The Metal Flows

OCTOBER 1948

Vol. 1 No. 3

Packaging the HOLDEN Car . . . . Page 1
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SUPPLY Manager of GMH, and a director since May, 1947, ARTHUR WIGAN was born at Glenelg, educated at St. Peter’s College, Adelaide, and had his initial business training in the oil department of Charles Atkins & Co., then as a mercantile broker.

In February, 1924, he joined Holden’s Motor Body Builders, then in King William Street, to inaugurate a “Specifications Department,” working under the late Mr. W. A. (“Bill”) Holden. At that time there was no engineering department as now known, no standards, no parts lists, and no production engineering department, and “Specifications” was supposed to remedy these lacks.

In April, 1925, Mr. Wigan was made assistant production manager and three months later purchase manager—reporting to the late Mr. H. J. Holden, then governing director. In February, 1926, he became supply manager, his responsibilities including buying, material control, customs and traffic, and he continued in that position after the transfer to Woodville in late 1926 during the 1927-28 boom, the depression and the subsequent reconstruction period. In 1939 he was sent to U.S.A., Canada and U.K., and came to Melbourne in May, 1943, to take charge of the Supply Department, Australia-wide, while the Director of Supply (Mr. Walter Hill) was overseas.

In February, 1944, he became administrative assistant to Mr. Hill, controlling all Supply operating functions; then became Supply Manager when Mr. Hill returned to Detroit. Married, with one daughter, his hobbies are golf and sailing.

On the Cover . . .

Cylinder blocks, cylinder heads, transmission housings, and other parts of the Australian car will be cast from the grey iron shown flowing from the furnace in No. 4 Plant (Foundry), Fishermen’s Bend, Kneeling, at right, is furnaceman MICK BURKE. Behind him is JACK HART (foreman melter). Both have been with GMH for 4 years.

The task of solving these problems was one for Supply Department. It has expended a considerable amount of time, and applied much thought and ingenuity to ensure that components for the car will be adequately protected against any rough handling, or exposure to varying climatic conditions while in transit, and also to provide the greatest possible economy.

Highly efficient transportation methods have been evolved by the GM factories overseas, but, unfortunately, conditions in Australia prevent the adoption of the best of these. In the United States, for
example, much use is made of specially designed rail cars for transporting components between the various factories, and problems related to casing or crating components are eliminated. In Australia, due to the variety of rail gauges and to existing controls a singular set-up is not possible at present.

In addition, due to the present lack of dependability of transport by road, rail or sea, it was essential that the standard method decided on should be within the limitations imposed by each of these services—to permit movement by each, or all, as was necessary to maintain continuity of production in the assembly plants.

To establish such a standard it was necessary to ascertain the economies related to the components to be included in the pack, that is, whether components originating from sources other than No. 5 Plant Melbourne—from oversea or interstate—should be brought to Melbourne to provide a standard pack, or be delivered direct to each assembly plant. It also was necessary to establish the required condition of models.
PACKAGING—Continued

for components received at those plants—whether as single units, sub-assemblies, or assemblies.

An additional prime factor concerned lumber.

Due to current shortages of local timber—a condition likely to continue until higher priorities are met—a review was made of the lumber contained in cases received from oversea. It was found to be extremely doubtful whether sufficient quantities of suitable lumber would be available from this source, also that there was a strong possibility of the flow being reduced by added restrictions on imports from the U.S.A. and Canada.

An analysis then revealed that sufficient stocks would be assured, and greatest economy achieved, by using a returnable type case, made up in sections. When unpacked in the assembly plants these sections will be packed flat and returned to Melbourne for re-use.

It was determined, after reviewing transport facilities such as average railcar dimensions, equipment at transhipment points, and various regulations, that most suitable case dimensions would be 90 x 84 x 84 inches, and the gross weight not more than two tons.

Samples of the components involved were not available and it would have been a terrific task to work only from drawings to arrive at the factors related to shape, fragility, etc., so that case allocation could be effected in such a way as to conform as nearly as possible to the foregoing dimensions. Therefore scaled models of those components considered to be limiting factors in packing—engine assembly, front axle, rear axle, radiator, steering gear, and tailshaft—were sculptured, from Engineering Department drawings, by a member of the Operations Section of the Supply Department, then cast in the new foundry at Fishermen’s Bend.

Then, in a series of practical studies, the most suitable case dimensions were established—using the scale models in model cases—and the standardised contents of each case decided. Some of the test packs are shown in the accompanying photographs.
BUILDING THE BODY

HAMILTON

AT

G.M.H. PLANT WOODVILLE

SOUTH AUSTRALIA

See Next Page
BUILDING THE BODY—Continued

Making all pieces to fit is the secret behind the modern methods used in the quantity production of high-quality automobile bodies—methods introduced into Australia for building bodies for General Motors' vehicles and carried out in General Motors-Holden's Ltd.'s 55 acre plant at Woodville, South Australia.

To the eye, a GMH body for the Australian car—completed except for doors, fenders and paintwork—may appear to be a single piece of cleverly worked and shaped steel. It is. But to make it, hundreds of individual pieces of steel had to be cut, shaped, stamped, drawn, formed, or rolled; fitted together; then welded into one unit. These tasks occupy 2058 employees in the Body Building Departments—excluding personnel engaged on material handling, tooling, maintenance, servicing, cleaning, and all staff.

Batteries of giant presses, some of them having thrust capacities exceeding 1500 tons, are needed to press, form, or draw the main steel parts for each body. In big, splendidly equipped workshops precision tools, dies and jigs are first made to enable these presses to operate. When all the pressings have been produced, hundreds of other operations have to be undertaken to fit them together, and to build in the stamped, rolled, or other metal parts that are produced in other sections of Woodville by various processes.

The final body, when it leaves the first assembly line for trimming, fitting of safety glass, painting and polishing, has been progressively built to be unsurpassed for strength with lightness, safety, beauty of styling, and modernity. Use of the latest welding methods is one guarantee of this inbuilt strength and safety. Each weld is made immensely strong, then so skillfully metal surfaced and ground flush that, in effect, it is invisible—even before the undercoat and final paintwork are applied.

