



### TAPESTRY **PROGRESS**

COVER: Treads of a heavy-duty grader form a geometric pattern as work progresses on a CENTO rail-way terminal site at Tatvan, Turkey.



TRAND by strand, the regional countries of CENTO the Central Treaty Organization - are weaving a vital tapestry of modern communications between their nations.

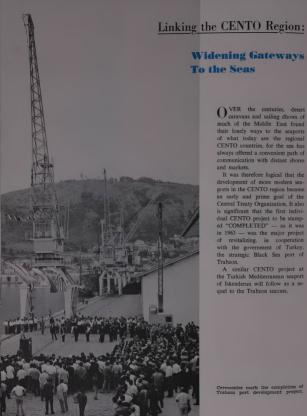
This booklet constitutes a progress report on that complex project - a project that promises a myriad of benefits not only to the peoples of Iran, Pakistan and Turkey but also to the international travellers of today's shrinking globe.

It is a project whose long-range goal is the closer interlinking of the historic countries of Iran, Pakistan and Turkey through the development of new or improved:

- Seaports
- Highways Railroads
- Telecommunications Systems
- · Air Navigational Aids

The object of such a mammoth development programme is clear: hand in hand with improved communications can go not only economic but also cultural benefits including closer understanding between neighbours.

It is true that much remains to be done. But strand by strand the tapestry grows, Steadily and surely, the CENTO regional countries through self-help, mutual cooperation and the assistance of their supporting Western partners in CEN-TO - are weaving a pattern of communications destined to serve countless generations to come.



### Widening Gateways To the Seas

VER the centuries, desert Ucaravans and sailing dhows of much of the Middle East found their lonely ways to the seaports of what today are the regional CENTO countries, for the sea has always offered a convenient nath of communication with distant shores and markets.

It was therefore logical that the development of more modern seaports in the CENTO region became an early and prime goal of the Central Treaty Organization. It also is significant that the first individual CENTO project to be stamped "COMPLETED" - as it was in 1963 - was the major project of revitalizing, in cooperation with the government of Turkey, the strategic Black Sea port of Trabzon.

A similar CENTO project at the Turkish Mediterranean seaport of Iskenderun will follow as a sequel to the Trabzon success.

Ceremonies mark the completion of Trabzon port development project.

### TRARZON: **Revitalized Port**

Trabzon, the historic Black Sea port of Turkey, offered CENTO an ideal pilot project. Since ancient times a terminal point for an old caravan route from the East, it now was to become a railhead and a highway focal point for CENTO's new or rebuilt overland routes from Iran and Pakistan.

CENTO and the Turkish and United Kingdom governments cooperated in a port development project. For its part, Turkey further enlarged the harbour. The United Kingdom, working within the



Fork lifts such as this facilitate cargo movement at Trabzon.

ling equipment valued at the ster-

framework of CENTO, donated and

installed a wide range of port hand-

ling equivalent of \$512,400.

Cranes of various capacities, forklift trucks, tractors, trailers and workshop equipment - combined with the harbour extension - increased Trabzon's cargo handling capacity to over a million tons a vear.

In July, 1963, at ceremonies attended by ranking diplomats, government officials, the Secretary General of CENTO and other dignitaries, the Trabzon port development project was formally declared completed.

The second step, now already being taken, is similar development of the port of Iskenderun, on Turkey's Mediterranean coast. As with Trabzon, transit trade at Iskenderun is expected to increase sharply.

The development and enlargement of Iskenderun port will be phased over a four-year period during which the United Kingdom has agreed to provide port handling equipment valued at the sterling equivalent of \$1,260,000.

CENTO Secretary General Dr. A.A. Khalathary speaking





### Asphalt Conveyor Belts Bridge Ancient Lands

C OLOURFUL and glamourous in fiction, tedious, dusty and wearisome in reality, camel caravan trails have linked the CENTO regional countries — Iran, Pakistan and Turkey — since ancient times.

By offering an established means

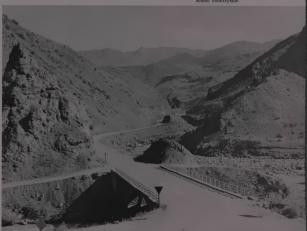
of communication, the camel trails proved their worth — as did the sections of more sophisticated roads that gradually replaced the trails in scattered areas.

But today's fast, modern transportation methods demand much more: ribbons of high standard, allyear, all-weather highways that become giant conveyor belts laden with the products and peoples of many nations.

The Central Treaty Organization saw the need for such highways interlinking Iran, Pakistan and Turkey. Coordinated road building projects were undertaken in northern, central and southern areas of the CENTO regional countries.

