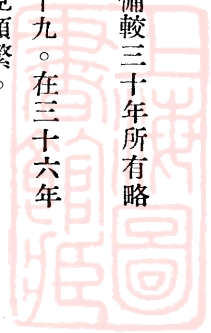
戊、七月至九月季新裝及遷移等工程統計

辦就工程件數	二十九年	三十年	三十六年
	七、六四六	四、八七七	四、一三二
六日內辦就百分數	九八・四	八八・一	九九・四

三十六年份之數字係關於申請案件之優先性及正常性適合於公司及公用局之章程及其所需設備均有著落者。

己、七月至九月季電話各部份障礙統計

電話繩	二十九年	三十年	三十六年
	三、六〇一	五、〇九五	九、二三五
話筒	九九二	一、五一七	二、八〇九



撥號盤	一、四二三	二、一六七	三、〇六九
屋內電線	二、八七〇	四、〇九二	六、八七八
用戶設備障礙總數	二〇、五〇九	二八、八八八	四〇、八六四
引入電線	一、〇四四	一、七四五	四、七三〇
屋外設備障礙總數	三、〇六五	五、七九三	八、一二二

應予注意各點：

(一) 上列三時期內在使用中設備之相差約僅達百分之十。三十六年內在使用中之設備較三十年所有略見減少。

(二) 上列數字顯示戰後電話運營上所發生之電話機、用戶房屋內電線、屋外電線等之障礙，比較公司財產被日人佔據正當維持遭受阻礙以前已大見增加。

欲將目前之障礙發生率減低至戰前程度，非將戰爭時期中所應舉辦之調整更換工作補辦完竣不可。





A REPORT
ON
POST WAR TELEPHONE PROBLEMS
OF THE
SHANGHAI TELEPHONE COMPANY

BY

CLINTON B. ALLSOPP
Vice President and General Manager
SHANGHAI TELEPHONE COMPANY
FEDERAL INC., U.S.A.

SEPTEMBER 30, 1947.



going on at the same time in a single office, 1000 identical but separate chains of apparatus are in use.

For each subscriber, an individual telephone, an individual pair of wires and an individual part of the central office equipment is necessary to establish a private telephone conversation. In this respect, telephone service differs from electricity, water and gas services. Consumers of the latter services are in general served from a common line, thereby avoiding many of the complications and cost of an individual connection. In a telephone network, large size cables carrying as many as 3636 wires (1818 pairs) fan out from Telephone Company buildings to each individual subscriber. The cables are usually laid underground in conduits under city streets to avoid overhead hazards and unsightly congestion of overhead plant. From these main cables, smaller tributary cables fan out to individual blocks and small groups of subscribers. These cables, together with the main trunk cables connecting each central office one with another, are known as the outside distribution system.

Planning the size and amount of switching equipment in a central office and planning the size and routing of cables leading out from the central office is a major engineering undertaking. Briefly, this planning is accomplished by forecasting the expected number of subscribers, for several years in advance, in each block of each central office area; by forecasting the number of lines of central office equipment necessary to give each of these potential subscribers an individual number; and lastly by forecasting the number of calls which each subscriber may normally be expected to make each day, which in turn determines peak traffic loads and the number of switches which must be provided in the central office equipment to handle the anticipated number of simultaneous conversations.

The above planning aims at making it possible for any particular subscriber to make a call at the *moment of necessity or inclination*. If the actual number of simultaneous calls is greater than has been planned for, some calls will be delayed because certain apparatus will be fully occupied and will remain so until vacated by termination of one or more of the conversations already underway. This condition results in delayed dial tone or delayed answer

by a manual operator. Relief for this condition can only be accomplished by increasing the capacity of central office switching equipment. This, the most costly item in telephone plant, requires the expenditure of large sums of money.

2. Estimates versus Realization

Reference has been made in (1) to planning and estimating cable and central office equipment requirements. These estimates are based on historical data and on forecasts of future business and social trends. In the case of cables the estimates must give careful consideration to many areas within each of which the number of potential subscribers must be forecasted. All estimates have to deal with costly plant and are, therefore, made with great care so as to ensure that plant provided will be adequate without being excessive.

