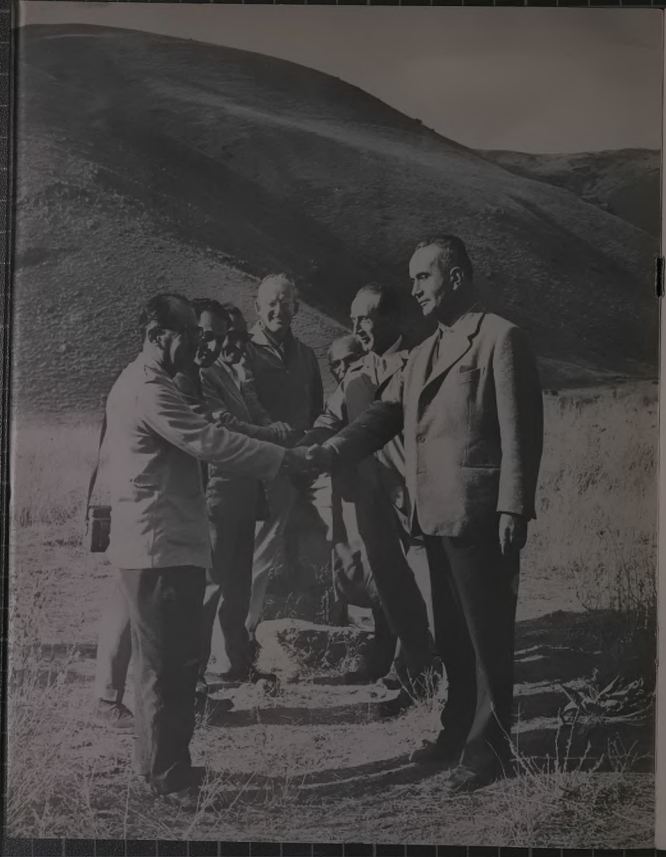
PROGRESS THROUGH CENTO COMMUNICATIONS



Hands across the frontier:
Officials from CENTO countries
meet along the route of
a CENTO communications project
at a stone marker
at the Turkish-Iranian border.

THE STORY OF THE LINKING OF THE CENTO COUNTRIES WITH IMPROVED COMMUNICATIONS

From its earliest days CENTO has fully recognised the great need of constructing an integrated pattern of communications — railways, roads, ports, telecommunications and air navigational aids throughout the CENTO countries of Iran, Pakistan and Turkey.

Today, with this dream being realized, a complete and modern system of communications is unfolding across the CENTO region making it possible to plan on great improvements in foreign trade as well as inter-regional commerce. Increased agricultural production and further exploitation of mineral resources will be among the dividends. Cheap and efficient lines of communications will also mean easier travel, netting valuable foreign currencies, better educational opportunities and greater understanding among the peoples of the regional countries and their neighbours.

Perhaps more important than anything else, the regional members of CENTO will have created this entity largely through mutual cooperation and self-help, providing a larger framework of opportunity upon which future generations can build.

The task is an enormous one!

Further funds must be obtained in order to continue the effort; larger numbers of engineers and skilled technicians are needed to chart projects in even greater detail; in the end, modern machinery and the age-old labourer's brawn must pull together to complete this Herculean endeavour. As CENTO's plans materialise, the region's peoples, in their quest for a fuller life, turn ever more hopefully to a better tomorrow.

CENTO communications projects necessitate great planning including inspection trips by officials and technicians through the rugged terrain in which many of the projects must be constructed.

INDEX

Surveying CENTO projects is a difficult task in the mountainous terrain of the region.

ROADS:

FIRST LINE OF COMMUNICATION

Roads, the first line of communication, are relatively numerous in the CENTO region. However, a continuous, all year, all weather road system linking the regional countries, providing a first class intra-regional road from Turkey, in the West, to Pakistan in the East, remains largely in the planning stage. Several important CENTO road projects are currently under construction and provide a significant beginning to the long range plan.

TURKEY-IRAN

During the winter months, it is nearly impossible to travel by road from Turkey to Iran through the present northern route because of heavy snowfalls on rough roads.

A CENTO road project, now well under way in both Turkey and Iran, is the construction of an all weather, year round highway connecting the two countries.

The plan routes the new CENTO road, some fifty miles south of Lake Van, starting at Şivelan and linking other road development projects in Turkey which start at Cizre and terminate at Şivelan.

