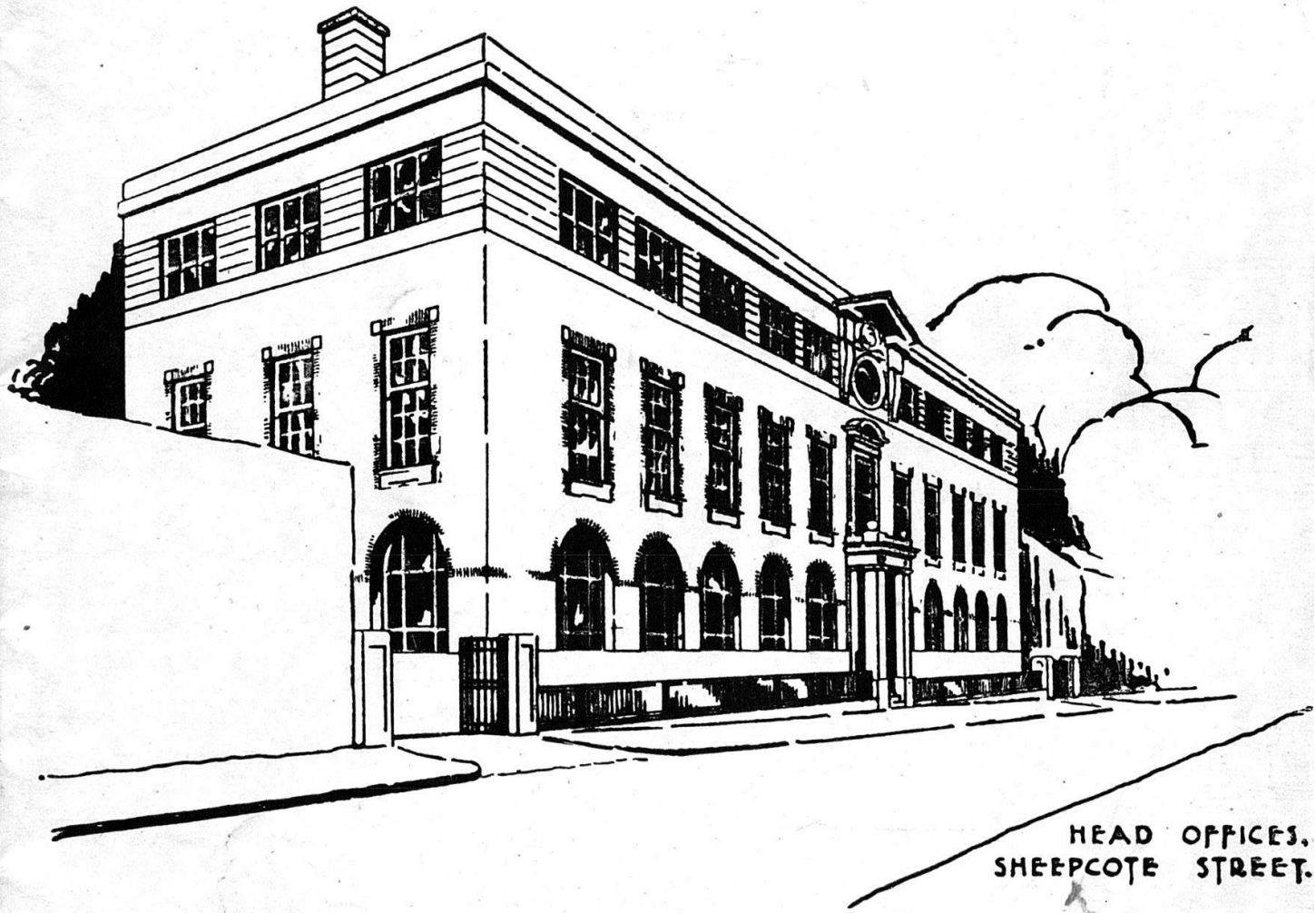
THE REVIEW

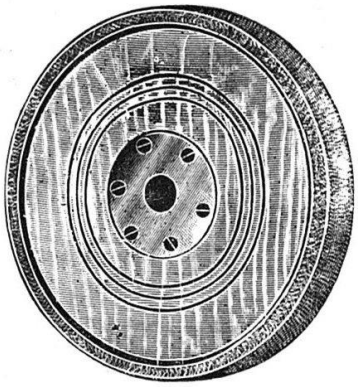


HEAD OFFICES,
SHEEPCOTE STREET.

