Ethiopian officials inspecting a highway restoration project

How Ethiopia's Highways Are Being Restored by Heavy Maintenance

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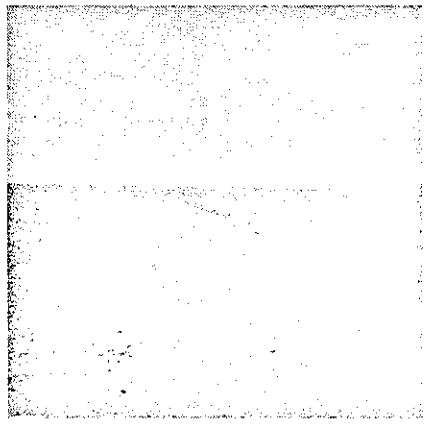
4,300-kilometer repair program being completed entirely with Ethiopian financing, expedited by modern equipment and resourceful techniques. Administrative and engineering aid supplied by the U. S. Bureau of Public Roads.

ONE of the most interesting highway programs in the world today is that under way in Ethiopia, where a group of engineers from the U. S. Bureau of Public Roads is assisting the Empire of Ethiopia in the reestablishment of a highway system largely built during the Italian occupation prior to World War II. The condition of Ethiopian highways at the beginning of the program showed rather conclusively a truth which has long been known to highway engineers—that adequate maintenance of a highway system is a necessity. Without it highway transport soon ceases.

The current program in Ethiopia is not one of new construction but rather one of heavy maintenance to repair the accumulated deterioration over a long period during which little, if any, maintenance was provided. The highways were originally built to a comparatively high standard. The present 4,340-kilometer program in Ethiopia is almost entirely one of restoration of roads which were designed and constructed to standards which would be considered, even in this country, rather high for the light traffic that existed. Virtually all of this improvement was made between 1936 and 1942.



Ethiopia's Combolcia-Assah Road; binder material has been incorporated with the disintegrated asphaltic surface

Lack of Maintenance

Immediately following the construction period there was some maintenance but little, if any, maintenance was done for several years following the close of the war. The inevitable result was that by 1950, when engineers from the International Bank of Reconstruction and Development and from the U. S. Bureau of Public Roads went to Ethiopia, they found most of the highways impassable. In many places trucks were unable to move except

Editor's note: This report brings up to date the Ethiopian summary published in the article, "Ethiopia Begins Modern Road Program," by C. R. Stempf and L. L. Brooks, World Construction, January-February, 1952.

It is expected that the improvement of the road system in Ethiopia will make it possible for this country to become one of the main sources of food in the Middle East.

for relatively short periods during the dry season. During other seasons traffic came to a standstill and trucks were marooned for months at whatever point the rainy season overtook them.

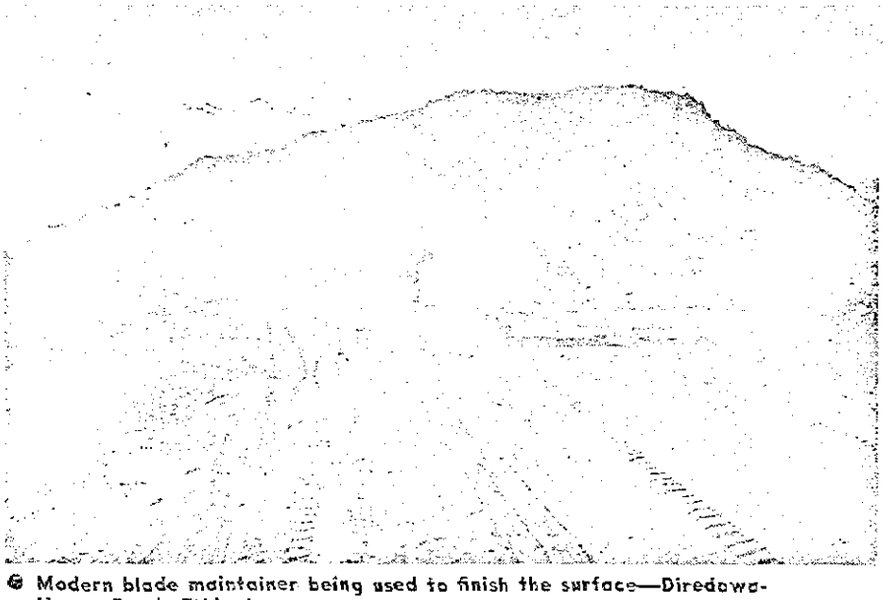
Work on repairing the roads was begun in early 1951 and at the present time, in contrast to the conditions just described, it is possible to drive over the entire system with reasonable speed and ease. In some areas where traffic was completely suspended during the rainy season traffic now moves in a few short hours over the distances which formerly took from several days to several weeks to negotiate.