Turkish highway authorities, with mechanical road building equipment provided by the United States at a cost of $1,340,000, hope to complete the new road, to CENTO standards, as far as Yuksekova before the end of 1961. The construction equipment will then be utilized in building the road as far as the Turkish/Iranian border town of Bajirge. On the Iranian side, a mechanical road building unit valued at £100,000 supplied by the United Kingdom, through CENTO, is being used to construct and improve the road from the Turkish border towards Iran. The United Kingdom has now made a second contribution of £100,000 and is purchasing more machinery to help hasten the building of the Iranian section.

Iranian contractors are busy with other portions of the road which will eventually link the main Iranian trunk road system at Zenjan — midway between Tehran and Tabriz. With funds made available by the Iranian Plan Organization the Bijar-Zenjan section has been completed whilst the Bijar-Sakkiz section is under construction.

This new CENTO road will then join up with the road connections already existing from the starting point at Şivelan either to the Turkish Black Sea Port of Trabzon or the Mediterranean Port of Iskenderun. From Şivelan also it will then be possible to cross Turkey to Istanbul and in turn to Europe.

Grading machines pulled by tractors prepare a hair-pin curve on a steep section of a CENTO road project.

TURKEY

To provide an access road from Cizre in southeastern Turkey through Hakkari to Şivelan the Turkish Government have initiated construction work from both ends. Much of the route for twenty five miles eastward crosses mountains and progress is slow. This road link is, however, very important since from Cizre there are good roads to the Mediterranean port of Iskenderun, to the Black Sea port of Trabzon or directly across Turkey to the Bosphorus.

CENTO is providing the technical assistance funds required to train regional road construction officials in latest techniques of road building and handling of modern equipment. M. A. Mir (right), Pakistani official working on construction of the CENTO Pakistan-Iran coastal road, at a Turkish State Road Building Machinery Repair Shop in Ankara during his CENTO-sponsored training.

Modern equipment provided by CENTO for its road projects makes it possible to perform engineering feats in areas previously inaccessible.

IRAN-PAKISTAN

CENTRAL

An integral part of the CENTO plan to link the regional countries by roads is a project extending the Iranian road network from Kerman through Bam to Zahedan, thence across West Pakistan to Quetta. The proposed road from there will run almost due south to Karachi.

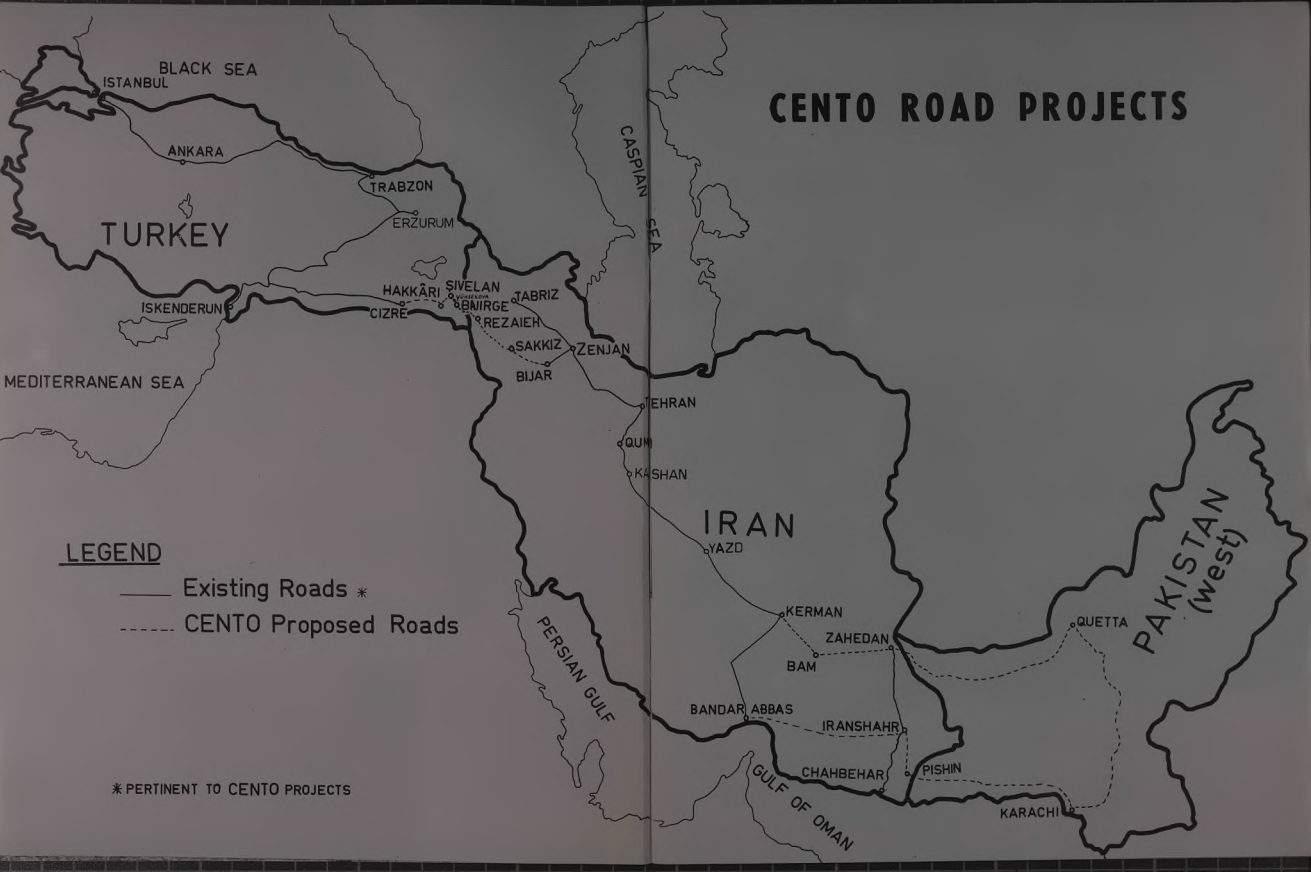
Completion of this project would allow complete road intercommunication between all parts of West Pakistan across Iran and Turkey. There is no doubt that both internal and external trade of the region would greatly benefit from this. Isolated areas would be put «on the map» and many new types of industry would, at long last, be able to function once the communication barrier is hurdled.

