

1: HD TELEVISION, LLC - Address, Director information

This chapter recounts the experiences of John Logie Baird in his development of television. The chapter focuses on the story of Colonel Ian Anderson, a partner in the firm of Vowler and Company, a speculator who was persuaded to take interest in television.

Through that date Ms. Younger will assist in transitioning to the new structure and will be available to provide counsel to the management team. In commenting on Ms. For plus years, I have had the privilege of touching every aspect of the television business, and now seems the appropriate time to start the next chapter and explore some new avenues. The appointment is effective immediately. In this new role, Mr. In commenting on his announcement, Ms. He is a consummate professional, a fantastic dealmaker and a great manager. He will also be in charge of U. In this position, Mr. Preschlack will continue to report to Mr. Pyne and will work closely with Mr. Bratches on all ESPN-related affiliate matters. He is the ideal person to take over and lead the distribution efforts for our portfolio of U. Prior to this announcement, Mr. In this capacity, he directed all affiliate distribution, affiliate relations, affiliate marketing and local ad sales for the U. He also oversaw U. Pyne served from as Senior Vice President, Affiliate Sales and Marketing for Disney-ABC Cable Networks Group, overseeing all cable and satellite distribution, local ad sales and affiliate marketing for the four basic cable networks within the Group: Under his guidance, Disney Channel transitioned from a pay cable service to an expanded basic service growing from 6. He was also Orchestra Manager of the New Jersey Symphony from , just prior to attending Business School, and has experience with other nonprofit associations prior to that. Maintaining a strong interest in music, Mr. Pyne continues to play the classical guitar. He currently resides in New York City with his wife and two sons. Biographical material for Laurie Younger: Younger has chief responsibility for domestic and international distribution of the far-reaching portfolio of creative content produced by The Walt Disney Company. This includes films, television series, made-for-TV movies, miniseries, TV animation and direct-to videos and their distribution to all platforms, including the burgeoning video-on-demand VOD and broadband markets. In this position Ms. Younger was responsible for Business Affairs and Administration for the entire Disney Television and Telecommunications division, including TV network, TV animation, international and domestic syndication, Disney Channel, home video and the interactive unit. Prior to joining Disney, Ms. A native New Yorker, Ms. She is based in Burbank, CA. Biographical material on David Preschlack: He currently resides in Southport, CT with his wife and three young children. DIS worldwide entertainment and news television properties. DIS and produces and distributes motion pictures under the following banners: Walt Disney Studios Home Entertainment distributes Disney and other film titles to the rental and sell-through home entertainment markets worldwide. Disney Theatrical Productions is one of the largest producers of Broadway musicals, and the Disney Music Group distributes original music and motion picture soundtracks under its four record labels: The Walt Disney Company, together with its subsidiaries and affiliates, is a leading diversified international family entertainment and media enterprise with four business segments:

2: Tele | Define Tele at www.enganchecubano.com

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Two musical selections, the reading of a poem, and a short talk apparently constituted the program, which was heard by ship wireless operators within a radius of several hundred miles. Following the relaxation of military restrictions on radio at the conclusion of World War I, many experimental radio stations—often equipped with homemade apparatus—were operated by amateurs. The range of such broadcasts was only a few miles, and the receiving apparatus necessary to hear them was mostly in the hands of other experimenters, who, like the broadcasters, pursued radio as a hobby. Among the leading personalities of this early period was David Sarnoff, later of the Radio Corporation of America and the National Broadcasting Company, who first, in 1916, envisaged the possibility of a radio receiver in every home. Growth of commercial radio From this beginning the evolution of broadcasting was rapid; many persons who wanted to hear music from the air soon created a demand for receivers that were suitable for operation by the layman. The increase in the number of listeners in turn justified the establishment of stations especially for the purpose of broadcasting entertainment and information programs. The success of the KDKA broadcast and of the musical programs that were initiated thereafter motivated others to install similar stations; a total of eight were operating in the United States by the end of 1919. The popularity of these early stations created two possible sources of financial support to offset the operating costs of broadcasting. First, there were possibilities for profit in the manufacture and sale of radio receiving equipment, and, second, the fame attained by the organizations operating the first broadcasting stations called attention to the value of broadcasting as an advertising medium. Advertising eventually became the principal means of support for broadcasting in the United States. Between 1919 and the sale of radio receiving sets and of component parts for use in home construction of such sets began a boom that was followed immediately by a large increase in the number of transmitting stations. Interconnection of stations The use of long-distance wire telephone lines in 1921 to connect a radio station in New York City with one in Chicago to broadcast a description of a gridiron football game introduced a new idea into radiobroadcasting. In 1922 the National Broadcasting Company purchased WEAJ in New York and, using it as the originating station, established a permanent network of radio stations to which it distributed daily programs. Some of these programs were sponsored by advertisers and furnished revenue to both the network and its associated stations, while others were supported by the network, with a portion of the time being set aside for public-service features. Government regulation Although the growth of radiobroadcasting in the United States was spectacularly swift, in the early years it also proved to be chaotic, unplanned, and unregulated. Furthermore, business arrangements that were being made between the leading manufacturers of radio equipment and the leading broadcasters seemed to threaten monopoly. Congress responded by passing the Radio Act of 1927, which, although directed primarily against monopoly, also set up the agency that is now called the Federal Communications Commission FCC to allocate wavelengths to broadcasters. The first initiatives after World War I were taken by commercial firms that regarded broadcasting primarily as a means of point-to-point communication. The first successful broadcasting of the human voice, from a transmitter in Ireland across the Atlantic in 1901, led to the erection of a six-kilowatt transmitter at Chelmsford, Essex. From this spot two daily half-hour programs of speech and music, including a well-received broadcast by the opera singer Dame Nellie Melba, were broadcast for about a year between 1901 and 1902. Experimental broadcasts, the Post Office ruled, had to be individually authorized. Nevertheless, about 4,000 receiving-set licenses and amateur transmitting licenses issued by the Post Office by March 1902 were evidence of growing interest. When these amateurs, grouped into 63 societies with a total of about 3,000 members, petitioned for regular broadcasts, their request was granted in a limited form: The first of these authorized broadcasts, from a hut at Writtle, close to Chelmsford, took place on Feb. 1902. Shortly thereafter an experimental station was authorized at Marconi House in London, and its first program went on the air May 11, 1902. Other stations were soon to follow. Formation of the British Broadcasting