It is upon the accuracy of these estimates and the installation of the planned plant according to definite time schedules that the quality and adequacy of telephone service depend. If the number of prospective subscribers in any area exceeds those forecasted, or if the subscribers make more calls simultaneously than expected, or the progressive extension of the plant is delayed, then the telephone service will be inadequate as regards furnishing new service and/or below standard as regards the speed and quality of service.

In considering the above it should be appreciated that a telephone plant is a complex fabrication, assembly and installation of many materials; notably copper, iron, lead, precious metals, alloys, cotton, silk, rubber, paper and plastics. Its fabrication can only be undertaken in a factory specially tooled for the purpose; the complete manufacture, assembly, shipment and installation of a unit of central office equipment or an extension to existing facilities takes around 15 months under *normal circumstances* of finance, supply of raw materials, labor and shipping, and world competition for supplies.

In forecasting the number of future subscribers and the number of simultaneous calls they may be expected to make, such questions are involved as: how many people will take service at a given cost, how many calls will an average subscriber make and how many simultaneous calls

may be expected in busy hours under peak traffic conditions? These questions involve other questions: will the economic and financial situation change and will the cost of providing telephone service change? It will be clear that these questions affect not only potential subscribers (and future plant requirements) but also present subscribers and plant in use.

3. Shanghai's Telephone Situation

The Shanghai Telephone Company's policy is to furnish a high grade telephone service and to provide facilities so that all reasonable applications for new telephones can be satisfied without delay. By "high grade" service is meant, amongst other things, one which will permit connections to be established between any two telephones without perceptible delay.

Today the Shanghai telephone situation is unsatisfactory on both the above counts, namely:

- (a) In certain business hours calls cannot be made at the moment of necessity or inclination owing to slow dial tone, or slow operator answer.
- (b) Applications for new service cannot be satisfied.

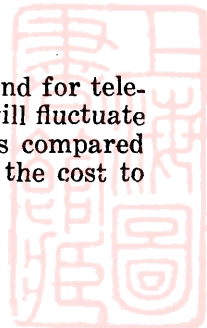
The cause of (a) is that existing subscribers are attempting to make more calls simultaneously than the central office equipment was designed to handle.

The cause of (b) is that the Company is lacking, in each particular case, one or more of the elements essential to the provision of telephone service, i.e. telephones, cable pairs, or central office equipment. In the case of central office equipment the deficiency in most districts has two features, namely, shortage of telephone numbers and/or the overload already existing which would be accentuated by the addition of new subscribers.

Other current local criticisms of telephone service are discussed under 6.

4. Reasons For Unsatisfactory Situation

Telephone usage by a subscriber and demand for telephone service from potential new subscribers will fluctuate with the convenience of using the telephone as compared with other means of communication and with the cost to



the subscriber of making a telephone call. The original planning and design of the Shanghai Telephone Company's network was predicated on normal population increase and municipal growth and on normal economic conditions and realistic rate schedules which normally establish a fair cost to the subscriber for telephone service and a fair return to the Company for service rendered. These normal conditions no longer prevail. As a result, existing subscribers are attempting to make more calls simultaneously than present equipment was designed to handle, and equipment is inadequate to meet new demands for service.

Since the start of the Sino-Japanese war in August 1937, there have been major changes in economic and financial conditions in Shanghai. A number of factors deriving from these economic and financial adjustments have affected and are still affecting telephone service, to wit:

- (a) There has been an enormous increase in the city's population. This has resulted in the doubling up of many businesses and many families with the result that two, three or several persons, families or small businesses are using telephone facilities originally intended for the use of a single business or family.
- (b) In September 1947 the general average prices of items involved in the daily living expenses of every citizen in Shanghai was 34,400 times the 1936 level. During the same period, namely 1936 to September 1947, prices for imported materials have almost doubled in terms of foreign currency. Today the Telephone Company must pay twice the amount of foreign currency to secure the same quantity of vital materials from abroad and must pay its employees on the basis of the living index in accordance with the regulations.
- (c) The monthly rental for a business telephone with 150 calls in 1936 was Ch\$10. This rate was designed and recommended by an international body of four telephone experts. In September 1947 the monthly rental for the same telephone with 100 free and 50 excess calls, a total of 150 calls, was CN\$45,000. The 1947 figure is only

4,500 times the 1936 rental whereas the general living index has increased 34,400 times during the same period. These two figures are entirely disproportionate and unrealistic. In consequence, in terms of today's living, the cost of a telephone call is so insignificant that the average telephone subscriber made 68% more calls in July 1947 than he made during December 1936.