The Iranian Government are taking action on the final road alignment between Kerman and Zahedan where they have constructed a road equipment repair shop already partially equipped with machinery to maintain and improve the section.

The Government of Pakistan in their second Five Year Plan have allocated local currency for this project to the value of $5,000,000 in rupees.

Under a separate bilateral agreement with the Government of the United States $594,000 has been provided to Pakistan for machinery and technical assistance. Work is in progress in varying stages on the 435 mile stretch between Quetta and Karachi. Pakistan is actively exploring every avenue to obtain assistance amounting to $4,600,000 which they estimate is needed to complete the Pakistan side of the project.

While CENTO has provided much modern heavy equipment, a great deal of the construction work for CENTO road projects is also dependent on manual labour and simple portable machinery.


CENTO ROAD PROJECTS
BLACK SEA
ISTANBUL
ANKARA
TRABZON
ERZURUM
TURKEY
CASPIAN SEA
HAKKÂRI
SIVELAN
BAZARGE
TABRIZ
ISKENDERUN
CIZRE
REZAIEH
SAKKIZ
ZENJAN
BIJAR
MEDITERRANEAN SEA
TEHRAN
QUM
KASHAN
IRAN
YAZD
KERMAN
ZAHEDAN
BAM
QUETTA
PAKISTAN (west)
PERSIAN GULF
BANDAR ABBAS
IRANSHAHR
CHAHBEHAR
PISHIN
GULF OF OMAN
KARACHI
LEGEND
Existing Roads *
CENTO Proposed Roads
* PERTINENT TO CENTO PROJECTS

SOUTHERN

Another CENTO road project entails building a road from Karachi in Pakistan to Pishin on the Pakistan/Iranian border. From there the road is planned up to Iranshahr across to join the road system at Bandar Abbas on the Iranian coast.

On the southern coast of Pakistan, a desolate, inaccessible region, there are many underground streams which could transform the barren land into a flourishing agricultural community. If the area could be made approachable through proper communications, much needed supplies of available fish could also be sent to the big centres of population. Geological strata also indicates the presence of minerals which could undoubtedly be mined if communications were available.

The Government of Pakistan have completed the survey of their portion of the proposed road and have prepared detailed estimates and plans for the entire section within Pakistani territory.

A sum of 10,000,000 rupees (over $2,100,000) has been allotted to the project in Pakistan's second Five Year Plan.