Company By this time developments in the United States had demonstrated the commercial possibilities of radio but also suggested a need for greater order and control. The Post Office took the initiative in encouraging cooperation between manufacturers, and on Oct. Only bona fide manufacturers were permitted to hold shares, and the directors of the firm, all of whom represented manufacturing interests, met under an independent chairman. Because the British Broadcasting Company was a monopoly and because British radio as a result developed in a more orderly manner than elsewhere, such problems and issues of broadcasting as control of finance, broadcasting of controversy, relations with government, network organization, and public-service broadcasting became apparent, and solutions were sought in the United Kingdom earlier than elsewhere. In , upon recommendation of a parliamentary committee, the company was liquidated and replaced by a public corporation, the British Broadcasting Corporation BBC , answerable ultimately to Parliament but with day-to-day control left to the judgment of the Board of Governors appointed on the basis of their standing and experience and not representing any sectional interests. A key figure, the chief executive of the original company and director general of the corporation, was John Reith later Lord Reith , whose concept of public-service broadcasting prevailed in Britain and influenced broadcasting in many other countries. The BBC experimented with local radio in the late s and expanded the number of local stations in the early s. In the ITA became the Independent Broadcasting Authority IBA , which assumed responsibility for establishing and regulating independent radio and television stations. Regional and network production companies are appointed by the IBA; the companies sell advertising time, but advertisers are not allowed to sponsor programs. Radio developments in other countries Even before the pioneer station in Pittsburgh commenced operations, regular broadcasts began from The Hague, running from November until In Canada the first regular broadcasts from Montreal began in , while in Australia a small station in Melbourne opened in , though the official start occurred in Sydney in In New Zealand several low-powered stations were operating in , though the Radio Broadcasting Company was not founded until In Denmark experimental amateur stations went on the air in , and the official State Broadcasting System was instituted in France began regular transmissions from the Eiffel Tower in , and the first Soviet station commenced broadcasts from Moscow in the same year. By the end of there also were radio stations established in Belgium, Czechoslovakia, Germany, and Spain. The list of countries lengthened rapidly, with Finland and Italy beginning broadcasts in and Norway, Poland, Mexico, and Japan in In most of these countries, the problem of control arose. In some countries private enterprise was given free rein, subject to licensing by a government department or agency and to agreement upon the wavelengths or frequencies to be used. In others there was closer control e. In Canada and France, state and private enterprise operated side by side. Private stations were well established in Canada, for example, before the Canadian Broadcasting Commission was formed in In France the Administration of Posts and Telegraphs handled early broadcasts; although a state monopoly was declared in and state broadcasting remained a department of the Administration of Posts and Telegraphs until World War II , some private stations were granted licenses, including Radio Normandy, which broadcast to the United Kingdom. Some of these private commercial stations continued operation, broadcasting under government control until , when their licenses were withdrawn and radio became a complete state monopoly, independent of the Administration of Posts and Telegraphs but answerable to the government. In Germany the Ministry of Posts controlled and owned all technical equipment, while private companies started programs in various cities. Soon the Reich Broadcasting Company acquired controlling interests in these companies; in all were nationalized. International conferences The wavelength problems that created so much confusion in the United States and provided a strong argument for monopoly in Britain also arose internationally, particularly in Europe, where the concentration of heavily populated and technologically advanced sovereign nations compelled international agreement. Telegraphy had led to an early conference in Paris in that created what later became the International Telecommunications Union. This event was followed by the Berlin conference of to discuss international telephone communications, two further conferences in Berlin in and on radiotelegraph, and still another in London in to cover the whole field of radio communications. An informal conference of 10 countries held in London in created the Union Internationale de Radiophonie. The union was based in Geneva, with a BBC representative as president and another as secretary-general, and was the first