The task is enormous — but it will be completed. The following pages offer a graphic picture of the modern highways now being built along the camel caravan trails of another era.

A new CENTO road winds through scenic countryside.





Great physical effort, in intense heat, by many such gangs of labourers is going into the construction of CENTO road and rail projects.

### **Highways: Turkey-Iran**

During the winter, travel between Turkey and Iran by the present rough nothern road is a very difficult matter indeed because of heavy snowfall. This road, the old caravan trail, is of particular importance since it leads to the Turshish port of Trabzon, the development of which is another CENTO project.

The Iranian Government has been given road building equipment by the United Kingdom to the sterling equivalent of \$154,000 for

road improvement from Tabriz to Bazargan.

Another CENTO highway link between Turkey and Iran is being built towards the south. Starting at Sivelan, some 80 kilometres south of Lake Van, the road crosses into Iran beyond Bajirge and then runs through Rezaiyeh to join the Tabpit-Tehran main road at Zenian.

On the Sivelan-Zenjan road steady construction progress is being made from both ends. The Turkish Government has so far spent \$2.2 million in local currency on the project. It is being assisted by a grant \$1.34 million from the United States.

Two separate grants of the sterling equivalent of \$280,000 each have been made by the United Kingdom to help finance construction of the Iranian section. The through road across the border should be in operation by the end

Closely associated with the southern road project is the building of a road from §ivelan which will run through Hakkari and Cizre to the Turkish Mediterranean seaport of Iskenderun. The Turkish Government is endeavouring to complete, by the end of 1967, an access road between Circe and Hakkari.

### Linking the CENTO Region:

### Highways: Iran-Pakistan

An integral part of the CENTO plan to link the highway systems of the regional countries is a project to extend the road from Kerman, in Iran, eastward to Bam and Zahedan, across West Pakistan to Quetta and thence south to Karachi, a total distance of over 2,663 kilometres.

Such a highway, making road travel possible from West Pakistan across Iran to Turkey, obviously would open vast new areas to commerce, develop new import and export markets and generally improve communication with previously isolated areas. Many new types of industry would develop once the

barrier of inadequate communications was surmounted.

In Iran, preliminary engineering studies of the road from Kerman to Zahedan have been completed. The Iranian Government's Third Five-Year Plan provides for the necessary detailed engineering studies as well as the construction of this section.

Acting on the recommendations of the CENTO engineering advisers, work also is in progress in various stages on the Pakistan side, including the long route from Quetta to Karachi.

Road building machines transform ancient trails into modern highways connecting the CENTO region.



### Highways: Pakistan-Iran

Still another CENTO road linking Pakistan and Iran will start from Lasbela, some 80 kilometres from Karachi, and run westward inland, parallel with the Mekran coast, to Pishin on the Pakistan-Iran border, From Pishin the route of the road will be to Iranshahr, joining the present road system at Bandar Abbas on the Iranian Good roads would enable pres-

The southern coast of Pakistan between Lasbela and Pishin is at present largely desolate and inaccessible. But the area has a great notential. Underground streams could be utilized so as to transform the area into a flourishing agricul-



tural community. Plentiful supplies of fish are available in coastal waters. Known mineral deposits, curent inhabitants and new settlers to move their products to market.

Aided by three allotments of road building equipment from the United Kingdom, each valued at the sterling equivalent of \$280,000. the Pakistan Government has completed 100 kilometres of service

road and carried out a reconnaissance survey of 548 kilometres from Bela to Pishin on the Iranian border. An additional sum of the sterling equivalent of \$952,000 has been committed by the United Kingdom over a three-year period for the project.

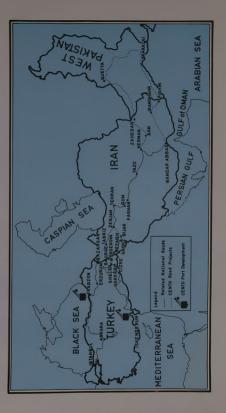
In addition, the Pakistan Government has provided adequate internal allocation of funds in its Second Five-Year Plan to complete Pakistan's part of the project.

Surveyors study rocky terrain in east-ern Turkey where CENTO is building both railway and road links with Iran





be reached through CENTO efforts.



The permanent way for the CENTO Turkey-Iran railroad link under construction eastward from Mus, Turkey.

Steel Rails Form A Backbone of Progress



T WIN rails of steel — rails forming the backbone of a mode of transportation that has historically played a vital role in the

development of modern nations—will ultimately interlink Pakistan, Iran and Turkey as a CENTO vision achieves reality.