With equipment worth £200,000 provided by the United Kingdom, sixty miles of service road westward from Karachi have been constructed and the United Kingdom has offered a further £100,000 of equipment to assist road development by the Government of Pakistan. The total amount of foreign exchange required by the Government of Pakistan for the completion of their portion of the project is £4,020,000. From the map it will be seen that this road would provide a second link to Iran and thus to Turkey.

A local inhabitant stands beside a signboard marking the Karachi to Quetta road. The second CENTO road, also from Karachi, will run due west along the coast of the Arabian Sea.

In addition to modern machinery, teams of labourers are required to build the many tunnels in the mountainous areas through which much of the CENTO railway must pass.

RAILWAYS:

VITAL TO DEVELOPMENT

The vital role of the railway in the development of modern nations is historical fact. It is understandable therefore that the first joint project, to be approved by the First Session of the CENTO Economic Committee in 1956, was that of a link between existing railways in Iran and Turkey. This was only the beginning of a vision that will some day culminate into a railway chain across the region linking, in steel, the continents of Europe and Asia.

TURKEY-IRAN

The distance from Muş in Turkey, the present eastward terminus of the Turkish railway system, to Sharafkhaneh, the present westward terminus of the Iranian railway system, is only 235 miles. The isolated land between, however probably constitutes one of the most difficult areas of the world for railway construction. In the path of CENTO's proposed railway link within this relatively short distance lies the largest lake in Turkey, Lake Van. To the north and south of the lake are towering mountains that necessitate a crossing of the lake, a distance of about fifty miles, by train ferry. These obstacles, with the great expense and time-consuming effort needed to overcome them, are minor compared to benefits which a link between the railways could bring to the two countries and ultimately to Pakistan.

In Turkey, agricultural and mining development are at present retarded through lack of communications. The population of eastern Turkey is mainly employed in agriculture. This area produces only a small proportion of the agricultural products of which it is capable mainly because it has no means of distributing any surplus to other portions of the country and abroad. Furthermore, the area is potentially capable of supporting a far larger population than it does at present. It is known that there are rich mineral deposits in the same area but exploitation also suffers from lack of adequate communications.

On the Iranian side, development of agriculture and mining too are hampered by lack of communication facilities. Iranian Azerbaijan, the chief industrial region of Iran, relies almost solely upon the lengthy road and railway connection to Khorramshahr on the Persian Gulf.

On the CENTO Railway Map it can be clearly seen that the new railway would provide Iran with direct access to the Turkish railway system and in turn to Europe.

The total time of goods in

Railway terminals are the centre of great activity in the CENTO region. This is a typical station scene photographed at Sivas in central Turkey.

transit would be cut from about six weeks to less than one.

Other projects later described are directly tied in with the Turkey-Iran project, showing how Iran can use Turkey's eastern ports. Time and expense in shipping Iranian exports to Europe through the Persian Gulf, Arabian Sea and Suez Canal and thence to the Mediterranean would be drastically reduced.

The United Kingdom Government through CENTO have given the Turkish Government £100,000 worth of equipment to help in the earliest stages of the construction and work on the railway is proceeding at both ends. In 1960 the United States Development Loan Fund granted a loan to Turkey of $6,000,000 for the extension of the Turkish portion of the link, from Muş to Tatvan, a distance of sixty-five miles. The Turkish Government has reported that the route from Van to the Iranian border has been surveyed and the railway alignment plotted.

Asisted by a grant of $1,964,000 from the United States, the Iranian authorities are constructing from Sharafkhaneh towards the Turkish border. Iran has also made an application to the Development Loan Fund for a loan of $17,000,000 to complete their portion of the link.

From Tatvan, on the shore of Lake Van in eastern Turkey, a train ferry will traverse the lake for approximately fifty miles, providing a link across water for the CENTO railway.

CENTO RAILWAY PROJECTS

* Pertinent to CENTO Projects

Modern machinery is put to work in the CENTO region building the CENTO railway during the construction months from March to November.

IRAN-PAKISTAN

The Iranian railway (extending in the direction of Pakistan) is constructed as far as Kashan, almost due south of the Iranian capital of Tehran. Miles away, to the east, the Pakistan railway stops at the border town of Zahedan. The second CENTO railway project is aimed at the linking of these two systems. The distances are great and the railway will have to skirt the great Persian desert — over 800 miles in length and 200 miles in width.