SOUTH STAFFORDSHIRE WATERWORKS COMPANY. —— STAFF ASSOCIATION.

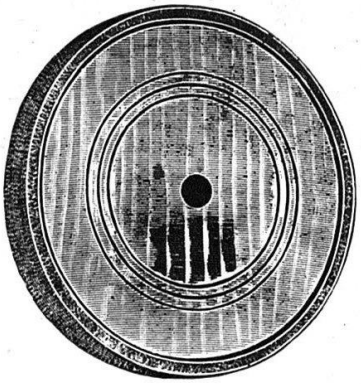
APRIL 1946 VOL. 14 No. 2

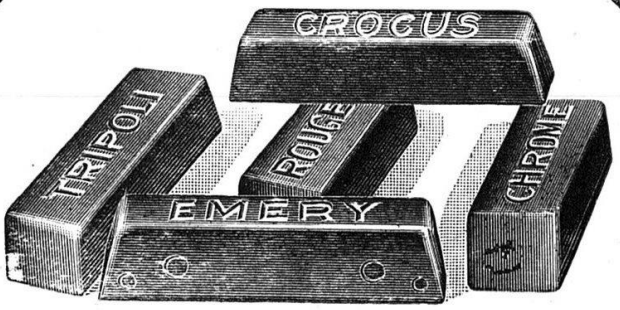
J. GILMAN & SON, LTD.

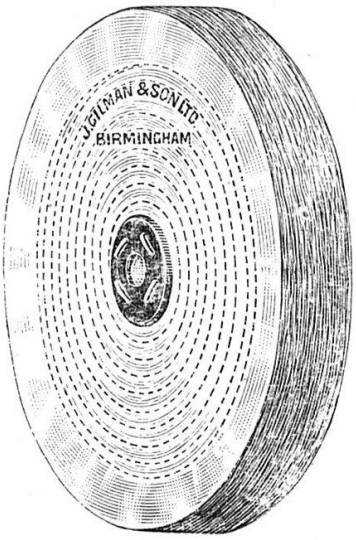


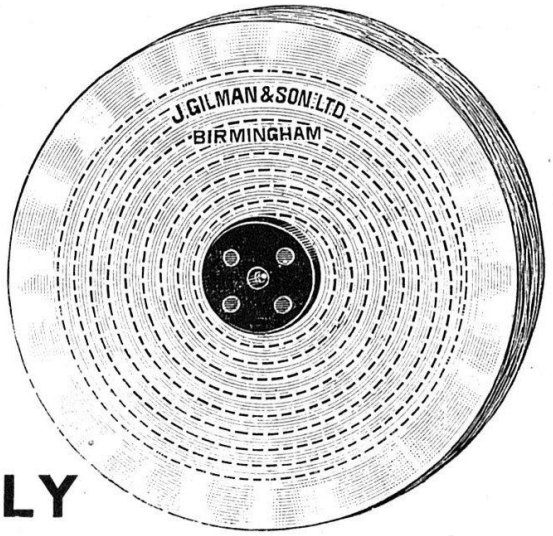
Telegrams :
GLUE, BIRMINGHAM

Telephone :
CENTRAL 6652 (4 lines)



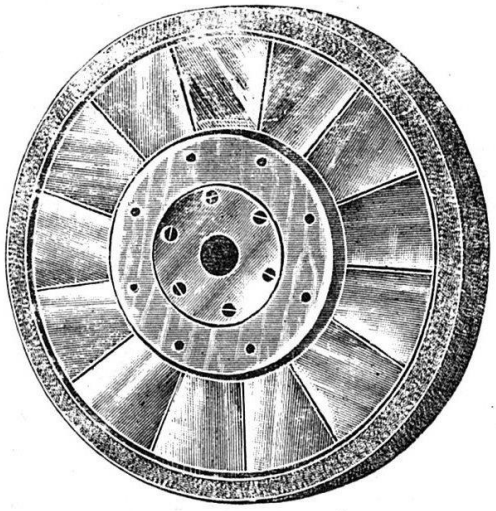






DEFINITELY

THE



BEST

BIRMINGHAM

THE KENT K.M. METER

Uses : Measuring the flow of steam, water, gas, air, oil or any other fluid.