This almost miraculous improvement in highway transport in Ethiopia has been brought about largely through the farsighted leadership of His Imperial Majesty, Emperor Haile Selassie I, who was quick to realize that adequate transportation throughout his country was the first essential to its orderly development and progress. Consequently he began to discuss with the World Bank, in 1949 and 1950, financing arrangements which would permit the acquisition of necessary equipment and engineering services for the highway system so that it would render the kind of service needed for other development programs to follow. These negotiations culminated in approval of a loan of five million United States dollars to Ethiopia by the World Bank for the purchase of equipment, materials, and engineering services needed to restore the highway system. One of the major provisions of the loan agreement was that the borrower would establish engineering supervision in behalf of the Government of Ethiopia which would be satisfactory to both the Bank and the borrower.

Highway Authority Created

There was created by Imperial decree an autonomous highway department known as the Imperial Highway Authority. By agreement between the Government of Ethiopia and the Government of the United States, the U. S. Bureau of Public Roads of the Department of Commerce was requested to provide the engineering management for the Imperial Highway Authority and, simultaneous with the effective date of the loan, the Bureau of Public Roads established in Ethiopia a Division Office headed by Mr. John L. Humbard. Mr. Humbard serves both as Division Engineer for the Bureau of Public Roads and as Director of the Imperial Highway Authority in behalf of the Government of Ethiopia. The Bureau has 46 American employees now assigned in Ethiopia. These employees are engaged in general management of the program, supervision of engineering studies, planning, programming, equipment acquisition and its proper service and maintenance, direction of the actual restoration work itself, and training of Ethiopian and other personnel who will be formed eventually into a continuing highway division for the Government of Ethiopia.

With the initiation of actual work it became necessary to provide offices and living space for the personnel assigned to the program. The work is directed from seven field or district headquarters located at Gondar, Adigrat, Dessie, Wallo, Shoa, Shashamana, Debra Markos, and Diredawa.

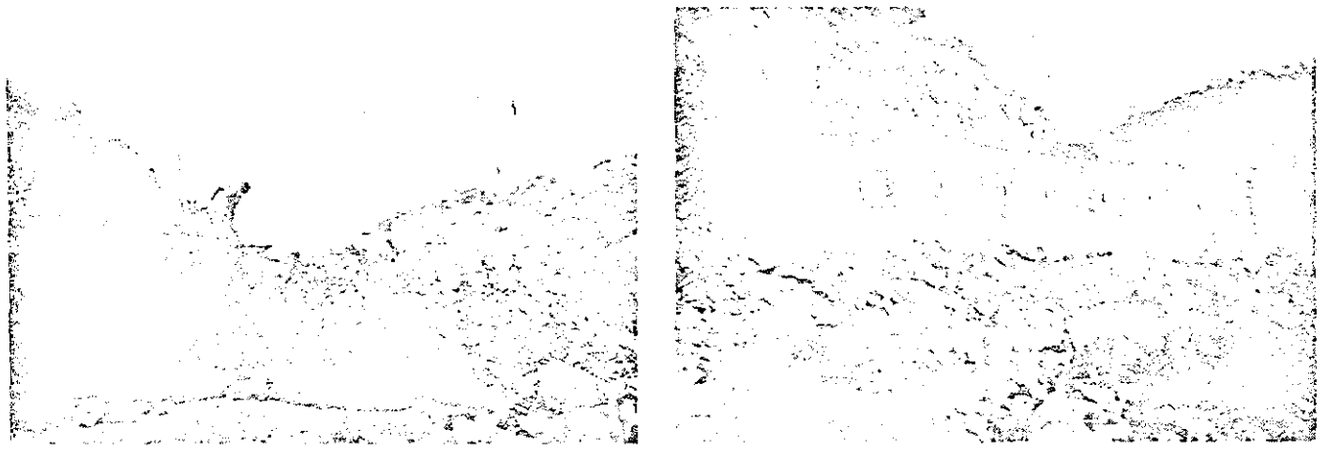


Modern blade maintainer being used to finish the surface—Diredawa-Harar Road, Ethiopia