The project will be economically beneficial for several reasons. It will provide quick access for exports from Iran to Pakistan and vice versa and, in joining up with the Turkey-Iran link, will provide complete rail communication throughout the regional countries. This would mean an alternative method of transit trade for Pakistan to Turkey and the west, apart from the sea route, via Karachi.

Already progress is being made in surveying the route and the alignment of part of this has been determined.

Some idea of the magnitude of the project may be gained from the estimate of cost — a requirement of $50,000,000 in foreign exchange and $75,000,000 in Iranian Rials. An assessment of the project notes that it can be completed within five years upon the availability of the required funds.

The «end of the line» for the Turkish portion of the Turkey-Iran railway is in a grain field near the city of Muş in the eastern part of the country.

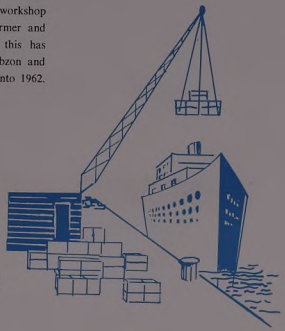
A partial view of the Turkish port of Trabzon on the Black Sea where port facilities are under further development through CENTO assistance.

The CENTO regional countries of Iran, Pakistan and Turkey play a major role in world trade. Foremost in their efforts to meet the challenges and opportunities of this increasingly competitive lifeline of their economic existence is the improvement and further development of their ports.

CENTO's efforts to assist in this endeavour have begun in eastern Turkey where the two chief ports are Trabzon in the north on the Black Sea and Iskenderun in the south on the Mediterranean. Both these ports are very busy and barely able to handle existing traffic. With the steady improvement of regional communication the capacity of both ports will need to be greatly increased.

PORTS:

FOR CHALLENGES AND OPPORTUNITIES



TRABZON

In response to a request from Turkey, the United Kingdom are supplying handling equipment for Trabzon to the value of £183,000. The equipment includes cranes of various capacities, forklift trucks, tractors and trailers, workshop equipment and transformer and switching gear. Part of this has already arrived in Trabzon and deliveries will continue into 1962.

ISKENDERUN

The CENTO project to develop the port of Iskenderun is not yet under way. The traffic through this Mediterranean port in the last few years has been growing and the Turkish Government have prepared plans and specifications for the extension of port facilities there. Details of the project are yet to be made public pending completion of further studies. The importance of the project will come more into focus when the Turkey-Iran road projects in Eastern Turkey are nearer completion. The cost of the project has been estimated at $40,760,000.

TELECOMMUNICATIONS:

TO COPE WITH RISING TRADE

Concurrently with the CENTO road, rail and port projects as means of coping with anticipated increased trade is the provision for improved telephone, telegraph and teletype communications throughout the region.

CENTO has two such projects under implementation. The purpose of the first is to improve high frequency telecommunications between the regional capitals and London and the outside world in general. This project is being financed by the United Kingdom. The second project of a modern microwave telecommunications link across the whole of the CENTO region is mainly financed by the United States.

HIGH FREQUENCY LINK

Following a general survey of the area in 1958, discussions took place between British technicians and individual Governments to establish their requirements. A firm of British consulting engineers was engaged to supervise the execution of the project. Contracts for the supply of equipment were placed with the Marconi Wireless Telegraph Company in the United Kingdom.

Installation of the sites in Turkey and Iran was carried out by Marconi engineers working in close cooperation with Turkish and Iranian Postal, Telephone and Telegraph engineers and technicians.

Planned in two stages, Stage ONE of the project was officially opened in June 1961, at which time inaugural ceremonies were held simultaneously in London, Ankara and Tehran.

The first stage consists of the installation of the main transmitting and receiving stations in Turkey and Iran providing parallel teleprinter and radio telephone circuits to London. During the course of Stage ONE, Turkish and Iranian radio technicians were trained in the United Kingdom in the use of Marconi equipment.

Stage TWO of the project in Turkey will provide high frequency transmitters and receivers to link the Istanbul city terminal with the receiving and transmitting stations (instead of the overland cables used at present) and various items of additional equipment for the Ankara installations. Stage TWO of the project in Iran will provide an extension from Tehran to Khorramshahr.

The Pakistan Government decided to participate in the High Frequency Link project somewhat later than the Turkish and Iranian Governments. The Pakistan part of the project is therefore less advanced. The Stage ONE equipment is being delivered to Pakistan in the course of the current financial year. In Pakistan the project provides for equipment and installations at Karachi, Rawalpindi and Dacca.