Significantly, the first joint project to be approved by the first session of the CENTO Economic Committee called for the linking of

existing railroads in Iran and Turkey. With this action, CENTO recognized the key part railroads must play in the dramatic development of improved communications between the regional countries.

The following pages picture the

progress being made in bringing to life a CENTO dream that presents an awesome challenge to men and machines.

### Railways: Turkey-Iran

Only 376 kilometres separate the Turkish and Iranian railways. But the terrain between those two points — Mus in Turkey and Sharafkhaneh in Iran — presents some of the world's most difficult problems of railway. construction.

Towering mountains, deep ravines and the largest lake in Turkey, Lake Van, block the path of any railway linking those terminals. So steep are the mountains bordering Lake Van, for example, that trains will be transported by steamer ferry for the 91 kilometres across the lake.

But these formidable obstacles, with the great expense and effort needed to overcome them, are minor compared to the henefits that such a link could bring to Iran and Turkey and ultimately to Pakistan. To cite only one such benefit, wast areas of now unused agricultural and minoral deposits could be developed and exploited.

The trade of northwestern Iran at present relies almost solely on the long and expensive outlet to Khorramshahr on the Persian Golf. The new link would provide Iran with direct access to the Turkish railroad system and thence to Europe. It is estimated that the transport time of goods would be cut from six weeks to less than one.

Furthermore, Turkey's Mediterranean, and Black Sea ports eventually could be used by Iran, speeding Iranian exports to Europe far faster than the present circuitous route through the Persian Gulf, Red Sea and Suez Canal.

The overall cost of the projected rail link exceeds \$69 million. Of this, the Turkish Government has spent the local currency equivalent of some \$15 million and has allocated nearly another \$4 million of internal expenditures to complete its seetbay of the project. An internal allocation by the Iranian Government towards—its part of the project totals about \$11 million in local currency. The original cost of the entire rail link survey, \$155,000, has been borne by the

United States, which has also provided nearly \$ 2 million to Iran for engineering and construction work.

Equipment valued at the sterling equivalent of \$280,000 has been given to Turkey by the United Kingdom. In addition, the United States Development Loan Fund, (DL.F.) provided a loan of \$6 million to help construct the section from Mus to Tatvan, the latter on Lake Van.

Under consideration by the D.L.F. are applications from Iran and Turkey for new loans together totalling nearly 8.22 million (Iran, 8.81 million; Turkey, \$13.8 million) which would cover the external finance necessity to complete the project. The 104 kilometre stretch from Mus to Tatwan on the western shore of Lake Van is practically finished; most of the railway stations have been built and the rail bed has been prepared.

Progress on the link is described as "very satisfactory". The target date for completion is 1967.

Workmen lay rail outside a newly-built railway station on the Turkey-Iran CENTO railroad.



# CENTO Railway Projects



### Railways: Iran-Pakistan

The Iranian railroad system extending eastward towards Pakistan now stops at Kashan, south of Tehran. Nearly 800 kilometres. away, the terminus of the Pakistan railroad's westward route is at a land trade outlet to Iran, Turkey Zahedan, on the border, A CENTO railway project would link these outlet from Karachi. two systems.

rail link, the completion of the two the land acquired and engineering, projects would provide complete rail intercommunication across Pakistan, Iran and Turkey to Europe.

It would thus provide Pakistan with pletion. The sterling equivalent of



tion between Mus and Tatvan (Turkey) as part of the CENTO railway project.

and the west in addition to the sea

The first section, between Kashan Allied with the new Turkey-Iran and Yazd, has been fully surveyed. earthworks, bridges and buildings finished. Between Yazd and Kerman survey work is nearing com-

some \$36,400 worth of survey equipment is being provided to Iran by the United Kingdom.

The cost of the huge project has been estimated at 125 million dollars, of which \$75 million will be in Iranian rials and \$50 million in foreign exchange. An assessment of progress notes that it would be possible to complete the project within five years depending on the availability of necessary funds.



### Linking the CENTO Region: **Electronic Guideposts** To a Better Life a road lines and highways winding their way through the CENTO signposts of still another vital form of modern communications - the soaring latticed towers identifying high frequency and microwave systems. The Central Treaty Organization early recognized that fast and efficient voice and teletype communicountries and to the outside to communications progress in other fields. midable obstacles, the regional a modern electronics age. TELECOMMUNICATION BUILDING

### Telecommunications: **High Frequency**

CENTO's high frequency radio link an electronic system affording parallel teleprinter and radio telephone service between London and the capitals and certain secondary cities of the CENTO regional fered a grant of the sterling equivacountries, has been created in two lent of \$1,820,000, and a contract major stages.

began as early as 1958, when British Company. technicians started consultations with the respective CENTO nation high frequency link was completed governments to establish require- in Turkey and Iran; mid-1962 saw ments. The United Kingdom of- completion of the first stage in Pa- Rawalpindi by 1964.