1. From Full Scale drawings parts of body are first made in wood, then cast in plaster. From casts dies are made in iron, steel or GMZ-alloy. Model makers are (left): FRED BOWTER and EDWARD CURRAN; both have been with GMH since 1935. Fred’s hobby is beekeeping.

2. Keller duplicating machine profiles iron and steel dies, automatically copying plaster cast with absolute exactness. Working Keller (below) is first-class machinist RON COULTER, 12 years with GMH.

3. Many Dies are now made of new GMZ-Alloy. Fitting alloy dies for boulter in Clearing Stamping Press are (from left) die-fitters GARTH OWEN, KEITH WILLIAMS (ex-R.A.N.) and FRANK MATTHEWS, who has been 20 years with GMH.

4. Cold Steel literally flows to make required forms when pressed between dies. Here ALLAN MCDONALD and FRANK BULLOCK are working at Cutler Hammer press with JOE DANIELS, operator for 12 years.
5. Assembly Jigs provide housings in which stamped, pressed or drawn parts are brought together. Working on roof panel with pneumatic tools are theirs F. SARFF and E. GREATWATH.

6. Welder DON LENNON waits, on left (above) near giant welding “gun” while roof is lifted into place in assembly jig in which sides have already been joined up by spot welding.

7. Guns Firing sparks instead of bullets make spot-weld initial joins between parts and panels which come together in assembly jigs.

Building a body represents in time, labour and materials a large percentage of the cost of each completed car. Each body embraces approximately 3,000 parts—after counting common standard parts, such as certain types of screws, as one part only.

Actual building is divided into five main groups of operations:—

Fabrication: includes guillotining, blanking, pressing, heat treatment, welding, sub-assembly, plating, and spring coiling.

Assembly: includes sub-assembly, main-assembly, welding, and metal finishing.

Paint: includes acid washing, dipping, undercoat, finished coat, polish and touch-up.

Trim: includes fabrication of trim parts, attaching soft trim, fitting hardware and glass.

Final inspection.

Woodville needs still more employees to enable it successfully to play its part in producing the Australian car in the quantities Australia urgently needs.

8. Out of Jig rough-finished body is carefully welded along all seams, welds are filled, then ground flush with surrounding metal. Here GEORGE YOUNG welds internal joints as “raw” body passes on for painting.
Ray ["Razor"] Gillette of Traffic Dept, Fishermen’s Bend. Former South Melbourne star half-back, he is captain-coach of GMH Saturday Morning League team and all-rounder in the GMH cricket team. Well known pre-war as member of Brighton swimming and life-saving teams, he served with R.A.A.F., mainly on motorboat patrols off New Guinea. Two small sons and a daughter occupy most of Ray’s spare time, but he plans to become a breeder of Smooth-haired fox terriers and owns a dog of famed Pimboch breed.

Another Fishermen’s Bend “old timer” is WALLY WIG-NELL shown below (second from right) with his Paint Shop crew lined up before new Bedford bus. Wally captained GMH Plant XI which last season won Melbourne Sunday Cricket Premiership.

Brisbane

DESIGNED AND BUILT HIS OWN
£2000 PIPE ORGAN

Most of us, as children, boasted of what we would do when we grew up. Some of us were going to be firemen, train drivers, Prime Ministers, or Field Marshals, but we somehow forget to be those things as adults.

But when Les Somerville, Plant Engineer, Brisbane Plant, was a boy and first heard the Town Hall organ played he told his mother that one day he would build such an organ—and he meant it.

Les grew up, married, established his home before he started to fulfil his boyhood promise. Then he bought books on music, taught himself to play the piano, finally bought a book on organ construction. About 1938 he set to work. He made his own equipment, set up his own lathe, and after three years’ hard work had completed his organ as a dominant feature of a room in his home—which he had extended to suit. He also added a 14 by 8 ft. bellows room equipped with a 3-stage, 1 h.p. electric blower.

Biggest task Les faced was making the organ pipes. After making the six big ranks of pipes—each of 36 notes, and the biggest ones 8 ft. 6 in. long—he then had to bore 3000 accurate holes in the pipe timbers. Hours and hours of painstaking work went into making each pipe.

Caricature at left shows Les engaged in some of his other off-duty hobbies. Popular as an amateur pianist with concert parties, he makes furniture, “plays around” with photography—editing and adding sound to his own 16 mm. movies—and is now working on a colour tone film with special sound amplification.

Melbourne Girls’ Charities Fund

Two letters received recently by Miss V. Drayson (Cable Row) reveal that for some years girls from all departments at Fishermen’s Bend have been making regular joint donations to various charities, Miss Drayson acting as organising secretary for these activities.

The first letter, from the Sister-in-Charge of The Grey Sisters Order, thanks the girls for their latest donation of £43 to the Mother and Child Care Centre which has been conducted at Surrey Hills but may soon be established in new premises at Canterbury, Melbourne.

In the other letter the secretary of the Infant and Maternal Welfare Centre, Carlton, expresses thanks for £50—which came just in time because the Centre has a deficit.”

GMH People

Vol. 1, No. 3

Published each month for free issue to all employees of General Motors-Holden’s Ltd. in the Company’s plants at Fishermen’s Bend (Melbourne), Woodville and Birkenhead (Adelaide), Pagewood (Sydney), The Valley (Brisbane), and Mosman Park (Perth).

Produced with the help of GMH people throughout Australia by the Public Relations Section of GMH at the Head Office, Salmon St, Fishermen’s Bend, Melbourne.

Editor: K. WALLACE-CRABBE

OCTOBER 1948
SPORTS AND SOCIAL CLUB'S FINE RECORD OF PROGRESS

With 2000 members, GMH Club, Woodville, claims to be the biggest Sports and Social Club in Australia. Members can take part in any sporting or social activity, as well as the main functions run by the Management Committee.