- (d) The Shanghai Telephone Company, in common with most other telephone companies operating throughout the world, uses a measured rate schedule of charges to its subscribers. Such a schedule is intended to put telephone service on relatively the same basis as any other commodity. That is to say, a subscriber normally can be expected to regulate his telephone usage to his own personal needs and inclinations. When the cost of making a telephone call is realistic, a telephone subscriber will not loan the use of his telephone indiscriminately to a large number of non-subscribers. The cost of making a telephone call today in Shanghai, however, is so unrealistic and inexpensive by comparison with other commodities and services that *non-subscriber usage and non-essential calls* have completely defeated the control of traffic volume normally resulting from a measured rate schedule. These inadequate rates place telephone service within reach of even the most humble of our citizens, people who under normal conditions would not even consider applying for telephone service. To be specific, since July 1, 1947, the monthly rental for a residence telephone, which entitles a residence subscriber to make 60 calls before paying excess call charges, is only CN\$18,000, or little more than the price of one package of cigarettes. The business rate of CN\$30,000 with a 100 call allowance is about the price of two packages of cigarettes.
- (e) The above facts can be condensed into the statement that the average telephone subscriber in Shanghai today considers the cost of his telephone service as so insignificant in terms of money that he makes no effort to control its usage. The result is a traffic load far beyond anything

anticipated in the original engineering and planning. The same low cost factor translates into a demand for telephone service greatly exceeding the normal growth anticipated in the original engineering and planning.

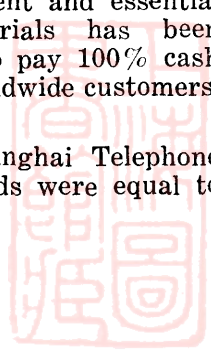
- (f) Other factors contributing to the high calling rate and the concentration of telephone usage in certain busy hours are:
- (1) The traffic congestion in Shanghai which tends to make a telephone call more practical than a personal visit.
 - (2) Upset economic and financial conditions which tend to develop enormous telephone usage during certain hours of the business day.

It seems reasonable to state that none of the above *abnormal* conditions could have been foreseen or predicted at the time the telephone plant was engineered and installed.

Material and equipment shortages have further affected service. The Company's expansion program since the war has been adversely affected by financial considerations and by worldwide material shortages. Its rehabilitation program has been carried out under extreme difficulties. Since September 1939, a period of eight years, the capacity of the Company's plant and central office equipment has been expanded by only approximately 10% for reasons completely outside the Company's control. Even this expansion took place between the outbreak of the European war and December 1941, at which time the Company's properties were taken over by the Japanese. Expansion, even during this short pre-war period, was handicapped by virtue of the fact that the German armies had occupied Belgium and France, which countries were the principal sources of supply for new equipment for this Company. Since the end of the Pacific war, the Company's efforts to place orders for new equipment and essential maintenance and rehabilitation materials has been seriously handicapped by its inability to pay 100% cash in advance in competition with other worldwide customers.

5. Maintenance Problems

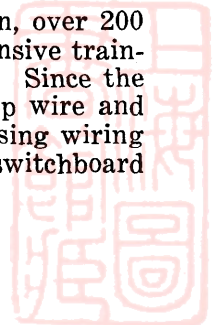
Under pre-war conditions, the Shanghai Telephone Company's normal maintenance standards were equal to



those of the American Telephone and Telegraph Company and the British Post Office. The maintenance of such standards requires a continuous flow of replacement parts and materials. In December 1941, when the Japanese took possession of the property, stocks of spare parts and maintenance materials were adequate for normal operation. These stocks, however, were rapidly dissipated by the Japanese and during the four years of Japanese occupation were not replenished. Even ordinary maintenance, such as the greasing and oiling of moving parts, the replacement of wiring connecting subscribers telephones to lead covered distributing cables, replacement of house wiring, the maintenance and replacement of batteries and other vitally necessary maintenance routines, was almost completely neglected by the Japanese for a period of four years.

