

Power from the Glens—(Continued from page 51)

observed on their way upstream through windows let into the wall of one of the pools.

Other stations completed or under construction are Morar, Lochalsh, Glen Affric and Glen Shira. The total capacity of the 13 stations at present building will be 428,450 kW. Although the initial costs of such stations as these are very high compared with those of steam generating stations, the operation costs are very much lower, since no coal will have to be handled or paid for.

The Hydro-Electric Board's plan is a long term one, the object of which is to bring prosperity to the now sadly depopulated Highlands. In remote parts to which it will be impossible to transmit electricity, auxiliary diesel generators are being installed.

Trinity House To-Day—(Continued from page 62)

Each district is in charge of a Superintendent, using the depot as his headquarters. He is assisted by a staff of clerks and storekeepers who look after the spare buoys, chain cables for light vessels and other gear needed to maintain the service. The depot staffs, apart from the skilled repair hands, number about 100 men. Trinity House is responsible for the upkeep and efficiency of nearly 100 lighthouses and more than 40 light vessels, in addition to 600 buoys and about 50 unlighted beacons. All of these need attention at regular intervals. A fleet of nine tenders carries out service work, with such duties as relieving crews, attending to the lights of buoys, replacing damaged buoys, marking wrecks, and surveying sandbanks that appear to be extending so that the changes will not be dangers to navigation.

Four of the tenders are based on the depot at Harwich and one on each of the other five depots. The best known of the fleet is the "*Patricia*," a diesel-electric ship of just over 1,000 tons gross, which has a dual purpose. In between her routine work she carries a committee of Elder Brethren on tours of inspection, so that her accommodation is more extensive than that of the other tenders. Normally, a tender has room for between 30 and 40 lights officers and ratings, as well as her own crew. But the "*Patricia*" is fitted with staterooms, bathrooms, and other facilities for the committee. From ancient days Trinity House has enjoyed the privilege of piloting the Sovereign whenever he goes afloat. For this reason the "*Patricia*" now leads the Royal Yacht during naval reviews and other important ceremonies.

Trinity House felt the weight of enemy attack during the late war. Its historic headquarters on Tower Hill, dating from 1796, were reduced to a shell by an incendiary raid in December 1940. Rebuilding has now been taken in hand and it is hoped to complete the work in three years. Four of the tenders were sunk by mines and many of the light vessels became casualties. Although the tenders have now been replaced, the renewal of light vessels, lost during the war or worn out from long service, is still in progress. The new light vessels are a big advance on those in use before hostilities. They are fully up to date in lighting and signal equipment, and special attention has been given to the comfort of their crews. Each light vessel is manned on station by a Master and six ratings, who spend a month at sea before being relieved by a reserve Master and ratings ashore.

Operation "Air Beef"—(Continued from page 75)

mail, food, equipment and a three-ton tractor.

Nor was the "meat business" restricted to beef, for it has been possible to start pig-farming at Glenroy as a result of "Air Beef." A total of 172 pigs were flown into the area in 1950, of which 5,439 lb. made the return journey as pork. Next season, one farmer plans to deliver 1,000 pigs to Glenroy as well as 2,000 cattle.

Most outstanding example of livestock transport

was a cargo of 20 bulls flown by Air Beef "Freighter" from Fossil Downs to Glenroy. The whole operation of loading, transport to Glenroy over 100 miles away, and unloading, took less than two hours, compared with the overland delivery time of three weeks. Furthermore, as the "Freighter" had previously flown a load of hides to Derby and brought five tons of fuel to Fossil Downs, the cost of transporting the cattle as back-load was only 30/- a head. So, by reducing transport costs, "Air Beef" will help farmers to improve their herds with new stock.

There is, in fact, little doubt that "Air Beef" has come to stay in Northern Australia, for it has not only improved the quality and quantity of beef produced by existing properties, but has shown that there is ample scope for new settlers. As a comparison, in Europe there are 6,340 people to the square mile; in the vast grazing lands of the Kimberleys there is only one white man to every 100 square miles. With "Air Beef" to fly out their cattle, new settlers are assured of success, for Australia's own home market and the needs of this country ensure a ready sale for all the meat that the Kimberleys can produce. Following last year's success, it is already planned to open seven new "Air Beef" centres; they may well make Northern Australia in time the most important meat-producing area in the world.

Cranes and their Work—(Continued from page 77)

lives close to the sea coast where a breakwater or harbour is under construction or repair, for it is this work that block-setters are specially designed to do. A magnificent Meccano model of a block-setting crane is shown in Fig. 1 on page 76. These monsters are capable of lifting and placing in position huge blocks of concrete or granite weighing 50 or more tons, and some of them are among the largest cranes in existence. There is no finer subject for the model-builder who owns a large Outfit.

Sometimes these cranes are fitted with a special lifting gear known as Fidler's block-setting tackle, which is specially designed to set the blocks at an angle in building a sea wall, or on an "inclined bond" as it is technically known, but others are fitted with ordinary Lewis bars.

In an ordinary type of luffing crane, such as those with which we have already dealt, a considerable amount of power is necessary to raise the jib on account of its weight and the effect of the load. If the jib is luffed in and out with the hoisting barrel braked, the load rises and falls also, so that power is used in lifting the load as well as in hoisting the jib. In order to eliminate some of this waste, many cranes are fitted with balanced jibs and what is known as "level-luffing" gear. This ingenious gear counteracts the effect of the load by making the crane hook remain always at the same height from the ground whilst the jib is being raised. Hence the motor has only to deal with friction, assuming the jib to be of the balanced type. There are many different level-luffing systems, all attaining the same object, and one of the most popular is the "Toplis" system. I intend to describe this system fully in the "*M.M.*" in the near future.

New Meccano Models—(Continued from page 83)

separated from it by a Collar on each Bolt. A $1\frac{1}{2}$ " Rod is mounted in the end holes of the Angle Brackets, and is passed through and fixed in the centre transverse bore of Coupling 7. The $\frac{3}{8}$ " Bevel Gears 9 are free to turn on the $1\frac{1}{2}$ " Rod, and mesh with similar Bevels fixed on the ends of the differential axles.

Bevel Gear 8 drives a $\frac{1}{2}$ " Bevel fixed on a Rod 10, which is mounted in a $3\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strip 11 and a Double Bent Strip, and carries a $\frac{1}{2}$ " Pinion meshed with a $1\frac{1}{2}$ " Contrate 12. The Contrate is fixed on a Rod fitted with a $\frac{1}{2}$ " Pulley 13. A length of Cord is tied to one of the Strips 6, passed round $\frac{1}{2}$ " Pulleys 13 and 14, and finally is tied to the second Strip 6.