Principle : Differential pressure.

VOLUME : Unlimited with appropriate Venturi tube, orifice or other source of differential pressure.

WORKING PRESSURE : Standard meter : up to 1,400 lbs. per sq. in. Meters for high pressures are also supplied.

Special features :

Very robust and enduring construction, great accessibility. Every part of the meter, the clock mechanism, pressure recording mechanism, the interchangeable mercury chamber, the gland, the mercury draining and filling plugs, are easily reached from the front without removing the casing from its mounting.

All-steel check valves protect meter against overload or reversal of differential pressure ; stainless steel for all valves : well-designed steel pressings for many of main components.

Flow pen and static pressure pen adaptable on site for right- or left-hand side recording.

All meters adaptable for wall, panel or post mounting.

Only two soft joints, neither under mercury.

Types :

KM/I flow indicator, 12 in. white scale, pointer movement 270 deg.

KM/D flow recorder, 12 in. record chart pen travel 4 in.

KM/PD flow and pressure recorder., KM/D plus static pressure recording unit.

KM/ID flow indicator and recorder, KM/D plus indicating scale and pointer.

KM/CD flow recorder with counter.

KM/PCD flow and pressure recorder with counter. Combines features of the KM/PD and the KM/CD. Other types also made.

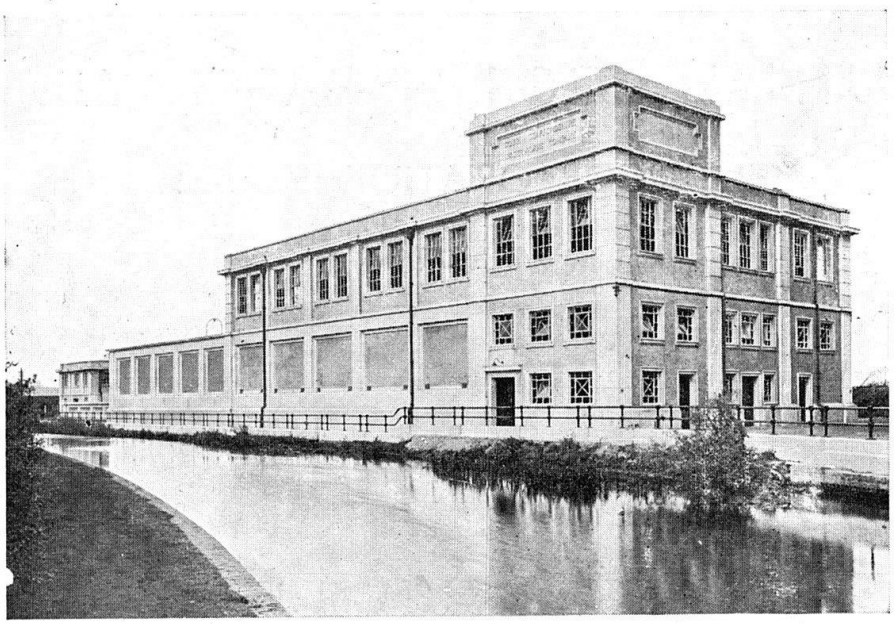
Performance : Range of registration 1 : 8, range of integration 1 : 7.

ACCURACY guaranteed within 2% from full to half flow, within 4% down to 1/6 flow. Calibrated over whole range and within 1% from full to half flow.

LOSS OF HEAD : Low, details on request.

George Kent

GEORGE KENT LTD., LUTON & LONDON



Paterson Rapid Gravity Filtration Plant at Sandfields Pumping Station.
Capacity, 4,000,000 *gallons per day.*
SOUTH STAFFORDSHIRE WATERWORKS CO.