The result was that when the Company recovered its properties in September 1945, it found its entire telephone plant in a deplorable physical condition. Thousands of telephone instruments were in need of complete overhaul and replacement of parts. Much of the central office equipment, especially the rotary switches and gears, was on the verge of complete breakdown. Storage batteries, which provide the direct electric current necessary to make telephone conversations, were deteriorated to the danger point and their capacity was far below normal. By using all of its influence as an associate company of the International Telephone and Telegraph Corporation, the management was able to obtain some delivery of essential parts and materials for emergency repairs. By virtue of highly commendable effort on the part of its employees and staff, who worked long hours and expended a prodigious amount of labor and exercised great ingenuity, these emergency repairs and some replacement of worn-out parts have been accomplished. Today plant efficiency (but not plant capacity) has been restored to reasonably satisfactory standards although much of the plant still remains in precarious physical condition.

To carry out this emergency rehabilitation, over 200 additional employees were hired and given intensive training in equipment installation and repair work. Since the end of the war, nearly 2½ million feet of drop wire and block wire and 1½ million feet of interior housing wiring have been replaced; over 40,000 telephone and switchboard



cords have been replaced; nearly 40,000 telephone transmitters have been repaired or replaced; a complete inspection and cleaning and a partial renovation of central office equipment has been carried out; and a vast number of adjustments and replacements of delicate parts in the central office equipment have been completed. Special effort was initially concentrated in the business district where the telephone cabling, wiring and telephone apparatus in 155 major office buildings have been completely overhauled or replaced.

The following materials have been ordered since the war for rehabilitation and maintenance:

	Total Cost	Already Delivered*	Out- standing
(a) Telephones, PBXs, etc. . .	US\$ 564,000	140,000	424,000
(b) Outside Plant (Cable, etc.)	587,000	130,000	457,000
(c) Exchange Apparatus . . .	473,000	162,000	311,000
(d) Tools and Miscellaneous . .	95,000	71,000	24,000
	<u>US\$1,719,000</u>	<u>503,000</u>	<u>1,216,000</u>

*September 30, 1947. The fact that only about 30% of the total orders have been delivered is an indication of the delays which result from worldwide competition for telephone equipment and the extensive rehabilitation work still necessary.

6. Public Criticism

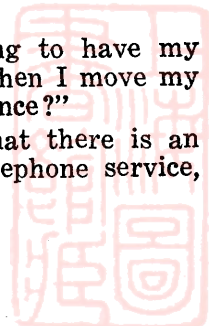
Other than criticism of delayed dial tone (or delayed operator answer) and the difficulty of securing new telephone service, the following public criticisms are quoted, together with the Company's replies:

6.1 Criticism: "Inability to secure extension telephones."

Reply: Apart from a shortage of telephone instruments the Company's policy is to minimize the addition of telephones to existing lines owing to the fact that such addition tends to increase the already existing overload on the telephone exchanges.

6.2 Criticism: "Why does it take so long to have my telephone service moved when I move my place of business or residence?"

Reply: The Company is aware that there is an extensive trafficking in telephone service,



that some subscribers are willing to sell their service to another party. Such transactions are usually only identifiable when a re-location of service is requested and on such requests the Company makes exhaustive investigations which may take some time to complete. This procedure is applied to the bona fide re-locations as well as the illegal cases, but it is an irritation which is unavoidable. It is the Company's policy to permit transfers only when no change of location is involved and on condition that the service cannot be re-located within six months. Re-locations involving a change of subscriber are not permitted, the aim being to protect the priority of previous legitimate applications. Delay may also arise when a bona fide move involves transferring the service to another exchange (i.e. a change of number); there may be no spare facilities (e.g. cable pair or number) in the new exchange area and so the subscriber has to wait until a spare becomes available. Frequently this means awaiting the relinquishment of a number by another subscriber. But once a move request has been established as bona fide, and necessary spares are available, the work is usually done within six days.