About $3 million of the loan has already been utilized in purchase of necessary equipment and the transportation charges to get it to Ethiopia. About one million dollars has been set aside for the purchase of necessary materials, and the balance for payment of the engineering services of the Bureau of Public Roads. The program is expected to be completed in mid-1954. At the beginning it was determined that first efforts would be devoted to opening up the entire system to provide a passable system of routes throughout Ethiopia, joining the capital at Addis Ababa with the seaport of Assab, the Eritrean capital of Asmara and port at Massawa, and the several areas in Ethiopia which produce food and other products for export. It was found that a great improvement could be made rather rapidly over most of the system, simply by regrading and opening ditches with an ordinary motor grader. Consequently, 15 of these machines were purchased at the very beginning of the program and were among the first items received in Ethiopia, and put to work. These early units have since been supplemented with trucks, shovels, crushers, additional motor graders, light maintainers, asphalt distributing equipment, drilling and blasting units, necessary transportation units, shops, tools, maintenance facilities, and many other items.

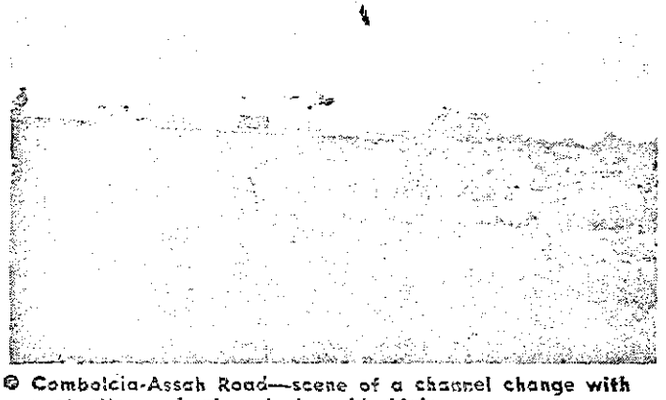
At the present time more than 3,000 men are employed on the work, about one-third of whom occupy semi-skilled, skilled, or supervisory positions.

Ethiopia, with deep soil and a mild climate, is able to produce large quantities of foodstuff which can be exported to surrounding countries whose food production at the present time is far below that needed to maintain a vigorous population. Ethiopia has millions of cattle, but because of the lack of adequate transport nothing has been done to install a meat packing industry which would make it possible for Ethiopian beef to be exported to the neighboring countries along the Red Sea and Persian Gulf as well as to European markets. Ethiopia produces great quantities of coffee of a very high quality, much of which in the past has not even been picked since it could not be trans-