The Sports and Social Club was formed in July, 1946, by a joint committee of members of the old Staff Club and the Factory Social Club, which previously had organised activities but were limited through lack of funds and no full-time secretary. The existence of other clubs at the Plant meant that neither employees nor the Company really knew who was responsible for sporting and social activities.

In forming one club—GMH Sports and Social Club—it was considered necessary:

That there should be one central Management Committee elected by employees and representing each section of the Plant and the Staff.

That the Company should provide a full-time secretary.

That the Club should obtain its revenue from subscriptions of 3d. a week, a member deducted from pay each fourth week.

That the Company would only recognise this Management Committee in matters relating to sports and social activities within the Plant.

These requirements were incorporated in a proper constitution, adopted by members, the club was registered as an incorporated body, and it was provided that groups of club members could form their own little clubs, either departmentally or for a common interest. These clubs in turn affiliated with the main body, and received from it financial assistance and co-operation.

Now there is a Social Club in every department, also clubs for Indoor Bowls, Table Tennis, Debating, Cricket, Philately, Chess, Draughts, Quoits, and Electric Light Cricket.

In addition, the Management Committee provides large annual attractions, which are free to members, and include a ball, a swimming carnival, smoke social, boxing tournament and picnic. In most cases, a free double ticket is issued to members. For the picnic, members and their families are given free transport, and a sports programme.

From its inception, the Club has been fortunate in having a hard working and enthusiastic Management Committee, also interested and co-operative Company representatives. Mr. Fred Mewett, the first and only chairman, has done much to ensure the success of the Club, but the busiest member is the Secretary, Mr. Jim Smith. He gives advice and assistance to all affiliated groups, organises main functions, but also finds time to issue discount cards on various firms for use by members when buying jewellery, gifts, tyres, batteries, sporting equipment, radios and electrical goods. So far this year, he has booked and issued £200 theatre tickets, at rates representing a saving of £45 to members.

The evidence of the success of the excellent job done by the Management Committee can be seen in a lunch hour walk through Woodville. At many points different games are being played with equipment supplied by the Club. If this is not enough, a visit to one of many shows held in the evenings will reveal what it is doing for members.

The Club is in a sound financial position, and a Sports Area on the Port Road Plantation, outside the Plant, is planned for tennis, bowls and basketball.

19th Hole was popular with members of GMH Golf Club at their recent meeting at Long Island, Frankston, Melbourne.

1948 Management Committee of Sports and Social Club, Woodville. From left: R. Obst (Body Shop), J. Summers (Spring and Nickel), P. Byass (Tin Plating, Factory Store), C. Horne (Paint), L. Symons (No. 1 Production), C. Ridley (Tooling), R. Hamilton (Maintenance), F. Mewett (Assembly) Chairman, J. Smith (Secretary), J. Simpson (Staff) Treasurer, E. J. Heeseman (Staff) Vice-Chairman, K. Walker (Factory Office), P. Taylor (Grinding Machine), B. Miners (Body Shop), L. Curnow (Accounting), R. J. Hackett (Company Representative), Absent: M. C. Maffat (Company Representative).
Rock Carvings found at Woolahra Point, Sydney, and translated by the famous Lawrence Hargrave in his "Lope De Vega." Other carvings, linked with these, have been found at Bondi, Kuringai Chase, Port Hacking, and Brunswick River—all in New South Wales—and on Facing Island.

Norman Lindsay illustration, drawn in 1933 for "The Lone Hand," is reconstruction of De Vega supervising cutting of the Woolahra carvings.

Captain James Cook, "discoverer" of Eastern Australia, produced meticulously accurate log-books and charts of his many discoveries. Yet, when he anchored his ship "Endeavour" off Facing Island, near the modern Gladstone (Queensland), and sent a boat ashore he did one inexplicable thing. He failed to include the island in his charts. This story of Lope De Vega has been advanced by historians as the reason why Cook ignored the island in his 1770 records.

The story originates with the visit to Facing Island, in 1853, of Colonel Barney—who found on the island a giant rock carved into a replica of an Inca god of South America, and dated 1600—and from the landing, a few months earlier, of a party from two British warships—H.M.S. "Fly" and "Bramble." With the landing party was Mr. J. B. Jukes, who later wrote the famous "Narrative of the Voyage of The Fly," and to whom came several natives carrying between them a tortoise-shell and bamboo "God," of extraordinary weight. This, the natives said, had been handed down in their tribe with the instruction that it should be given eventually to the first "white-faced men who reached the island in a ship with wings."

Jukes also saw on the island the well preserved wreck of a Spanish carrack—a distinctive oar-steered Spanish ship of a type that disappeared before 1620—and noted with special interest that around the neck of the "God" there was hung a replica, exact in detail, of the sacred Fish Emblem of the Indians of Peru. Back to England went the "God"—it took two stalwart sailors all their time to lift it into Jukes' boat—and there it went to the United Services Institute, and became forgotten.

Lawrence Hargrave is rightly famous in Australian history, and a stone column at Stanwell Park honours him as a world pioneer of aeronautics. He experimented extensively with aeroplanes, some of his rubber driven models making actual flights long before any other aeroplane had flown, and the widely used box-kite is one of his better-known inventions.

It is from his lesser known historical researches that we have gained the publication "Lope De Vega," and other excellent writings that piece together the story of that navigator and his fate, and it is from Hargrave's inquiries that the sequel to the tortoise-shell "God" has been revealed.

Drawing of the "God" after an illustration in Jukes' book on the voyage of H.M.S. "Fly."
DE VEGA BEFORE COOK?

WHAT began Hargrave’s researches was a series of discoveries in Sydney Harbour, and elsewhere, of ancient rock carvings. At the top of this article is a reproduction of the best known of these—the carvings at Woollahra Point, Sydney. Hargrave, and others, have translated these to read:—“We in the ships Santa Barbara and Santa Isabel conquered W (this country) from point to point by the Sign of the Cross.”