international broadcasting organization. The use of wavelengths, copyright problems, and international program exchanges inevitably were discussed, and a plan was drawn up. Agreement on wavelength allocation, implemented in November, was based on a formula involving area, population, and the extent of telephone and telegraph traffic. In spite of its dominating position, the BBC, which had been using 20 medium wavelengths, emerged with 1 long wavelength, 10 medium wavelengths, and 5 further medium wavelengths shared with others but below the Post Office limit range for broadcasting of between 1 megahertz and kilohertz and metres. Long waves range from 30 to kilohertz, medium waves from kilohertz to three megahertz, and shortwaves from 3 to 30 megahertz. All of the more advanced participating countries which had risen to Austria, Belgium, Czechoslovakia, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom had to make some sacrifices, and some, such as the United Kingdom, had to persuade their post offices to agree to the use of wavelengths outside the broadcasting range, but the principle of international agreement had been established. The Washington Conference of widened the area of cooperation in respect to radiotelegraph, broadcasting, and the international allocation of wavelengths, or frequencies. It was followed by the Madrid Conference of, which codified the rules and established the official international frequency list. This agreement stabilized the situation until World War II, after which the European scene was substantially changed, and a conference in Copenhagen in reallocated frequencies in the European Broadcasting Area. A conference in Buenos Aires in prepared the text of the International Telecommunications Convention. The text was revised at Geneva in, where radio regulations were also revised. Geneva also was the site of the conference for the allocation of frequency bands for space and Earth-space communications. International organizations The International Telecommunications Union, created in, has worldwide membership. In it became a specialized agency of the United Nations. Apart from the International Telecommunications Union, a number of organizations have been established, primarily on a regional basis, since World War II. When tensions between the East and West made the Union Internationale de Radiophonie almost unworkable, a strong organization, the European Broadcasting Union, was created by the countries of western Europe in, with its administrative headquarters in Geneva. It has a membership of more than 30 nations that includes not only all nations of western Europe but also others such as Algeria, Israel, Jordan, Lebanon, Morocco, Tunisia, and Turkey. In addition, it has more than 40 associate members, including the United States and most Commonwealth and former French colonial countries, as well as Japan and several Latin American countries. A parallel organization, the International Radio and Television Organization, was created in to serve nearly all communist countries excluding Yugoslavia and allies of the communist bloc. The Asia-Pacific Broadcasting Union, which was formally established in as a union of national broadcasting organizations in Asia and the Pacific, includes Japan, Australia, New Zealand, and the Philippines, as well as Iran, Turkey, Egypt, and most of the noncommunist countries of Asia; its headquarters are in Kuala Lumpur, Malay. The union is based in Dakar, Seneg. The Arab States Broadcasting Union was formed in as an intergovernmental organization within the framework of the Arab League; the secretariat is in Cairo, and the technical centre is located in Khartoum, Sudan. Its central office is in Montevideo, Uru. The Commonwealth Broadcasting Association, established in as a standing association of national public-service broadcasting organizations in the independent countries of the Commonwealth, bases its secretariat in London. The North American National Broadcasters Association, with its headquarters in Ottawa, began as an ad hoc group in and became a formal organization in. Its members are Canada, Mexico, and the United States. The International Broadcasting Society was formed in to improve the information flow between Third World and advanced countries and to foster cooperation between developing countries. Its headquarters are in Seoul. The International Broadcast Institute, created in as a nonprofit and nongovernmental association supported by charitable foundations, with headquarters in London, fosters a free flow of communications for informational, cultural, and educational purposes. Radio Free Europe, based in Munich and financed by U. Television broadcasting Early developments Through a series of technical developments in Great Britain, Europe, the Soviet Union, and the United States, television reached a state of technical feasibility by. In that year a research group was established in Britain under Isaac later Sir Isaac Shoenberg, an inventor with vast experience in radio transmission in the Soviet Union. He fostered the

evolution of a complete and practical television-broadcast system based on a camera tube known as the Emitron and an improved cathode-ray tube for the receiver. Shoenberg saw the need to establish a system that would endure for many years, since any subsequent changes in basic standards could give rise to severe technical and economic problems. He therefore proposed a system that, though ambitious for its day, was fully justified by subsequent events. So adequate were they that they formed the sole basis of the British service until , when they gradually were superseded by the European continental standard of lines. The first notable outside broadcast by the BBC was the procession of the coronation of King George VI from Hyde Park Corner in November ; a portable transmitter mounted on a special vehicle made its first public appearance. Several thousand viewers saw the transmission. Television developments were slower in the United States. The Columbia Broadcasting System and the Dumont network began telecasting in and , respectively. By mid there were 23 television stations in the United States. World War II, however, brought nearly all activity to an end as electronics factories were converted to wartime production. The Federal Communications Commission had authorized only limited commercial operation the first sponsored television broadcasts began in , and gradually stations closed down; only six were left with limited programs to serve the owners of about 10, sets.