The problem of rendering natural sources of polluted, sedimentary and turbid waters suitable for distribution as public supplies or use in industry for process purposes or boiler feed can be readily overcome by the installation of Paterson plant, designed and constructed on scientific lines according to the latest advance in water purification practice, and embodying modern features of special importance.

RAPID GRAVITY AND PRESSURE FILTERS.
CHLORINATORS AND AMMONIATORS.
LIME-SODA AND BASEX WATER SOFTENERS.
SWIMMING POOL WATER PURIFICATION.

PATERSON ENGINEERING Co. Ltd.
10, WINDSOR HOUSE, KINGSWAY, LONDON.

Makers of BASEX WATER SOFTENERS for domestic use.

Telephone : CENTRAL 5292.

SOUTHALL BROS. AND BARCLAY LTD.

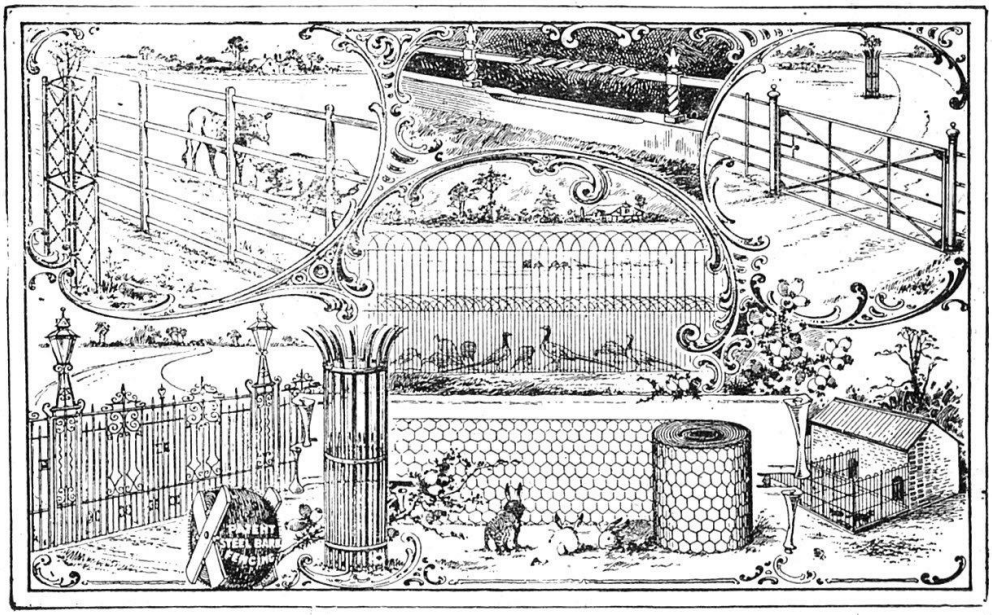
220, CORPORATION STREET,

BIRMINGHAM.

CHEMICAL APPARATUS
and PURE CHEMICALS
for ANALYSIS.

HILL & SMITH LTD.

BRIERLEY HILL. STAFFS.



FENCING, GATES, RAILING and ORNAMENTAL IRONWORK.
STEEL FRAMED BUILDINGS, BUNKERS, HOPPERS, RUNWAYS.

CONSTRUCTIONAL STEELWORK.

Whether you are visiting Birmingham or already resident here make sure you visit one of . . . . . .

:: THE B.D.C. ::
MODERN CAFES

Where you can obtain—

MORNING COFFEE, LUNCHEONS & TEAS
AT VERY REASONABLE PRICES

★ Shop at the B.D.C. Shops and Cafes for Quality and Satisfaction.

36, GREAT WESTERN ARCADE Opposite Snow Hill Station

4, CITY ARCADE, and SUBURBS

Head Offices : : : 107, DALTON STREET, BIRMINGHAM

THE BIRMINGHAM & MIDLAND COUNTIES

VAL DE TRAVERS

PAVING COMPANY LIMITED.

5, LOWER TEMPLE STREET, BIRMINGHAM, 2.

Telephone: MIDLAND 4307-8. Telegrams: "VALDETRAV, B'HAM."