For this translation he uses BA and ZA to indicate the names of the two ships; uses L for Lope De Vega; N, I and H (Nunez, Ignacio and Hernando) for witnesses; and the circle with cross as a repetition of the famous Spanish symbol of conquest. Fairly accurately the carvings depict a caravel (rudder steered) and a carrack.

THESE small ships had a maximum speed of about four knots and we know from other records that the ships Sta Isabella and Sta Barbara, the former commanded by Lope De Vega, sailed from Vera Cruz (Mexico) in 1595 in the fleet of Mendana who aimed to discover the El Dorados Australia.

In storms off Tinacula Island, then in vivid eruption, the Sta Isabella with its packed complement of Spanish gold hunters, soldiers and priests, and their Mexican and Peruvian Indian slaves, separated from the fleet which reached Santa Cruz (New Hebrides) after a difficult 7000 mile voyage. There Admiral Mendana died, the fleet went on to the Philippines, then sailed back to Mexico in 1596 after, presumably, sending the Sta Barbara to search for De Vega.

Before then, and about 74 years before Cook saw Botany Bay, De Vega had made his way into Sydney Harbour and had landed at Woollahra Point. There, after leading big iron rings into the rocks, he careened his vessel, scraped its hull free from weed and parasite growths, then sailed south to find gold. Other rock carvings at Bondi, Port Hacking, Kuringai Chase, and far north at Brunswick River, trace some of his sea travels, while hieroglyphic Indian hand and other symbols at these and other points, also reveal that extensive land explorations were attempted.

And De Vega found gold! He found it in south New South Wales, at the mouth of the Shoalhaven River. The amount he got was enough to fill a big two-foot long bamboo pole, plugged at each end, of the type used by Peruvian Indians to hold gold dust. This bamboo gold container later became the torso of the tortoise-shell “God.” Later Sta Barbara was wrecked on Facing Island, some of the crew surviving, but De Vega and all his people were lost when the Sta Isabella (or Isabel) foundered in Torres Straits.

ARMED with these facts, Hargrave began a search for the strangely heavy tortoise-shell “God.” The Services Institute turned up long forgotten records, at last discovered that it had been sent to the British Museum—a “lifting job for three carrying men.” But it failed to reach the Museum.

One of the “carrying men” or someone else, had discovered what Jukes and the Institute officials had overlooked. . . . that the body of the “God” was packed with gold. The gold that had cost De Vega and two ships’ crews their lives.

Brunswick River is now one of the most attractive of N.S.W. North Coast holiday resorts. Spanish carvings were found in mountains seen inland from road in picture below. For many years were regarded as the work of escaped convict artist.

GMH CHRISTMAS CRICKET

ACCOMMODATION has been secured in Sydney for 20 visitors from Fishermen’s Bend, and 36 from Woodville, for the Jack Hannerman Shield triangular cricket contest with Pagewood at Christmas. Pagewood holds the Shield, having defeated Melbourne and Woodville in Melbourne at Easter.

The itinerary prepared for the visitors by Pagewood Sports and Social Club Committee is:

Sunday, December 26—Committee meets visitors, conducts them to Carlton and Oceanic Hotels.


Tuesday, December 28—Day bus tour to Blue Mountains. Lunch at Liptstone Hotel.


Thursday, December 30—Wimmers v. Pagewood, at Woollahra oval. 3.15 p.m., Presentation of Shield.

Friday, December 31—Show Boat excursion, Sydney Harbour, with lunch at Fig Tree Cabaret.

Saturday, January 1—Free Day (Randwick Races).

Sunday, January 2—Sightseeing at Sydney beaches.

Monday, January 3—Visitors leave for Melbourne and Adelaide.

Another “Lone Hand” illustration by Norman Lindsay of a Spanish castaway making the famous “God” on Facing Island.
This is the story of six typical Australians—all employees of GMH at Woodville, South Australia—who, tired of waiting for the housing shortage to lessen, have set to work to create homes for their families and themselves by their own single-handed efforts.

It is a story worthy of recording for it is one of ordinary men, none of them employed in building activities, triumphing over countless difficulties and shortages of materials, and relying on their own initiative, hard work, and will-to-win to provide them with the urgently needed homes they cannot otherwise obtain.

These men are working as the pioneers worked—courageously and with fixed determination to reach the goal at which they aim—their building skill increasing as the new homes take shape and form through their own hard thinking and harder labour.

For each of them necessity has been, once again, the Mother of Invention, and Australia has cause to be proud that it possesses men of their calibre. In them the spirit of the pioneers lives again—the same spirit that revived so gloriously among our people and in Australian servicemen during the two World Wars.

It is the spirit of a people, free and unconquerable; a people having grit and purpose; and the ability to meet sudden national needs by enthusiastic improvisation, and the application of native intelligence.

... AND FIVE MORE BEING BUILT BY OTHER MEN FROM WOODVILLE TO PROVIDE HOMES FOR THEIR FAMILIES
PICTURES on these pages, of these men's homes, provide almost a lesson book in the step by step construction of a home. They show the variety of materials that these men have pressed into use, also the excellence of their planning and craftsmanship.

*People* takes pride in presenting this story and these pictures. The pictures have dramatic meaning, for they illustrate what many other Australians are doing to-day in many parts of our Commonwealth—solving part of the acute national housing problem by building for themselves.

Arthur Eckert (Electrician, Maintenance) is concentrating (right) on first completing rear part of home he is building for his family.
Shark Boat BANSHEE (above) was built at CMH at 40 ft. as a sea rescue launch, and bought from disposals by Austin Bell, former Supply Dept. employee for 18 years. He fitted GM 367-4A 60 b.h.p. Diesel, decked in hull, and now operates 10-ton boat with crew of four from Barwon Heads, Vic.

Below: Cronulla ex-servicemen trainees hauling in a net full with fish on Diesel-engined 60 ft. trawler. Winchman waits at rear to swing catch into ship's well.

IDEF HELPS MODERNIZE TRAWLING FLEET AND SHARK-HUNTING BOATS

Fish are scarce on the tables of average Australian families—but they are not scarce in the waters that surround our vast coastline.