3: "The Long Distance Con" on New Yorker Radio Hour may be your new podca

*Sir Edward Manville (formerly Mosely, 27 September , Paddington - 17 March , London)
www.enganchecubano.comE.E., was a British consulting electrical engineer, industrialist and politician.*

History[edit] Site of one end of the first US long-distance telephone call in Cambridge, Massachusetts. Another early call between cities had been made in Canada by telephone inventor Alexander Graham Bell. Users often did not use their own phone for such connections, but made an appointment to use a special long-distance telephone booth or "silence cabinet" equipped with 4-wire telephones and other advanced technology. The invention of loading coils extended the range to Denver in , again reaching a technological limit. A major research venture and contest led to the development of the audion "originally invented by Lee De Forest and greatly improved by others in the years between and "which provided the means for telephone signals to reach from coast to coast. Such transcontinental calling was made possible in but was not showcased until early , as a promotion for the upcoming Panama-Pacific International Exposition in San Francisco in the spring of the same year. Watson at Grant Avenue in San Francisco. This process, nevertheless, involved five intermediary telephone operators and took 23 minutes to connect by manually patching in the route of the call. It was the first wire conversation ever held. Bell, the veteran inventor of the telephone, was in New York, and Mr. Watson, his former associate, was on the other side of the continent. They heard each other much more distinctly than they did in their first talk thirty-eight years ago. Thus, when TAT-1 was opened for service, it was connected to international gateway offices at White Plains, NY and London that were already automated for domestic calls. These were designed to be able to automatically switch outward and inward international circuits as soon as common signalling standards and political considerations could be negotiated. However, at the outset, to set up an international call, multiple operators were required: International Direct Dialling from London to Paris was first offered in March , with Amsterdam following by the end of Simultaneously, operator-dialed transatlantic calling began March 30, with the originating international operator in Western Europe or the USA able to complete calls to the terminal station without further operator assistance via the gateway exchanges at White Plains, NY and London. A Zenith number in the late s required an operator manually determine the destination number from a printed list; the Wide Area Telephone Service introduced the first automated toll-free telephone numbers , terminated on special fixed-rate trunks. This smart network was further refined to provide toll-free number portability in the s. Technical Issues Until the early s a called party could instantly recognize an incoming long-distance call by its hiss or low level, due to the inherent signal loss and introduction of noise. The deployment of digital technologies such as pulse-code modulation and T-carrier circuits in the s and s let long-distance calls match the high voice quality of local calls. Using the Internet , the distinction between local and long-distance communication is fading to the point where an Internet call from the United States to Beijing carries a lower wholesale cost than a domestic landline call to a rural independent in small-town Iowa. In media[edit] Dramatization of a long distance call circa In this excerpt from the radio series *Dragnet* , Sgt. Joe Friday Jack Webb places a person-to-person long-distance call to a number reached via a manual switchboard in Fountain Green , Utah " a town of several hundred people served by an independent telephone company. In the call, Friday calls a long-distance operator in Los Angeles and gives the name and number of the called party. The Fountain Green operator rings the number, "14R2", a party line where a specific ringing pattern summons the second subscriber on the shared line. A man answers; the Los Angeles operator asks for the called party and states that Los Angeles is calling. This dramatization and others like it illustrates the cumbersome, costly and time-consuming process needed for long-distance calling before direct distance dialing was available. Local calls within the Los Angeles area had long been direct dial, but a long distance call to a tiny town in a distant state was a complex manual effort. Before the era of operator assisted dialing, which began in the late s, an operator would first set up the route, then ring back the original caller several minutes later to announce the call was ready, rather than having him or her remain on the line. Once operator distance dialing was implemented, the operator would have received a numerical routing from the rate and route operator, such as