6.3 *Criticism:* "Payment of 'squeeze' is necessary to obtain telephone service, moving of telephones, or fixing of troubles."

Reply: The Company is aware of the activities of certain unprincipled persons and in several cases has secured adequate evidence and applied drastic punishment. However, it is also a fact that there is a good deal of public connivance with these miscreants or at best a great reluctance to officially report detailed evidence of "squeeze" attempts to the Company. Full cooperation between the public and the Company

could and would quickly eradicate "squeeze" activities.

6.4 *Criticism:* "The Company which confesses to a shortage of telephones will not permit a subscriber to purchase his own telephone and have it attached to a Company line as an extension."

Reply: The Company cannot permit such a practice for the following reasons:

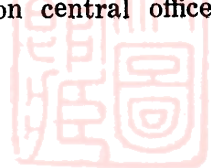
(a) It would immediately create a telephone black market and lead to extensive theft of telephone instruments.

(b) It would result in the connection of inferior and/or non-standard apparatus with which the Company's central office equipment could not operate properly. The result would be poor service due to faulty transmission and other technical failures.

(c) In some cases where subscribers have secured telephones and had them installed clandestinely, without the knowledge of the Company, very costly and serious damage, principally fires in central office equipment, and other troubles have been caused to delicate apparatus due to the illicit wiring coming into contact with electric power wires on or near the subscribers premises.

6.5 *Criticism:* "When I call '09' the operator refuses to give me the number requested and insists that I refer to the directory."

Reply: This is untrue. "09" Information operators have been instructed, when a request is received for a number listed in the directory, to ask the calling subscriber to refer to the directory. If the caller refuses, the number he requires is given to him. This routine was designed to encourage subscribers to use their directories, which were issued quite recently and so to reduce the overload on central office



equipment and on the "09" facilities. "09" is intended to inform subscribers of numbers which are not in the directory. In June 1947 about 2000 calls were received daily on "09" concerning subscribers whose present numbers are listed in the directory, whereas less than 500 were received concerning subscribers who are not in the directory.

If the fullest use was made of directories an appreciable reduction in existing overload conditions would be effected, to the benefit of all subscribers.

6.6 Criticism: "New subscribers are handled on a discriminatory basis, not related to order of application."

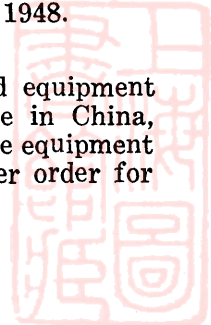
Reply: This is true. The Bureau of Public Utilities has drawn up a list of 12 priority groups, graded in order of public service importance. The ordinary applicant is last on this list and can only secure service if there is no waiting applicant of higher priority.

6.7 Criticism: "It is impossible to secure private lines."

Reply: This was true until quite recently, owing to shortage of telephones, exchange equipment and cable pairs in one or both of the locations involved. The shortage of telephones suitable for private lines has been largely relieved recently but the exchange apparatus and cable facilities relief awaits the delivery and installation of new materials (now in transit). However, many private lines have been installed since September 1, 1947, and it is expected that the majority of valid outstanding applications will be satisfied by early 1948.

7. Status of Present Plans for Expansion

The Company has on order from abroad equipment and materials, not manufactured or available in China, sufficient in quantity to increase its central office equipment capacity by 10,000 additional lines. A further order for



a second addition of 15,000 lines of central office equipment was placed last year, but has had to be changed from "firm" to an "indefinitely in abeyance" status due to our inability to arrange financing in foreign currency or obtain foreign exchange to cover financing in local currency. Part of the first 10,000 line order is already in Shanghai. Completion of delivery depends upon our ability to obtain foreign exchange allotments to cover payment of the balance. This in turn depends on rates which will yield sufficient cash to complete these payments. Present plans are, and the Company hopes to have, these 10,000 new lines installed and in service during the third quarter of 1948. The cost of this equipment (landed in Shanghai, but not installed) together with associated cables, wires, switchboards, telephones, etc., represents a total cash outlay of US\$3,375,000. Foreign exchange for only approximately half of this total has been allocated to us and remitted to the manufacturers. The 10,000 lines of new equipment will be distributed among the various central offices in order to provide some relief for all automatic exchanges. The Company is also planning, providing foreign exchange is allocated, an extension of 1,200 lines to the Lucerne manual exchange.