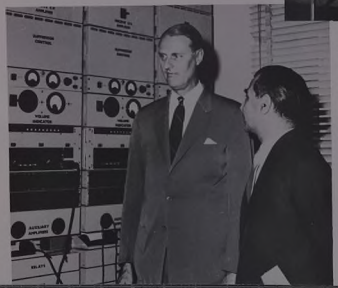
The United Kingdom Government are spending some £350,000 on Stage ONE of the project in all three countries and some £300,000 on Stage TWO.

A radio tower near Ankara is visible proof of improved communications between Western Europe and the Middle East made possible through CENTO efforts.

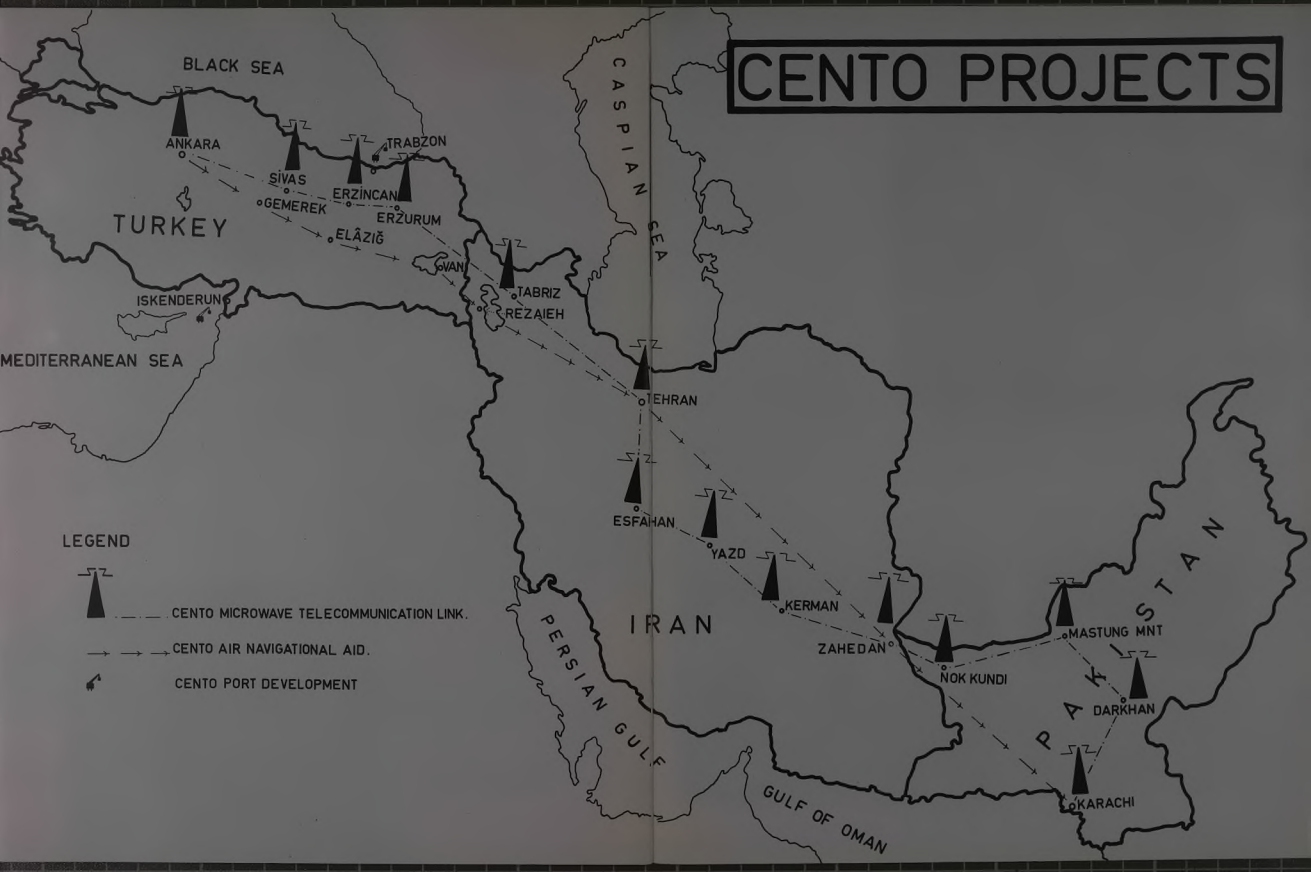
The first call from London, during the CENTO radio link inaugural ceremonies, was made by the British Assistant Postmaster General Miss Mervyn Pike (centre). Also at the table listening to the conversation are (left to right) Mr. M. Varsighy, Iranian Embassy in London; Mr. J. B. Godber, Joint Parliamentary Under-Secretary of State at the British Foreign Office; Sir Ferguson Crawford, former Head of the British Middle East Development Division and M. L. G. Jones, U. S. Embassy in London.