"Mark: Operators plus plus. Routings were important during the s and s, when many medium-sized and smaller cities had automatic service, but were not yet reachable by the growing numbers of people in cities with direct dialing. For example, if by the late s, our fictional "Fountain Green" had upgraded its manual service with an automatic dial enabled four-digit number one, an operator could often dial the call after obtaining the Rate and Route would quote "Numbers plus plus 4D. The operator could add , to the local four digit number, which in a few years, would become the seven digit number for the residents. Regional variations[edit] The definition of "local" or "long distance" calling and the corresponding pricing is largely a regulatory construct, by which every point outside an arbitrary group of exchange boundaries is charged at a higher "trunk call" or "toll call" rate. Canada[edit] In Canada , local calls from landline telephones are flat-rated even in the largest cities unlike the United States , which has metered service in a few of the largest markets. Long distance calling from landlines was opened to competition in the early s and the use of long distance revenue to subsidise local service phased out a few years later. It is not possible for mobile telephone subscribers or coin-paid telephone users to select a default carrier, so long distance calls are often priced higher from these services. The use of prepaid telephone calling cards is a possible workaround. United Kingdom[edit] The regulatory structure in British Telecom exchanges differs from the North American system as there are no free local calls. A long-distance call is therefore known not as a "toll call" but as a trunk call. It traditionally carried a higher rate "national rate" instead of "local rate" and requires a trunk prefix and area code be dialled before the number. It is now normal for local calls to cost the same as long distance UK calls, and is now common, for a small extra monthly charge, to allow free calls to landlines within the UK. This free call allowance does not normally cover calls to the Isle of Man or the Channel Islands , which whilst confusingly having UK national dialling codes, are separate telephone administrations. International calling from the UK is deregulated in that many alternative providers allow very cheap international calling by the caller dialling an access code, usually beginning with the digit 1, followed by the full international code. These services generally use internet-based connections in the same way as computer-based services such as Skype , Friend Caller and many others, but with the added convenience of there being no need to use a computer. It is this use of the internet for the calls which allows such low prices. Often these same services are available from a mobile phone by the use of a special access number, though in this case there may be a charge equivalent to that of a standard landline call. United States[edit] The US regulatory structure splits long-distance calls into two major categories. An intrastate call is regulated under state law. Federal regulation applies to interstate calls being interstate commerce. The breakup of the Bell system in came with federally imposed rules to allow the Baby Bells and other long-distance providers to compete via "equal access. Various feature groups were used where equal access is available to allow callers to select a long-distance carrier for each call. Area code , rarely used, is reserved for carrier-specific services; each carrier places a recorded self-identification message on to allow a subscriber to identify the default InterLATA carrier for their line. In the United States, long-distance is either of two different classes of calls that are not local calls. The most common class of long-distance is often called interstate long-distance, though the more accurate term is inter-LATA interstate long-distance. This is the form of long-distance most commonly meant by the term, and the one for which long-distance carriers are usually chosen by telephone customers. Another form of long-distance, increasingly relevant to more U. While technically and legally long-distance, this calling area is not necessarily served by the same carrier used for "regular" long-distance, or may be provided at different rates. In some cases, customer confusion occurs as, due to rate or carrier distinctions, a local long-distance call can be billed at a higher per-minute rate than interstate long-distance calls, despite being a shorter distance. Plans may be "unlimited" or may package an initial number of minutes and charge additional minutes at a flat rate, and further varieties abound. Some plans can be compared easily if the number of minutes of usage will be estimated in advance, but others are not as clearly comparable. Some of these plans can be found on websites that compare a variety of long-distance phone and phone card options, giving consumers useful and timely information.

4: Telecommunications Virtual Museum

Application to provide public long distance telephone service: before the Canadian Radio-Television and Telecommunications Commission between Unitel Communications Inc., applicant and Bell Canada, British Columbia Telephone Company, The Island Telephone Company Limited, Maritime Telegraph & Telephone Company, Limited, The New Brunswick Telephone Company, Limited, and Newfoundland Telephone.

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5: Broadcasting | www.enganchecubano.com

On April 7, 1925, AT&T (Bell Telephone Company) held the first public demonstration of long-distance television transmission. Reporters watched as a TV image of Secretary of Commerce Herbert.