The Company is fully aware that the above 10,000 line expansion is insufficient to meet the existing backlog of requests for telephone service. This backlog can only be taken care of by reinstatement of our deferred order for an additional 15,000 lines. Even if the financing could be immediately arranged, the fact remains that, under the most favorable conditions of delivery and providing we could still hold our place on the manufacturers' schedule, the second 15,000 line addition could not be completed before late 1949 or early 1950.

The Company's financial problems are identical with those of many other industries in China today. Under normal conditions of foreign exchange and financial stability, utility company rates yield sufficient revenue to cover operating expenses, depreciation and a fair return on capital invested. Normally, there are no restrictions on the allocation of funds deriving from revenues or new financing for necessary purchases abroad nor for the remittance of reasonable profits to stockholders. These conditions do not prevail at the present time, as witnessed by the following rate schedules showing a comparison

between telephone rates in Shanghai with those of a typical city in the United States:

	Typical USA City	Shanghai CN\$ @ 40,000 US\$	US\$ Equivalent @ 40,000
Business telephone with 100 local messages	7.25	30,000	.75
Residence telephone with 60 local messages	3.95	18,000	.45
Extra call (first block)	.05	300	.0075

Under tariffs which have prevailed since January 1, 1947, the Company's income for the first 8 months of this year has fallen short of the amount authorized under its franchise by the equivalent of US\$1,413,000. Undistributed surplus built up over many years of pre-war operation, as of the end of August, has been entirely wiped out by these losses incurred this year.

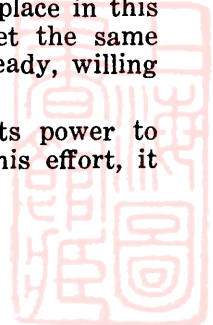
No dividends have been paid to stockholders since 1940. The fallacy of suggestions that effort should be made to attract new capital is readily apparent in the face of the above facts.

Foreign exchange allocations and import license controls since the war have made it extremely difficult and in many cases impossible for the Company to plan and carry out its operations in an orderly manner.

Before new capital can be attracted and existing or new stockholders prevailed upon to invest new money in the enterprise, normal conditions will have to return and investor confidence in the ability of the Company to service its capital obligations will have to be restored.

It must still be borne in mind that, even if conditions were normal and even if new capital could be obtained under present conditions, the Shanghai Telephone Company would still be faced with the world shortage of telephone equipment. There is a queue of buyers standing in line at every factory with cash in hand. The Shanghai Telephone Company must take its place in this line and normally must be expected to meet the same terms of payment which other buyers are ready, willing and able to meet.

The Company is doing everything in its power to hasten relief of the present situation. In this effort, it



has had gratifying support and cooperation from the Bureau of Public Utilities and the Municipal Executive. However, unless immediate steps are taken to establish some measure or formula which will keep telephone rates *constantly* in line with current inflationary trends, the future outlook for a utility service of vital importance to the community, is dim.

Conclusion

In conclusion, the Shanghai Telephone Company reaffirms that it is entirely cognizant of its obligations to the public of Shanghai as set forth in its franchise. Its franchise also imposes definitive and binding obligations on competent government authority, principally the obligation to grant the Company tariffs which will yield sufficient revenue to enable the Company to fulfill its obligations. Under present inflationary conditions, and with the financial and economic situation changing almost from day to day, the Company feels compelled to go on record to the effect that unless action along the lines mentioned above is immediately forthcoming, in a form which will continuously provide adequate revenues and adequate allocations of foreign exchange, even present operating standards cannot be maintained and further steps in the direction of expanding telephone facilities will be impossible. The repercussions on the community at large and business in particular will be far-reaching and a decisive factor in retarding economic recovery of this city.