Remedy for the scarcity is not simply a matter of more fish being caught, but, as increased hauls must have an eventual remedial effect, fishermen are improving their sea-harvesting methods, and providing themselves with improved gear and more speedy, more seaworthy boats. Most of these boats they are equipping with GM Diesels.

MEANWHILE Australia's first Fisheries School has been set up on the rocky, wooded shores of Port Hacking, near Cronulla, 18 miles south of Sydney. Students at this school are all young ex-war veterans, some of them from the Royal Australian Navy, some from

Typical Lakes Entrance shark fishing and trawling boat. Powered by GM Diesel, it is owned by Harrison, Michelson and Schroeder.
the A.I.F. and A.M.F., and a few from Air Force air-sea rescue units. At Cronulla they live in ex-navy huts, as do the training staff.

This novel school is administered by the Director of Fisheries as part of the Australian reconstruction training scheme. The superintendent is former Group-Captain P. G. Graham, R.A.A.F. He is responsible for administration and for teaching meteorology and navigation. In charge of practical training is Captain Harry Johnston, master mariner, expert fisherman, and for some time fisheries technical adviser to U.N.R.A. He has under his control a 60 ft. Diesel-powered Otter trawler, a Diesel-powered Seine trawler, three small craft for inshore fishing, a 40 ft. whaler for training in seamanship, and thousands of pounds' worth of beach nets, trawl nets, and commercial fishermen's hand lines.

THE 60 young men who made up the first course at the school were selected from about 150 applicants from all Australian States. The second course also numbers 60 students, and at least 200 more men are waiting for training.

Training lasts for 30 weeks. During the first 10 weeks, trainees do a general course covering the whole fishing industry. For the last 20 weeks they can select special subjects that will fit them for the work they plan to do. Some wish to concentrate on sharking, or crayfishing. Others intend to devote themselves to processing of fish for food. The course is varied to suit these individual needs.

Trainees are grouped into crews of 10, three crews making up a watch. While one watch is attending lectures, the other is having practical training. In sea training, two crews work at beach netting, while two crews go out on the Seine trawler and two on the Otter trawler.

Trainees also study fisheries administration, management, depletion, over-fishing, State fisheries legislation, overseas legislation, and international fisheries agreements. Finally they learn the latest methods of fish food technology, the handling, transport, preserving, refrigeration and processing of fish.

Photographs on these pages thus show two phases of the present rejuvenation of the fishing industry in Australia. They also show how rapidly and widely the Diesel engine is being adopted for deep-sea harvesting off our coasts. Most Diesel motors for the fishing fleets are being supplied by IDEC—Industrial and Domestic Equipment Division of General Motors-Holden’s Ltd.

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Victorian Pictures by Ted Cay, GMH Plant Photographer

Work begins at 8.30 a.m. daily, continues to 4.30 p.m., with an hour break for lunch. The practical training includes net-making and repair—the men make all their own smaller nets before they start fishing, rigging and splicing; mending of boats; and engine operation and maintenance. They study types of gear, its design, construction, preservation, and repair. They learn about boats, their design, the construction and use of slipways, and the navigation course fits them to take responsible charge of all types of fishing craft.

The theoretical side of the training thoroughly teaches the men the anatomy and physiology of fish. They study the sea as a living place, learning about the composition of sea water, ocean currents, and tides. They learn about plankton and other fish foods; about fresh water fisheries, oysters, lobsters, crayfish, prawns and crabs. They also learn about world fisheries, their methods of production, their manpower, gear, boats, fuel, and finance. Similarly they learn about distribution, markets, transport, and port facilities. The lecturing staff is drawn from officers of the Council for Scientific and Industrial Research and the Commonwealth Fisheries Office.

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At Sunset: Diesel-engined trawler heads back to Cronulla after dropping flag-marked buoy to mark spot where last haul of nets was made.
ROAD TEST OF...

The HOLDEN Car

For a period of 10 years it was the job of the writer to road-test cars. In that time he tested almost every new car or new model that appeared on this market, and his test reports were featured throughout the Australian press. One reason for their popularity was that the performances of all cars were assessed comparatively, for he tested every car over one specially chosen route.

This is the first road-test report on the Australian car. It is a report that, as an Australian, I am proud to write. Also it is a report I always hoped to write.

Yesterday it became possible, and the Australian car was road-tested over the identical 86 mile route on which I “punished” so many new cars in the past. Now, as then, that course is, in my opinion, the best “give and take” example of Australian road conditions that could be chosen.

But car owners seldom, if ever, punish a car as the Australian car was punished yesterday—to learn exactly how it behaves, particularly on rough roads and potholed tracks, on muddy and water-channelled hills, on loose gravel, and under many other conditions.

Yet day in and day out this car, and four others, have been making this identical drive, and under the same severity of handling, and one of them has exceeded 71,000 miles of this testing—equal to about 284,000 miles of normal driving!

There is no overstating in that claim. No car would normally be driven over this course at more than half the set, and timed, testing speeds. Nor would you subject your own car to the abrupt stops, starts, climbs, speed cornerings, accelerations, and other pounding tests that are normal for each test car on each run over this course.

THAT each of the five test cars has come through months of this severe testing with honours is in itself a tribute to the excellence of the design and construction of the Australian car. But it is my opinion that very few other cars now on this market would give equally good results on the same course.

This includes 12 miles of gravel—most of it loose and rough, but very good for testing steering, riding comfort, cornering and general stability. It includes four miles of unsurfaced hills, steep and very good for testing steering, riding comfort, cornering and generally rough. It includes four miles of broken macadam, embracing long stretches of water-filled potholes.

Any car that can belt over those potholes at 55 m.p.h. is a good car, but the Australian car did it easily and in complete control. At the same speed it cornered without wobble; on both loose gravel and macadam, then on good surfaces went easily up to 75 m.p.h. and held that speed with ease. Repeatedly it was accelerated from a slow roll to past 50 m.p.h. in second gear, and always that speed was gained without losing the power peak of the engine.