Come to think of it, some of these things still do happen when making calls out of the country any country ; echoes and bad phone lines do still exist, but just not as frequently. But, amazingly, we can pretty much count on just being able to pick up the phone, dial a number, and speak to someone across the world as if they were in the room with us. How is this possible? The Basics Long distance calls work similarly to regular calls, and for an overview of phone calling in general, please refer to How Phones Work. Again, though, the principal is the same. Back in the early days of telephony, any call you made had to be routed through a human operator at the central office. This was true of any call, even to your neighbors. If you wanted to make a long distance call say, at that time, to the next city or town , the operator would connect to a special long distance office through a special line, where an operator would connect your call to the long distance office of the city you were trying to reach. The operator in that city would connect you with the exchange for the person you were trying to reach, and, finally, an operator would connect your ever-extending line to your friend on the other end. Your initial operator on your end might do all the legwork while you waited or went off to do something else; she would ring you when your call was ready to be completed. When mechanical switches began to be used, first the local operator and then the whole system was replaced by switches and, eventually, computers. For more on how mechanical phone switches operate, see How Phones Work. Then an inventor named Michael I. Of course, one line did not a long distance infrastructure make, but over time long distance wires were strung all over the country. Wires Over the Ocean? Given that you could make longer and longer calls distance-wise , the next obvious expansion to phone service was not merely transcontinental, but transatlantic. Another option was to try to bury all the wires under the ocean, laying a cable all the way from the US to England, but in the early 20th century this was unfeasible for technological reasons. In addition, creating and laying such cable would have been extremely expensive. Creating the first transatlantic radio-telephone service! First you would change your voice sound waves into electricity, as in a normal phone. Then this electricity would be converted into a radio wave, just like those used by radio stations but on a different frequency, and the radio wave broadcast to a receiver. The receiver would reverse the process, taking the radio wave and converting it back into electricity, after which it would be sent down the phone lines to the person on the other end. Exactly how a radio transmitter works, and the history of radio, is beyond the scope of this article, and more information can be found in the LINKS section below. At its most basic, however, what happens is that the varying electrical current carrying your voice is encoded by the radio transmitter onto a sine wave operating at a certain frequency. This sine wave is broadcast into the air. Your voice information on the sine wave is then decoded and changed back into electrical current. Once that was up and running, however, the service spread rapidly throughout North America and Europe. Over the Short Waves The technology was also susceptible to interruptions and bad reception due to atmospheric and solar disturbances. Finally, in the s enough technological advance had occurred to improve long distance significantly. One such advance was to use microwaves instead of the longer radio frequency waves used in earlier radio-telephony. Microwaves are much shorter in wavelength, which offers several advantages. First and foremost is that microwaves are more easily packed into a tight beam for transmission, and thus can travel further with less loss of information. Second, microwave transmission takes less power than a comparable longer-frequency transmission. And Under the Long Waves As wonderful as it was to have microwave relays all over the US, it did nothing for intercontinental communications. Any direct line of sight is going to have problems with the curvature of the earth at long distances, even if our planet were as smooth as a billiard ball see diagram. This was solved on land by placing the towers relatively close together. In the s and s this changed, as new technologies such as the transistor and improvements to vacuum tubes and insulation allowed submerged repeaters to become feasible. Of course, two great feats were required here: It is a long story, and you can read the whole thing at www. For our purposes, however, we can skip ahead three years to the successful completion of the cable in