Shanghai, China

September 30, 1947

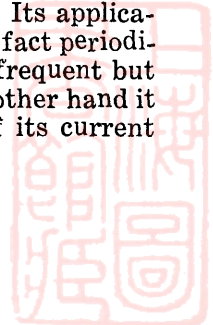


ADDENDA

Since the foregoing report was written the Company has been informed by the Bureau of Public Utilities under date of October 20, 1947, that a telephone rate increase has been approved, effective retroactively to October 1, 1947. This new schedule increases the residence rate for 60 calls from CN\$18,000 to CN\$48,000 per month and the business rate for 100 calls from CN\$30,000 to CN\$80,000 per month. Excess call charges start with CN\$800 per call in the first block and increase to CN\$1,500 and CN\$2,200 for the second and third blocks respectively.

These rates temporarily and partially alleviate the critical situation which has prevailed in recent months. The grave fear still remains, however, that, based on past experience and in the face of steadily rising costs and continuing inflation, even these new rates will become obsolete and totally inadequate in a matter of days or weeks. In fact, the new rates were based on conditions as they existed more than three weeks ago and consequently already fail to produce the anticipated financial results.

This leads to repetition of the statement made in the above report, to wit: the only practical long range solution is approval of a formula, which is already under consideration. This formula gives automatic effect to monthly increases in the High Cost of Living Index which increases labor costs, to increase in the cost of locally purchased materials and to the periodical changes in the purchasing power of CN currency in terms of foreign exchange. Applied as a rate making vehicle with subsequent adjustment of estimated to actual costs, provision for recoupment of current deficits within a reasonable period and provision for refund of any excess revenues produced, the formula under consideration will be eminently fair to both the subscribers and the company. Its application would not be burdensome to the public—in fact periodical small increases are to be preferred to less frequent but much more sizable adjustments—while on the other hand it would enable the Company to keep abreast of its current and pressing financial obligations.



This necessity for some such formula is most aptly stated by Public Utilities Commissioner T. C. Tsao in his press conference of October 20, 1947, when the above new rates were announced. Mr. Tsao said: "The public must be awakened to the fact that without adequate protection and realistic returns no utility concern will be able to function, as with the absence of legitimate profit, there will be no investment in public utilities."

Shanghai, China

October 21, 1947.



APPENDIX

Data

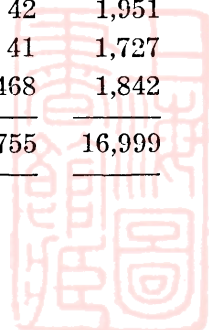
A. Simultaneous Demand (Automatic Offices), July 1947:

Exchange	No. of Calls Equip- ment Was Designed to Handle	Actual Calls Recorded
Central	886	1,070
West	541	630
North	471	470
Wayside	191	200
Pichon	395	420
Montigny	601	675
Fokien	638	780

The above table explains why in certain exchange areas, notably Central (digit 1) and Fokien (digit 9), there is considerable delay in receiving dial tone; in Fokien the demand is over 20% above the exchange's designed capacity.

B. Unsatisfied Demand for Telephone Service (as of July 14, 1947):

Exchange	Main Lines	Extensions	PBXs	Private Line Boards	Private Lines	Total
Central	1,092	539	89	21	1,133	2,874
Lucerne	864	110	2	—	9	985
West	2,169	421	8	1	29	2,628
North	2,738	144	3	—	20	2,905
Wayside	1,967	98	7	2	13	2,087
Pichon	1,522	383	4	—	42	1,951
Montigny	1,392	287	6	1	41	1,727
Fokien	1,134	218	18	4	468	1,842
	<u>12,878</u>	<u>2,200</u>	<u>137</u>	<u>29</u>	<u>1,755</u>	<u>16,999</u>