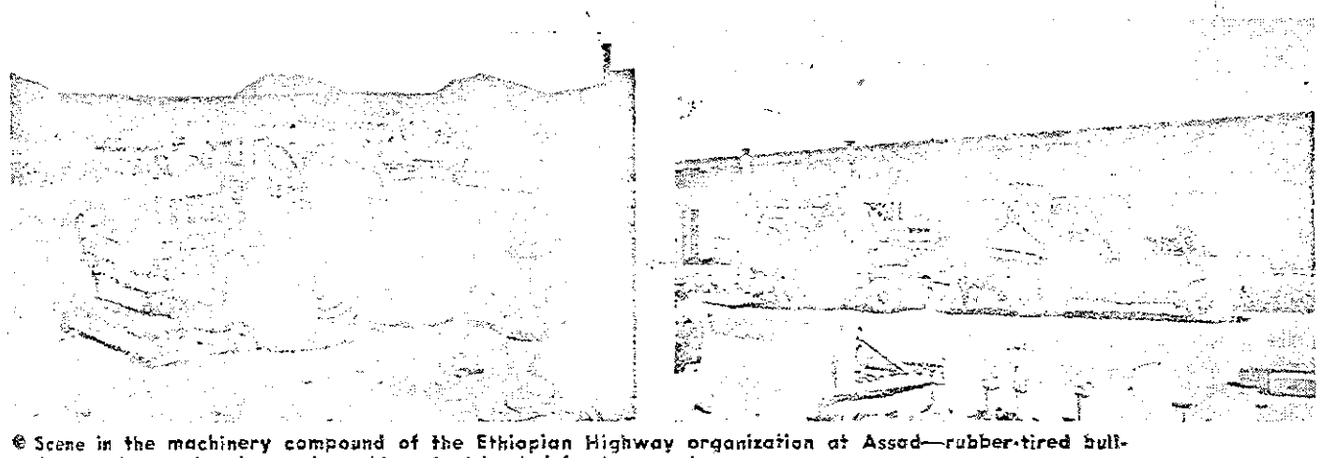


Before and after reconstructing a stone retaining wall and repairing a damaged fill—the Dire Dawa-Harar road in Ethiopia

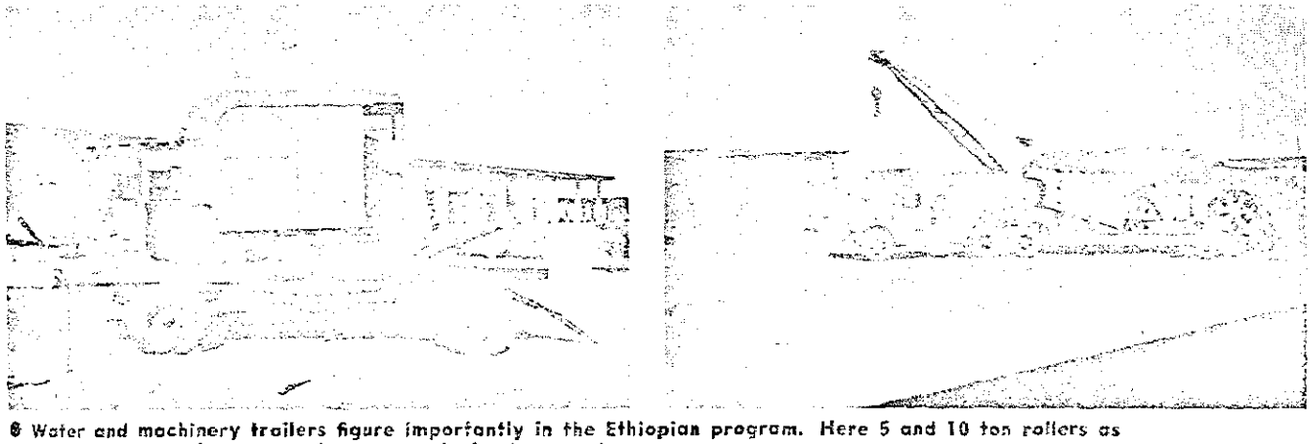
The Erer Road in Ethiopia—mechanical loader filling truck at pit source of surfacing material