Over Our Heads So basically there are two ways in which long distance phone calls work. First, they can be routed entirely over land and under sea, entirely by wires and cables. And second, they can be routed through the air, which up to the early s meant radio and microwave. The airways were less effective for really long-distance calls, though, because of the curving-earth problem. Besides somehow making the earth flat, there was one other way to solve the problem: And as there was no conveniently stratospherically high mountain on which to mount such a tower, the solution was the satellite. The length of time between the first satellite, the Soviet Sputnik in , and the launch of the first commercially-sponsored telecommunications satellite, Telstar I in , was incredibly brief, a product of the Cold War between the US and the USSR. Now not only could international telephone calls be routed entirely through the air, but television programs could be sent as well. As a side note, the first truly commercial telecom satellite was Early Bird, later renamed Intelsat 1, launched in . In effect, a communications satellite acts just like a relay tower, switching and relaying and amplifying calls from an extremely advantaged position. A signal beam from the ground carries the radio waves to the satellite, which then beams the beam back to a ground receiver station that then sends the various calls and bits of other information on their way to their destinations. Alternatively, the first satellite can send the signal to another satellite orbiting over another part of the world, and it can then send the information to the ground or to yet another satellite or, even, to a ship in space or to another planet. The sky, in other words, is not the limit. Kennedy signed the Communications Satellite Act, creating a new corporation called Comsat the Communications Satellite Corporation , which then controlled satellite communications and development. By , the entire world could be linked by satellites put into orbit by Intelsat. In fact, even the Internet runs through these communications channels. Links Science Main -- The entrance to the Science wing. Timeline -- An overview of telephone and related history. How Phones Work -- How exactly does your voice change into electricity and fly across the wires to its destination? We explore that, and the invention of the telephone, in this section. How Cordless and Cell Phones Work -- Wires are all well and good, but modern phones use the air to do their work. But how, and what does radio have to do with it? A Time before Phones -- All this talk about phones, but they were only invented in the s. How did people communicate before that? And what inventions lead up to the telephone? Nope, it really was Alexander Graham Bell, but it took years for the courts to decide. References Long distance technologies cover a lot of territory, and so we have a wide-ranging list of references for this article:

6: Enhanced Communications Group - Products - Long Distance Phone Service

For Business. Staying connected is crucial for every business. With NATCO's business communication services, you can connect with the customer down the street or the supplier around the globe.

7: Home Phone Service - Long Distance & International Calling | RCN Boston

Long Distance usage subject to posted rates, tariff terms and conditions. Charges for direct-dialed domestic long distance calls will vary depending on usage and/or calling plan, subject to posted rates, tariffs terms and conditions.

8: Long-distance calling - Wikipedia

Welcome to the UKs Largest Company Formation & Company Registration Agents with over 25 years experience. As part of one of the longest established and largest UK company registration agents, Company Formations specialises in providing company formation, administration and information services.

9: Unlimited Long Distance Calling Across Canada, United States, And The World

In telecommunications, a long-distance call (U.S.) or trunk call (U.K.) is a telephone call made to a location outside a defined local calling area. Long-distance calls are typically charged a higher billing rate than local calls.

National early years learning framework Spirits, fairies, gnomes, and goblins The Prophetess of the Land of No-smoke Norwegian Dictionary Fruits Basket Ultimate Edition Volume 2 (Fruits Basket Ultimate Edition) An Act to Amend Title I of the Employee Retirement Income Security Act of 1974 to Clarify Treatment of In Becoming the Lotus Sample handling and trace analysis of pollutants Henrik Wergeland. Leadership and Entrepreneurship: Personal and Organizational Development in Entrepreneurial Ventures (Ent Final report of the Select Committee to Study Governmental Operations with Respect to Intelligence Activi Songs of a Sentimental Bloke Stanley Baxters bedside book of Glasgow humour Habakkuk Victor H. Matthews. How to Tune Up Your Life: Minor Tuneup, Major Tuneup, Complete Overhaul Richard H. Parham. Qualitative research for nursing practice Beth Rodgers The gold standard illusion Contemporary business 16th edition Good Manners for Girls Boys What rough beast Damon Knight Collaborative product design and manufacturing methodologies and applications Open Source Software for Os/390 Unix Employee retention strategies journal Robert j wieland books Addendum to Holt-Bennett family history Brief Review in Global Studies Illustrated history of World War I in the air My Pop-Up Book of Shapes Harpers bible dictionary Human evolution timeline graphic Hyrule warriors prima strategy guide Bilingual Concordance to the Targum of the Prophets The European Union and Britain: Debating the Challenges Ahead Bar, stage and platform Aleks Users Guide Assisting newcomers in exercising their gifts Morning light piano sheet music Gaming ideologies and playing utopias. Philosophy of Psychology (Critical Assessments of Contemporary Psychology)