Finally as a test of high gear flexibility on a steep grade—varying from 1 in 3 to 1 in 10—the car was checked back from 30 m.p.h. to 7 m.p.h. And this proved itself capable of accelerating swiftly and easily up from that speed to nearly 50 m.p.h.

These things, and many others that the car did, are the reasons I am proud to write this report; for the Australian car is better than good. It lacks nothing, and it has a dozen or more performance features each of which hallmarks this car as one of exceptional merit.

Future owners may perhaps list these things in varying order, but in my opinion, four dominant features of the Australian car are:

* Its inherent stability;
* Marked riding comfort on all surfaces and at all speeds;
* The excellence of its steering;
* And the effortless, flexible, always silent flow of power given by its exceptionally economical engine.

Even to quote performance figures would give no true indication of the merit of this car, for something of much more importance is the way it gives these performances.

As cars go to-day, the Australian car is not a big car, but it rides like one, has equivalent passenger comfort, and performs like one. It “glues down” at 75 as safely and smoothly as any car I could name. It has the power for all high-speed operation under most conceivable conditions; and it traverses rough going in a way that is only possible when a car is perfect in its weight distribution. In addition, clever design gives exceptionally clear vision—in all directions—for driver and all passengers, also the comfort and roominess and low-build that are modern needs. I consider that this car is as skid-proof as any sedan-type car yet designed, and in its unusually direct steering—light and shock free—it has been given a feature that most Australian car owners have hitherto sought for in vain.

Finally, and for the average private owner this is a matter of extreme importance. I do not believe that this car will date in any way—and particularly not in appearance.

Nasco Picnic at Barren River was enjoyed by J. G. (John) Hill (Executive assistant to Managing Director, in charge of non-vehicle products) and Mrs. Hill, here pictured at the luncheon interval.
First E1 winner for "Picture of the Month" in People's photo contest is Fred Farthing (Prod. Engineering, Melbourne). He took this night picture at Indented Head, near Portarlington, with a box camera and a 20 minute exposure.

Jack Webb (below, right), Plant and Equipment Engineer at Pagewood, started with GMH in 1927. With Albert Foskett and Col. Miles, is member of Googeta Club and spear-fishes flathead, bream, and blackfish, mainly at Lake Ponjola.

Eight Years with GMH, LEN BARRETT (Traffic, Brisbane) is snapped (left) holding baby son, John Leonard, aged four months. Len served four years with R.A.A.F. As Flight Engineer on Catalina flying boats helped evacuate 60 people from Singapore. On one flight landed on open sea to rescue 11 refugees. "Cat" got off again although it took a 13 miles run.

Miss Shirley Aiken, NASCO (Melbourne) comptometer operator for 21 years, was married to Mr. Arthur Cooper, of Launceston, on Saturday, September 25, at St. John's Church, Elsternwick.

Back at Work in Paint Division at Birkenhead (right) is popular ALAN RASHLEIGH. In November, 1946, a falling car body caused a double break in one of Alan's legs, incapacitated him for 13 months.

Four Years in R.A.N.—in H.M.A.S. Hobart and Nepal—KEY. BURKE (left, above) has been two years with GMH and plays in Pagewood cricket team. Wiring a body with him is NOEL CLARKE, who was in 30th Infantry at Wewak and Madang, served 15 years in Army.

Repair That Watch at home. Dirt is chief cause of stoppages of watches and clocks. Home cleaning is simple. Take small wad of cotton wool, soak it in paraffin, wring it out, then put it in a saucer. Open back of watch and straddle it over wool, without wool touching works. Cover for 48 hours with pudding basin. Fumes from paraffin penetrate works and dislodge dirt.

With GMH since 1925, JACK CORKE (Procurement Officer, Brisbane) rose from AC2 to Squadron Leader while with the R.A.A.F., his jobs being bomb demolition and bombing-up Beauforts. Jack served in N.W. Area 1940-41 and Pacific Area 1943-45.

With regret People announces the recent deaths of:

ERNEST GARLEPP, foreman of Maintenance Section of the Manufacturing Department, Fishermans Bend, Aged 62. Ernest had been with the Company since March, 1936.

J. H. ("Herbie") JACKSON, employment officer, Woodville, and one of the most popular and longest serving of GMH's Adelaide employees.
In the past two months you have—we hope—laid out, dug and trenches your home vegetable garden. If you have, now is the time to get in the seeds.

If you haven’t, there’s still time to get the plots dug and prepared but, to avoid missing valuable crops—some should now be sown—make a small seed bed first and let the seedlings sprout thickly in it while you prepare proper growing beds.

There will still be time to transplant your seedlings into the new bed—but don’t delay transplanting too long now spring is here.

Remember also that if your preference is for root crops—carrots, parsnips, etc.—your growing bed must be deeply dug; also that loam or alluvial silt soils are better than gravelly soils, which cause misshapen roots.

Root crops do better when planted in rotation after a leaf crop (i.e., cauliflowers or cabbages) that has been heavily manured, but, in new beds you can compensate for this by broadcasting a mixture of 2 oz. of sulphate of ammonia and 4 oz. superphosphate to the square yard, digging this deeply into the soil some days before sowing.

Lettuce plants rapidly run to seed, instead of heart, as the weather warms up. To avoid this, hoe similar fertiliser into lettuce beds then, as the plants form, force them along by repeated applications of 2 oz. of sulphate of ammonia a square yard. This will prevent both premature seeding and bitterness.

Silver Beet and Red Beet—standbys in most home gardens—will also repay you for forcing treatment. Give half-an-ounce of market garden manure to each plant every month (Silver Beet), or two months (Red Beet), after planting in soil into which an ounce of sulphate of ammonia or blood manure has been hoed. Convenient measure for all fertilisers is a matchbox. Filled, it holds on average half-an-ounce of any fertiliser.

Pest control needs attention now for those of you who already have home gardens in early growth. Common pests—particularly in young carrots and parsnips—are aphides. They stunt or kill the plants but are best controlled by dusting with derris or nicotine powder.