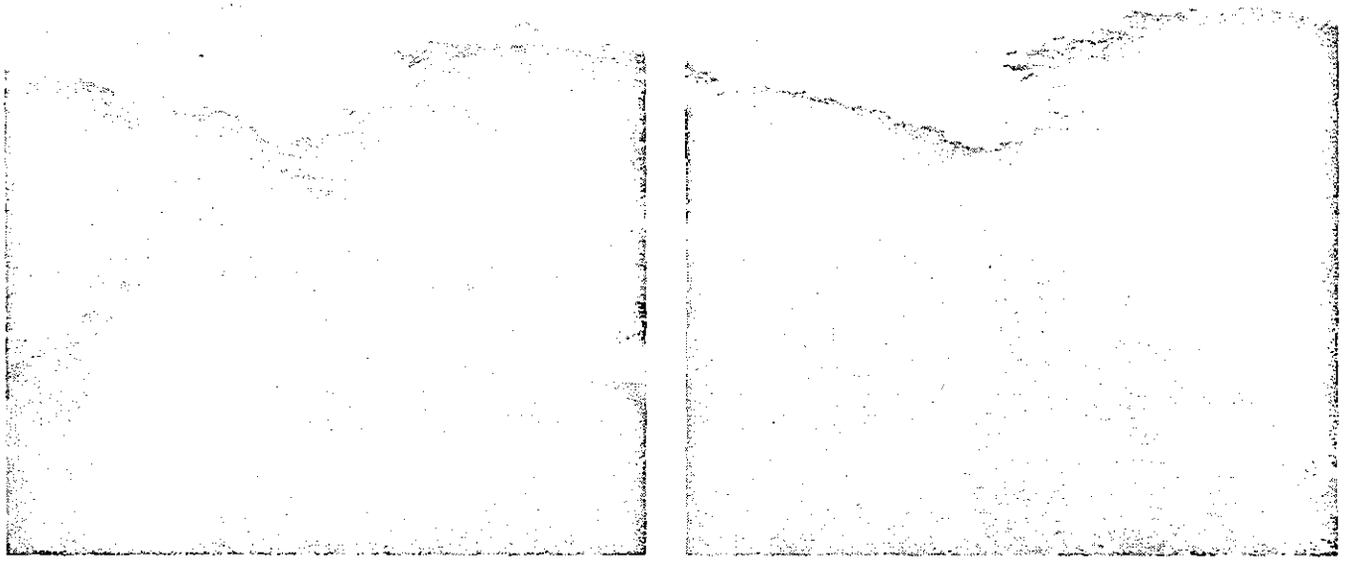
Combolcia-Assah Road—scene of a channel change with protecting embankment alongside highway



Scene in the machinery compound of the Ethiopian Highway organization at Assad—rubber-tired bulldozer and a sand-and-gravel crushing plant loaded for transport



Water and machinery trailers figure importantly in the Ethiopian program. Here 5 and 10 ton rollers as well as the cab of an excavator are ready for transport



● Before and after draining and grading—road from Addis Ababa to Neghelli

ported out of the producing area and exported at a profit. This one product alone, if transport to market were adequately developed, would greatly increase foreign trade. Wheat and other grains can be grown, and these could be utilized not only to increase the standard of living in Ethiopia but to export to provide a more favorable balance of trade. With substantial increases in Ethiopia's exports she would be able to import quantities of finished materials from Europe and the Americas.

Perhaps the most interesting feature of the Ethiopian program is the fact that it is being financed entirely by the Government of Ethiopia without outside grants or gifts from any source. This is evidence of the high level of self respect and self help among the Ethiopians, and at the same time is an excellent indicator of the development potential of the country since an international lender of money is willing to risk capital with the feeling that it is adequately secured through the development potentials of the country.

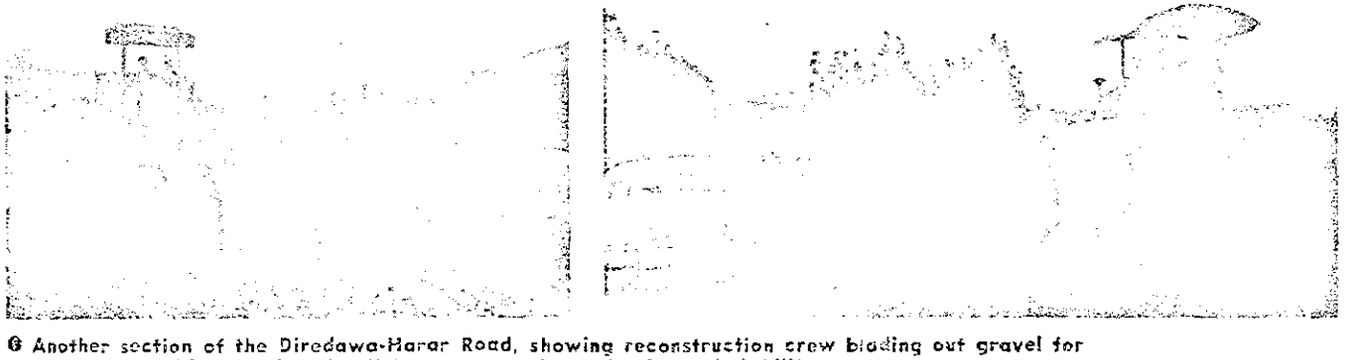
India's 5-Year Program of Development Planned

The Indian Planning Commission, set up in March, 1950, has outlined proposed details of a five-year $3,765,300,000 National development program.