Simultaneous inaugural ceremonies were held in London, Ankara and Tehran on June 20, 1961, to mark the occasion of the official handing over of high frequency radio telecommunications equipment linking London with Tehran-Istanbul and Ankara. A three-cornered exchange of messages was held by the Ministers and officials concerned with implementing this CENTO project.

With the flags of the five CENTO countries in the background, Mr. Orhan Mersinli, the Turkish Minister of Communications, initiates the first call direct to London from Ankara during CENTO telecommunications inaugural ceremonies June 20, 1961.



Shown during inaugural ceremonies in Tehran as they await messages from London and Ankara over CENTO telecommunications equipment in the Post, Telegraph and Telephone building are Sir Geoffrey Harrison, United Kingdom Ambassador to Iran and Mr. Hooshang Samii, Iranian Minister of Post, Telegraph and Telephone.


CENTO PROJECTS
BLACK SEA
CASPIAN SEA
ANKARA
SIVAS
TRABZON
ERZINCAN
GEMEREK
ERZURUM
ELÂZIĞ
TURKEY
VAN
TABRIZ
REZAIEH
ISKENDERUN
MEDITERRANEAN SEA
TEHRAN
ESFAHAN
YAZD
KERMAN
ZAHEDAN
IRAN
PERSIAN GULF
GULF OF OMAN
NOK KUNDI
MASTUNG MNT
DARKHAN
KARACHI
PAKISTAN
LEGEND
CENTO MICROWAVE TELECOMMUNICATION LINK.
CENTO AIR NAVIGATIONAL AID.
CENTO PORT DEVELOPMENT

On September 29, 1961, the final phase in implementing the CENTO Microwave Telecommunications link was put in motion by the signing in Washington of a contract for $16,490,000 between the United States Government and the Radio Corporation of America.

Signers and witnesses to the telecommunications contract are (seated, left to right): Douglas C. Lynch of RCA, and D. A. Fitzgerald of ICA; (standing): John McDonald, Jr., U.S. Economic Coordinator for CENTO Affairs, Halil Bengi of Turkey, Parvis Farkhondar of Iran, and Al-haj A. Hamid of Pakistan.

Shown inspecting the pens used in signing the telecommunications contract are (left to right): Ambassador Ardeshir Zahedi of Iran; Ambassador Aziz Ahmed of Pakistan; Douglas C. Lynch, signer for the Radio Corporation of America, and D. A. Fitzgerald who signed for the United States Government.

Shown signing the Microwave Telecommunications contract which calls for the construction of a 3,000-mile telecommunications network linking the CENTO countries of Iran, Turkey and Pakistan are (left to right): Douglas C. Lynch, vice president of the Radio Corporation of America, and D. A. Fitzgerald of the U.S. International Cooperation Administration.

Prototype relay stations for the CENTO microwave project have been constructed in each of the CENTO regional countries. Construction is shown underway on the first relay station near Tehran. The radar-equipped air survey aircraft is flying over the site.

MICROWAVE LINK

One hundred and thirteen relay stations stretching over a distance of 3,060 miles — an average distance of twenty seven miles apart — are planned to span the CENTO regional countries of Iran, Pakistan and Turkey, providing an ultra modern microwave telecommunications link. It will be the longest single network of this type in the world.

The equipment will provide multi-channels for both voice and radio teletype transmission. The design is such that, as traffic expands, additional channels can be added. The project is based on a 600 channels radio frequency capacity.

The relay stations will nearly all be «robot» and will only occasionally require human attention. At about every eighth station there will be a control centre where electronic equipment will automatically register any fault at any of the robot relay stations. By means of special connections, the link is planned to tie in with existing telephone and telegraph offices in each of the three regional countries.

Funds committed by the regional governments total more than the equivalent of $8,670,000 in local currencies. The United States is contributing an additional $18,370,000.