And right from the start form the habit of destroying badly infected plants and garden waste—by burning, not by digging-in. Your crucifers—cabbages, cauliflowers, sprouts, turnips, radishes—need protection from various pests, notably cabbage moth grubs. Spray with arsenate of lead, or dust with derris, immediately you see grub holes appear in the leaves of young plants but if you use the poison spray remember to wash your crucifers thoroughly before they are eaten.

Slugs and snails, your other garden enemies, are very easily controlled with any of the popular baits, such as metaldehyde.

But with all plants prevention is better than cure, so get the habit of making regular routine applications of insecticides from the seedling stage to maturity. This pays dividends, giving you big crops.

Match Box is useful measure in garden.

Melbourne: Some: Broad Bean (Leviathan); Butter Bean (Was); Dwarf French (Hawkesbury); Climbing (Scarlet Runner); Red Beet, Celery (White Flume); Cucumber (Crystal Apple); Leek (London Flag); Lettuce (Iceberg or Imperial 44); Marrow (White Bush); Parsnip (Melbourne White); Pea (Greenfeast); Pumpkin (Queensland Blue); Spinach (New Zealand); Tomato (Late).

Thin out or transplant Early Tomato, Turnip, Carrot.

Adelaide: Some: Dwarf (Canadian Wander) and Climbing Beans; Red Beet (Crimson Globe); Silver Beet (Fordhook or Lucullus); Cabbages (Drumhead at St. John’s Day); Carrot (Early Horn or Chantenay); Celery (S. A. Long White); Cucumber (Paris Cluster Apple, Jap Climbing, Green Prickly); Lettuce (Green Jade, Iceberg); Parsnip (Hollow Crown); Marrow; Pumpkin (Sugar Ball); Radish (Scarlet Globe, French Breakfast); Tomato (Early Dwarf Red); Turnip (White Stone); Suede (Purple Top); Spinach (New Zealand).

Sydney: Some: Red Beet (Detroit Dark Red); Carrot (Scarlet Nantes, Champion Long Red); Turnip (Purple Top); Parsnip (Hollow Crown); Silver Beet (Fordhook, Lucullus); Lettuce (Imperials 84, 44, 615, or 13); French Bean (Hawkesbury, Greenpods); Leek (Musselburgh); Watermelon (Hawkesbury); Rock Melon (Honey Dew); Tomato (Dwarf Globe, Potentate); Pumpkin; Cucumber; Marrow; Rhubarb (both seed and set out crowns).

Brisbane: Some: Cabbage (Allhead, Drumhead); Chowa; Lettuce (Imperial 84, Iceberg); Pumpkin; Radish; Silver Beet (Fordhook); Tomato (Break of Day, Pearson); Beans (Brown Beauty, Epicure); Red Beet (a few seeds every six weeks for all-the-year-round crops. Crimson Globe).

Industrial rubber cements such as PC 49 are useful for many jobs round the home. They stick well to almost anything, including metal, and can be used to repair leaking baths, sinks or tanks by sticking a piece of cotton fabric on the outside. They are also useful in repairing car hoods or fabric roofs, sandshoes, or for sticking rubber soles or heels to leather shoes.

Bread can be kept fresh by wrapping it well then placing it in the refrigerator.

Pastry dough can be rolled more easily and cleanly by placing a sheet of waxed paper on the board and another piece on top of the dough.
THE STORY OF VAUXHALL

Griffin, or Gryphon, crest of Vauxhall cars dates back in England to the days of King John — to soldier-adventurer Fulk le Breant who adopted the Griffin as his crest. By the King's order he married Margaret, widow of Baldwin de Redvers, son of the Earl of Devon, and by that marriage acquired his wife's property in Lambeth, London. His house became known as Fulk's Hall. Later this was corrupted to Fawkes Hall and then to Vauxhall.

The Griffin became the sign of the famous Vauxhall Gardens; and when the Vauxhall Motors were founded Fulk's crest was adopted as its trade mark.

Many years later, when the Vauxhall Company had to find room for car building, it chose the present site at Luton. The discovery was made that Luton was the original home of Falk le Breant and his castle still stood there.

Coincidence had brought the Griffin home.

To-day Vauxhall is one of Britain's leading car manufacturing plants, employing more than 11,000 people, and occupying 60 acres of floor space.

W
HEN Mr. Alexander Wilson, a Scottish engineer, founded the Vauxhall Iron Works in 1837, neither he nor any of his associates could have foreseen the company's future growth.

Trading as Alex. Wilson & Co. he rapidly acquired a well-deserved reputation and became the employer of 150 men. His main products were small high-pressure steam engines for Admiralty pinnaces and compound and triple expansion engines for Thames tugs.

He also built engines for side and stern-wheeler ships, a range of donkey pumps for boilers, and dry-ice refrigerating plants for production of artificial ice and for cold storage, and a limited company was formed in 1892. Two years later the old engineer sought his independence and moved into London city as a consulting engineer.

The Vauxhall Iron Works continued to expand — concentrating mainly on its original products — and in 1897, a year after the first British car appeared, Mr. F. W. Hodges joined the firm. A marine engineer, he had served his apprenticeship with Alex. Wilson & Co., and was quick to visualise the possibilities offered by the invention of the petrol engine, so a car was obtained and carefully studied.

A little later the first step was taken toward Vauxhall manufacture of a car by the designing and production of a single-cylinder, two-piston petrol engine which Mr. Hodges tested in his river launch.

A test car followed, next a 3-cylinder radial engine, then in 1902 work began on a second car — jointly designed by Mr. Hodges and Mr. J. H. Chambers. This car came on to the market in 1903. Tiller steered, it sold for £130. It had a 3 h.p. single cylinder, vertical to horizontal, vertical coil spring suspension and two forward speeds.

Two new models — 6 h.p. and 12.14 h.p., appeared in 1904, the larger car having three water-cooled cylinders, three forward gears and a reverse, also the then novel feature of a steering wheel. Again both performance and public acceptance were encouraging and an expansion of sales to 75 for the year forced the company to seek larger premises, and the move to Luton was made in 1905.