The principal emphasis of the Plan is on agriculture and irrigation involving an expenditure of $402,570,000 and $945,546,000 Government and State funds respectively. The development program also provides suggestions for expending $815,262,000 on transport and communications, $212,079,000 on industry, $533,568,000 on social services, $165,900,000 on rehabilitation and $59,934,000 as miscellaneous expenditure. The Commission maintains that the first part of the Plan must be implemented at all costs, while the second part could be taken up if sufficient external assistance becomes available.

India's food problem, according to the Commission is not a temporary disequilibrium between the supply and demand, but it is the manifestation of the continually growing pressure of the population on food supply.

The total cost of irrigation and power projects included in the Plan is $1,530,900,000 of which $289,800,000 already has been spent. Projects are calculated to irrigate an additional area of 8.7 million acres by 1956 and to provide an additional power amounting to 1.1 million k.w. The Commission had proposed machinery for selecting projects in the future for the All-India Plan.



● Another section of the Diredawa-Harar Road, showing reconstruction crew blading out gravel for a strengthened base and rolling it to secure maximum density and stability

TRANSPORT TOPICS No. 1010, December 20, 1954, p. 37

Analysis of Clay's Road Plan Spikes Rumors of a Reduction

An analysis of the manner in which the President's Advisory Committee on a National Highway Program envisions development of its 10-year plan was provided last week by F. C. Turner, executive secretary of the committee.

The committee through its chairman, Gen. Lucius D. Clay, will propose that the federal government increase its highway expenditures over the next 10 years by $24 billion. The remainder of the $101 billion which would be spent under the program during the 10-year period beginning in 1955 would be derived as follows: $47 billion which has been approved for expenditure by state and local governments, and $30 billion which it is anticipated that state and local governments will raise as their part in the acceleration of the overall program.

The Clay Committee spokesman would not speculate on how the $30 billion will be raised, as the Committee holds that this is a matter for determination by the states and local governments. However, the $47 billion figure represents, in addition to the amounts which the states and their subdivisions will put up, the regular federal-aid expenditures which are currently running at a rate of $550 million a year.

Under the committee's recommendations all of the $24 billion would be spent on the 40,000 mile system of interstate highways.

Contrary to a popular notion, Mr. Turner said, the 40,000-mile system does not exist as a road network today. The system, as it stands, is comprised of little more than 2,000 miles of actual highways, the designation of control points, approximate mileage of the system as it will eventually develop, and standards to be met in the construction of the system.

The standards were generally outlined by Mr. Turner who said that component roads of the system must be high-capacity thoroughfares, "of reasonable durability," without bottlenecks. This would mean in most parts of the country multiple lane, controlled access highways capable of handling whatever traffic volume might ordinarily be expected.

He added, however, that the program for the interstate system contemplates no road building "just for the sake of road building." Consequently, he added, the high standards called for in the program might well be met in some sparsely traveled sections of the system merely by projecting a well-constructed and designed two-lane highway.

The program advocated by the Clay Committee, Mr. Turner continued, contemplates bond financing, the bonds to be amortized over a 20-year period ending in 1984. The bonds, of course, would be issued as the highways were programmed, obviating the payment of interest on the funds before they are required.

Mindful of the prerogatives of the state and local governments, the Clay Committee will make no recommendations as to how the $30 billion of additional funds called for in the program is to be raised.

The Committee has had to spike reports that its program has been reduced. When Gen. Clay first began talking in terms of the $24 billion, 10-year program (TT, 12-6-54, p. 1) it was erroneously assumed in some press association dispatches that the program had been reduced. This apparently was because when President Eisenhower's proposal was first discussed it mentioned a $50 billion figure. Subsequently Gen. Clay said the overall program would run better than $100 billion, including the money which has already been authorized in long-term highway planning.

After conferences with state authorities, however, the Clay Committee came out with the $24 billion figure, with no intention of creating the impression that the over-all plan of spending in excess of $100 billion had been diluted.

Carrier Draws $195 Fine

Ferguson Trucking, Inc., of Artesia, N. Mex., has been fined $195 on charges that it permitted drivers to remain on duty for periods in excess of those allowed by the Interstate Commerce Commission, the ICC reported last week.