C. Traffic Data:

Year	Completed Calls per Line per Day System	Percent Dial Tone Received Within 5 Seconds System	Remarks
1935	14.83	99.6	Under Flat Rate
Dec. 1936	7.77	100.0	Measured Rate
„ 1938	9.97	100.0	„ „) Sino-Japanese
„ 1940	11.42	93.3	„ „) War
„ 1942	9.28	94.6	} Company occupied by Japanese
„ 1943	10.78	62.4	
„ 1944	9.89	37.8	
„ 1945	9.17	83.0	Post-war period
„ 1946	11.84	81.1	„ „
May 1947	13.08	79.3	„ „
June 1947	13.24	82.6	„ „
July 1947	13.07	86.2	„ „
Aug. 1947	12.04	90.4	„ „

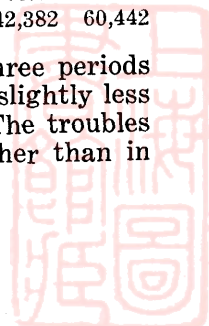
Note that:

- (1) Very bad dial tone conditions prevailed in December 1944 after 3 years of Japanese (mis)management even though the calls per line were low.
- (2) Judging from December 1940 and May/June 1947 figures the dial tone would be restored to 100% if subscribers reduced their calls by around 20%.

D. Subscribers' Trouble Reports, Quarter Year, July to September:

	1940	1941	1947
(a) Troubles due to Equipment	30,465	36,469	54,372
% Business line troubles fixed within 2 hours	63.4	54.4	69.6
% Residence line troubles fixed within 4 hours	81.3	75.3	65.6
(b) Troubles not due to Equipment	31,464	42,382	60,442

The equipment in service in the above three periods varied only by approximately 10%; there was slightly less equipment in service in 1947 than in 1941. The troubles due to equipment (a) were 49% to 78% higher than in



1940/1; in 1947 the shortage of replacement parts necessitated improvised repairs, so that the frequency of troubles was higher.

Troubles under (b) are principally reflections of overload, such as delayed or no dial tone, persistent line busy, etc.

E. Installation, Moves, etc., Quarter Year, July to September:

	1940	1941	1947
Orders completed	7,646	4,877	4,132
% completed within 6 days	98.4	88.1	99.4

The data for 1947 refers to cases satisfying the regulations of the Company and Bureau of Public Utilities as to priority and properness, and where all necessary facilities were available.

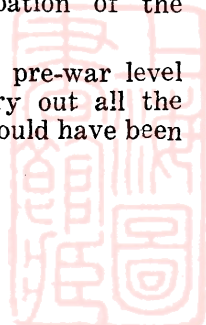
F. Faults on Certain Components, Quarter Year, July to September:

	1940	1941	1947
Telephone Cords	3,601	5,095	9,235
" Transmitters	992	1,517	2,809
" Dials	1,423	2,167	3,069
" House Wiring	2,870	4,092	6,878
Total Subscribers Equipment Troubles	20,509	28,888	40,864
Drop and Block Wire	1,044	1,745	4,730
Total Outside Plant Troubles	3,065	5,793	8,122

Note that:

- (1) The equipment in service in the above three periods varied only by approximately 10%. There was slightly less equipment in service in 1947 than in 1941.
- (2) The above figures demonstrate the much greater incidence of troubles on telephones, wiring inside subscribers' premises, block wiring, etc., in post-war operation than was the case prior to the interruption of proper maintenance by the occupation of the Company's properties by the Japanese.

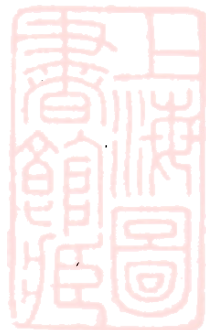
To reduce the trouble incidence to the pre-war level it will be necessary, in effect, to carry out all the adjustments and replacements which should have been effected during the war years.



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A REPORT
ON
POST WAR TELEPHONE PROBLEMS
OF THE
SHANGHAI TELEPHONE COMPANY



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SHANGHAI TELEPHONE COMPANY
FEDERAL INC., U.S.A.

SEPTEMBER 30, 1947.



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