

# TECHNICAL

## "BRIDGING THE GAP"



For lack of knowledge of the more simple methods of bridging small streams, tank units have frequently been held up when a safe and useful structure could have been slung across a water-course with comparatively little trouble. In main instances bridges can be constructed with materials available close at hand, and in any case relatively small quantities of material would be required. The construction of small bridges and reinforcement of existing structures is discussed in the following article by Cpl. J. L. Gallie.

It is possible in many localities to erect a single-span bridge up to 30 feet in length by using timber growing on the spot. A bridge of this length capable of supporting a Valentine tank would require four trees of an average diameter of 12 inches, arranged in pairs with a space of 6 feet between pairs and 2 feet between individual trees. If the country is suitable and there is a firm bottom, central piles can be dropped in sills to take the spring in the centre of the bridge. The stringers must rest on sills at either end, and if sawn timber is not available for decking, medium-sized sawn poles will do the job.

If sawn timber is available for the job, 14 x 10 stringers with sills of the same section should be used. Should a pier be necessary, the size required would be 10 x 10 with 12 x 12 cap. No bracing is necessary on a short span, and decking should be of 9 x 4 hardwood. Sills must be anchored securely at both ends, and on soft country where they are liable to sink with the weight of traffic, they should rest on floating beds of any available material, the same length as the sill and 4-5 ft. wide.

Should a stream be too deep to cross on foot, two of the stringers should be projected half-way out over the stream together and anchored securely. The other two could then be pushed out across and the gap spanned.

So far as a bridge of 12-20 feet in length is concerned, the parts could be bored, cut to fit, and supplied with bolts so that it could be transported and assembled at short notice. It should be possible to carry all the parts on one truck, providing piers are not required.

Reinforcement of existing bridges presents a number of problems, their strengthening depending on the condition of piers and abutments and the material available. To reinforce a two or three-span bridge with a five-ton load limit the most simple procedure would be to sling heavy stringers and suitable decking over the existing structure. It should not be necessary to drive additional piers providing the existing ones are in good condition, since the strain is a longitudinal and not a lateral one. Should the original piers and abutments, however, be in poor condition, the only feasible alternative in most cases would be to build a new bridge. In suitable country it might be possible to drop new piers on sills and wedge them under the stringers, but this would take a certain amount of time.

If the material is available, it is much faster to strengthen a bridge as outlined above than to attempt to brace it. Should suitable material not be available, and should stringers, decking, piers and abutments be in good condition, each stringer should be braced to each pier, with the toe of the brace as far down the pier as possible.

Steel is out of the question for work of this type owing to difficulty of assembly, nor is it necessary, since timber will take any likely strain. Use of rolled steel joists would take considerably more time, since spiking-pieces would be required to secure the decking. Steel is also much more difficult to handle.

Telegraph-poles are not heavy enough for stringers, but in default of anything else they could be used in pairs and strutted to take the weight. Totara is an unsuitable timber, since it is short-grained and therefore brittle, but kauri, rimu, or any hardwood stringers could be used.

## THE WEAL OF THE DRAGON IS SPOKEN

Extract from R.O. No. 142, dated 3/9/42—

"The design of the Dragon Rampant has been approved by Army H.Q. as our official formation sign.

The Dragon has been traditionally distinguished in mythology for a variety of outstanding qualities: . . . the offensive spirit, mobility, tenacity, cunning, . . ."

The requirements of a dinkum N.Z. Trooper,  
Are somewhat large and varied it is plain,  
Yet they mean 'em from a grocer or a cooper,  
Provided that they have a little brawn.

A little brawn is also a requirement—  
No puny pigmy can achieve the goal.  
From our Brigade he soon gets his retirement  
To earn an honest living—or the dole.

For MOBILITY, TENACITY, and CUNNING,  
With OFFENSIVE SPIRIT also in the running,  
Are fundamental qualities  
And not absurd frivolities,  
When for the Japs, or sim'lar chaps, we go a-gunning.

Forearmed with these pre-requisite essentials,  
A dash of brainpower and a spot of brawn,  
(Tis helpful to possess ersatz credentials)  
A Trooper of the bold Brigade is born.  
We're bundled to a camp in the North Island  
Where men are men, and women are so few—  
We're bossed about and drilled—(tho' not on dry land)  
Ere we become a member of a crew.

For MOBILITY, TENACITY, and CUNNING,  
With OFFENSIVE SPIRIT also in the running,  
Are inherent to our training  
Ere they let us start in braining  
Huns or Japs, when for these chaps we go a-gunning.

Now MOBILITY—the first of these achievements  
Is inculcated from the very start,  
And tho' there may be one or two bereavements,  
Yet seldom do our friends forever part.  
We're not in camp a week—it's seldom longer,  
When dysentery will strike us in a flash;  
And this urge (and there can't be many stronger)  
Soon teaches us MOBILITY and dash.

For MOBILITY, TENACITY, and CUNNING,  
With OFFENSIVE SPIRIT also in the running,  
Are included in our training  
Ere they let us commence paining  
Huns or Japs, when for these chaps we go a-gunning.

Now having thus mobility acquired,  
Acquired it until it becomes a habit,  
TENACITY is easily inspired,  
(No more we need scuttle like a rabbit).  
TENACITY's the trait of holding tightly—  
We learn this by experience alone—  
Possessions we must hold—nor hold 'em lightly,  
Or we never have a stitch to call our own.

For MOBILITY, TENACITY, and CUNNING,  
With OFFENSIVE SPIRIT also in the running,  
Are taught—They call it training!  
Questionmark?—Ere we go maiming  
Huns or Japs, when for these chaps we go a-gunning.

And so we come to number three essential,  
That's CUNNING (which is found in all intrigues),  
And this we learn in dodging pestilential  
And never-ending Camp and Block fatigues.  
From day to day we think up fresh excuses  
Of how we can the sergeant's mind begof,  
And in spite (or perhaps because) of his abuses  
We learn the CUNNING of a Maori dog.

For MOBILITY, TENACITY, and CUNNING,  
With OFFENSIVE SPIRIT also in the running,  
Are factors consequential  
So we'll not be deferential  
When for the Japs, or sim'lar chaps, we go a-gunning.