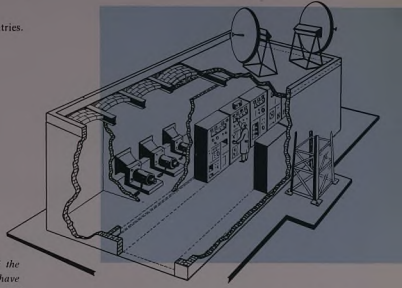
In itself, the survey for the link constituted a world's record for distance flown on an aerial survey of this type. It had been estimated that to survey the region by land for the link would have taken nearly five years. By using the latest methods in aerial radar profiling, the survey time was cut to less than a year.

With the route agreed and the positions of the relay stations plotted, regional governments have gone ahead with purchasing land for the sites of buildings and installations and preparing access roads. A contract for $16,490,000 was signed in September of 1961 between the U.S. Government and the Radio Corporation of America.

Arrangements have been made, in a carefully phased plan, for special courses of instruction in the operation of the equipment for technicians from the three regional countries.

Each of the 113 relay stations, along the route of the CENTO Microwave telecommunications project, have been selected by aerial radar so that the dish-shaped antennas mounted on towers are directly in line of sight with each other.

Signals received are amplified by electronic equipment and relayed to the next station nearly thirty miles away, at the speed of light. Messages will go from Ankara to Karachi in a fraction of a second.



An artist's impression of a typical relay station shows the diesel engines which drive electrical generators supplying power needed to operate the electrical equipment. Dish-shaped microwave antennas, mounted on a tower, receive and transmit the radio signals.

Turkish students of Georgetown University's Intensive English Programme in Ankara during a briefing by a CENTO official on the microwave telecommunications system. The table model depicts the sites for the relay stations in the Lake Van area of Turkey.

CENTO AIR NAVIGATIONAL AID:

A LOGICAL OUTCOME

Known as the CENTO Airway between Ankara, Tehran and Karachi, this project is the logical outcome of long needed navigational aid for modern high speed commercial aircraft traversing the CENTO region. The air route over the CENTO region countries contains a great deal of hazardous mountain country. At present there is little direct voice communication with the ground to guide aircraft over difficult terrain except in and around the capitals of the three CENTO countries.

Iran, Pakistan and Turkey are all improving their air navigational aids within their own borders. Up to the time of the adoption of the CENTO project, however, no programme existed to improve ground to air communications over the international routes between the three countries. Increased use of high speed jet aircraft and the fact that all three CENTO capitals are on the international jet airway routes emphasizes the need for a modern, positive and controlled system.

Following a meeting of aviation experts from Iran, Pakistan, Turkey and the United States to explore the feasibility of such a project, a survey report was prepared recommending joint financing. This was approved by the United States and contract agreements were signed between the United States and the three regional countries. An amount of $1,500,000 was obligated by the United States for equipment during the fiscal year 1960/61.

The project is planned so that the previously described Microwave Telecommunications system will serve as the main axis of communications. Approximately thirteen «radio beacon» stations across the region will supply directional guidance to aircraft. Through a further thirteen radio telephone receiving and transmitting stations aircraft will be able to communicate with the traffic control centres at Ankara-Tehran-Karachi and vice versa. Radar for precise approach and departure control of aircraft will allow maximum safety in operations at airports located at Ankara, Tehran and Karachi.

Meanwhile the United Kingdom has agreed to provide the meteorological and meteorological telecommunications support equipment required for the Airway. The meteorological requirements have been broken down into priorities or stages and the United Kingdom is supplying the Priority I equipment to the three regional countries in the course of 1961 at a total cost of £135,000. The United Kingdom is also training meteorologists in the use of the equipment.

Three Turkish meteorological students prepare to release a weather balloon during a CENTO-sponsored course in the United Kingdom under the supervision of a British Senior Scientific Assistant (right).

When the weather balloon is released meteorological information is radioed back to a computor that records data. The three Turkish technicians are shown working with the computor during their CENTO course at the Camborne Weather Station in the United Kingdom.

Following training in England, CENTO regional meteorological technicians return home equipped to operate air navigation aid equipment provided through CENTO.

CENTRAL TREATY ORGANIZATION
PUBLIC RELATIONS DIVISION
ESKI MECLIS, ANKARA, TURKEY

61 · 198 · 699