That year a fourth Vauxhall — a 5 h.p., model of the already famous 12.14 appeared. It was followed quickly by a 3 h.p. then, in November, 1905, by the first 4-cylinder Vauxhall. This presented, among many novel features, the fluted radiator and bonnet — both still distinctive Vauxhall features.

1906 was another year of progress. During it the Vauxhall Iron Works amalgamated with the West Hydraulic Engineering Co. Ltd. and there appeared a 12.16 Vauxhall, basically new in design and having as one novelty a "live" back axle.

Again sales were good and in 1907, Vauxhall Motors Ltd. was established to take over all automobile interests, leaving the marine, refrigeration and hydraulic products to be handled independently by

Air View at top illustrates extent of Vauxhall Works at Luton, England.
the West Hydraulic Co. The board of Vauxhall Motors was formed with Mr. Leslie Walton and Mr. P. C. Kidner as joint managing directors and Mr. Hodges as consulting engineer and, a little later, the first 20 h.p. Vauxhall appeared. This was the company's most successful early car and the first Vauxhall to feature an "en bloc" cylinder casting.

Driven by Mr. Kidner, it won the 1908 RAC 2000 Mile Trials, also many other famous events, and began for Vauxhall a brilliant period of successful trials, track races and hill climbs in Britain and Europe, and the establishing of many early speed and endurance world records. Thus in 1910 three Vauxhalls were outstanding in the 1200 mile Prince Henry of Prussia Tour and a 20 h.p. Vauxhall became the first car to achieve a timed speed exceeding 100 m.p.h.

SUCCESS after success, and record after record came to Vauxhall in 1913 there appeared the "30/98" Vauxhall which up to 1939 still ranked among the best in the world for racing and speed contests. There also appeared the 25 h.p. model which in August, 1913, broke 11 world records and 15 class records—including all records for 300 to 700 miles at speeds averaging from 92.11 to 87.74 m.p.h. Throughout 1914—while the standard Vauxhalls, like the 20 h.p. Prince Henry, the 16 h.p., the six-cylinder 35 h.p., the 20 h.p. "Colonial" model, and the first commercial model, continued to gain big increases in sales—another big run of racing and trial successes was achieved by the "30/98," the new Prince Henry "25" and by the 22.4 h.p. and 18/57 h.p. special racing Vauxhalls.

THEN came the war but the Prince Henry 25 was in full production. Strong, reliable, it was adopted as Britain's staff car. The output of seven cars a week was maintained during 1915, increased to eight in 1916 and again increased in 1917, despite the fact that most Vauxhall facilities had been swung over to other urgent war production jobs.

Vauxhalls carried the Allied leaders on all battle fronts. One was used by King George at Vimy Ridge. General Allenby entered Jerusalem after its capture in a Vauxhall, and the first car to cross the Rhine after the Armistice was a Vauxhall. Other Prince Henrys gave similar conspicuous service in East Africa, Palestine, Arabia, Egypt, Mesopotamia, Greece, Albania and Russia.

1919 found the company in the fortunate position of being able to resume car manufacture—a very different position from the one obtaining after the Second World War—and volume production was resumed with the 25 h.p. Prince Henry and the "30/98."

In 1922 sales figures leapt to 600 cars, in the next year to more than 1400, and progress continued year by year until 1930 when the period of meteoric development began—the result of the 1926 acquisition of Vauxhall by General Motors.

In 1930 the first "Cadet" appeared—a 17 h.p. six cylinder, and the first Vauxhall for many years to sell at less than £300—and the first 30 cwt. Bedford truck was marketed. In 1932, despite depression in Britain, another seven acres were added to Luton. The Bedford range was increased to include 2-ton, 30-cwt. and 12-cwt. models, and export sales leapt from 1700 to 6300. Half of all British commercial vehicles for export came from Luton, and more than 10,000 Bedfords were sold that year.

In 1933 the Light Six car was launched. A 14 h.p., it captured the public imagination, and gained 40 per cent of the total sales in its class. To the Bedford range there were added 8-cwt. and 3-ton models and in one month exports from the factory rose to more than 1000, total sales doubled those for the previous year, 10 more acres were added to the factory, and 2000 more employees were engaged.

In 1934 Vauxhall sales swept on and ever up. Vauxhall appeared with independent front wheel suspension. Three more acres were added to the factory. Twenty thousand Bedfords were sold. Another 1200 men were employed.

The next year more than 25,000 Vauxhalls were sold. In 1936, car and truck sales exceeded 50,000 and in 1937 £1 million was expended in new plant, equipment and buildings preliminary to the introduction of the first Vauxhall "Ten"... a car specially designed to enter a highly competitive market. This car was another unprecedented success. More floor space had to be added to the factory, another 1000 workers engaged.

And so it went on until 1938 when, despite the Munich crisis, sales for the year exceeded 60,000 vehicles of which more than 20,000 went overseas, and another 10 acres of floor space had to be added to the plant. 1939 opened even more successfully. Sales for the first six months were more than double the total for 1930 and, at the outbreak of war, Vauxhall-Bedford production a week was equaling the total output for the whole of 1930.

DURING the six hectic years that followed Vauxhall production was a feature of Britain's continuous war effort.

The Luton Works produced more than 250,000 war vehicles, spare parts worth £134 million, 5640 of the 38-ton Churchill tanks, and thousands of tank engines; carried out development work on Mosquito, Lancaster, Halifax and many other famous aircraft; made decoy aircraft and dies for Hercules engines; produced mines, torpedoes, radio-location units, bombs, 6-pounder armour piercing shot, steel helmets, and finally did 95 per cent. of the production work on Britain's first 12 jet-propulsion aircraft engines.

All this despite war privations and alerts, one tragic bombing of the works, and the giving of maintenance and service instruction to more than 213,000 officers and other ranks of the Services in the handling of motor vehicles and Churchill tanks.