British and Turkish radio engineers in Ankara test the main console of equipment for the CENTO high frequency link.

for the first step was signed with ra and Tehran, Karachi and Dacca. Initial planning for the system the Marconi Wireless Telegraph

kistan, The ensuing system thus linked London and Istanbul, Anka-

While Stage One is undergoing scheduled refinements and modifi-By 1961, the first stage of the cations, the communications link will be further extended to Khorramshahr (through Tehran) and





This complicated bank of electronic components is part of the equipment at Ankara Station No. 1 of the CENTO microwave telecommunications system.

An Iranian technician checks radio equipment installed at Tehran for the CENTO high frequency project linking



### Telecommunications: Microwave

Fighty-eight radio relay stations today span the nearly 5,000 kilometres across Turkey, Iran and Pakistan, together forming the longest

kind in the world. Now virtually completed and ready for a sixCENTO regional countries by mid-The completion of a modern

expected to be handed over to the

microwave facility which affords direct communication between the three countries by both voice and radio-teletype and - through links with existing systems, by telephone and telegraph - marks the attainsingle microwave network of its ment of one of CENTO's most challenging goals.

But the goal was by no means month trial period, the system is an easy one to attain. The entire pathway of the system was surveyed by means of aerial radar profiling of the terrain, for a ground survey would have taken as long as five years. The aerial study was completed in the record time of less

Once station sites were selected, the regional CENTO governments undertook the building of access roads. In Iran alone, the construction of more than 288 kilometres of such roads was necessary.

Next came the construction of the actual 88 stations - 20 in Turkey, 45 in Iran and 23 in Pakistan. Distance between the stations varies with the topography, with the average about 48-64 kilometres. In one instance in Iran. however, the distance between stations exceeds 160 kilometres - the longest single microwave transmission in the world.

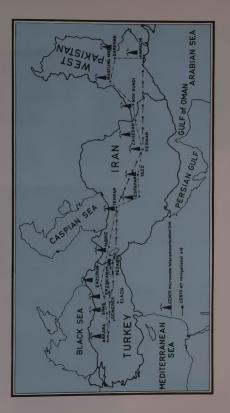
Towers at the stations vary in height from 30 feet in mountainous regions to more than 400 feet on flat ground.

Continued on page 20



This CENTO microwave radio tower is one of the 88 similar installations that will provide instantaneous communication across Turkey, Iran and Pakistan.

## and Airway



Telecommunications: Missonwaya

continued from page 18

The training of personnel to operate the system was also essential. Specialized schools were established regionally to produce the needed electronic and mechanical experts. (Although the majority of the stations will be fully automatic, one in eight will be manned.)

Thus far, the regional governments have spent the equivalent of more than \$ 8,670,000 in local currencies on the microwave project; the United States has made a contribution of an additional \$18,370,000. Equipment has been provided by the Radio Corporation of America under a \$16,490,000 contract signed in 1961 with the United States Government

Each microwave radio relay station has three diesel generators. Only one engine at a time is in use; another automatically cuts in in the event



Turkish radio technicians who will control their section of the CENTO microwave link undergo instruction at a special school in Ankara.





This typical CENTO microwave radio relay station is high in the moun-tains bordering Lake Van in Turkey.

### Linking the CENTO Region:

### Electronic Charts To Safer Skies

By 1965, airline pilots navigating the 4.800-kilometre airlane between Turkey and Pakistan will have as their aerial guideposts the latest electronic marvels of a modern age.

The pilots will be flying what is becoming known as the CENTO Airway, offering the latest facilities in air navigation, including air to ground communication and ground communication between key traffic control points.

Manning an overall system that

will embrace the CENTO microwave installation as well as 13 radio beacon stations will be special-

Iranian air traffic control specialists under instruction at Istanbul's Yesilkoy



During his course in England before duty on the

ized personnel now being trained under CENTO auspices. Their eventual job; supplying direct, continuing guidance to aircraft traversing the territories of the Central Treaty Organization's regional countries.

To make such a system possible, each of the CENTO regional countries has been improving its own network of air navigational aids. In addition, the United States has so far allocated \$ 5,200,000 toward the airway project, and the United Kingdom has donated meteorological telecommunications equipment valued at the sterling equivalent of \$ 560,000. The latter also is training regional meteorologists to use the equipment.

Towering mountain peaks in eastern Turkey form a backdrop for these