ESTABLISHED 1871

ASPHALTE and TARMACADAM CONTRACTORS

BITUMINOUS COLD EMULSION

Permit Free

For Road and Footpath Dressings

THIS REVIEW is published with the object of acquainting the members with news and information relating to the Association in particular, and also with up-to-date topics and matters of interest and assistance to the Staff generally.

Articles and Reports are contributed by the various Committees and Officials of the several Funds and Societies attached to the Association.

Lectures and Papers will be published from time to time and digests of the events that have taken place during the quarter previous to publication will be inserted. Correspondence will be welcomed.

All matters of interest to the Association should be forwarded to the Editor, Mr. W. A. Newton.

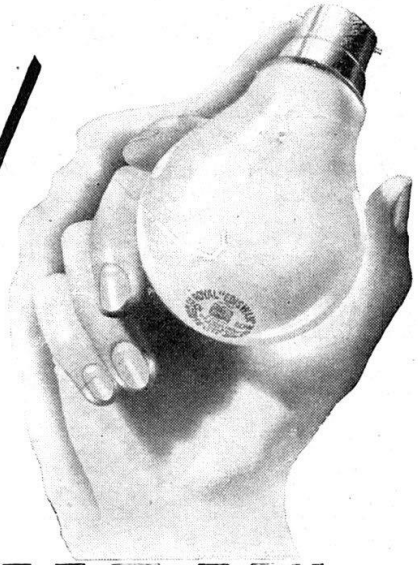
REVIEW COMMITTEE

Mr. H. R. BATEMAN (*Chairman*)
Mr. T. E. DIXON (*Sales Manager*)
Miss C. S. PARRY (*Advertising Manager*)
Mr. J. W. RUXTON
Mr. E. RABBAGE
Mr. T. WOOD

Editor : Mr. W. A. NEWTON

Light up... at less cost!

Ask your Electrical Supplier for details of the new reduced prices



ROYAL

"EDISWAN"

LAMPS

THE EDISON SWAN ELECTRIC CO. LTD., 155 CHARING CROSS RD., LONDON

BY APPOINTMENT

(L. 65)

MAJOR A. H. S. WATERS, V.C., M.INST.C.E.

CHAIRMAN, THE SOUTH STAFFORDSHIRE WATERWORKS COMPANY.

STAFF ASSOCIATION

EMPLOYERS' DINNER AND PRESENTATION TO THE PRESIDENT OF THE STAFF ASSOCIATION, MR. H. K. BEALE

ON Friday, 11th January, 1946, the members of the Staff Association and many of the Company's employees from outlying districts attended a dinner in the Staff Dining Room at the Sheepcote Street Offices, Birmingham.

About 80 employees of the Company were present, and an excellent Dinner was prepared by the Canteen Staff. A number of lady members of the Staff acted as waitresses, and our best thanks are due to them for the efficient manner in which they carried out these duties.

Mr. R. A. Robertson occupied the Chair, and said how happy we were to have Mr. Beale with us that evening. We extended to him a very hearty welcome, and trusted he would long be spared to participate in these gatherings. It was very good of Mr. Beale to have given up his evenings as he had done for the Staff Association. Mr. Robertson then called upon Mr. H. Kirk to propose the toast to "The Guest of the Evening," Mr. H. K. Beale.

In submitting this toast, Mr. Kirk said the object of the gathering was to pay tribute to one who had devoted many years of his life to the interest of the Company, and had at the same time been pleased to associate himself with the employees whenever the opportunity arose.

On the occasion of the recent Victory dinner, when Mr. Beale had announced his intended retirement from the Chairmanship of the Company, it had come as a disappointment to the Staff, but as he said he hoped to remain a Director, it had been a satisfaction to know that the link between us would not be broken. He had made a special point of telling the employees himself before the change had been published.

Mr. Kirk reminded us that the honour and reputation of the Company was largely in the hands of the employees by the way in which they discharged their duties, and that the example of integrity and service set by our Guest was worthy of emulation in the endeavours to maintain the high traditions of this great Company which we are privileged to serve.

Mr. Kirk then handed to Mr. Beale a handsome silver rose bowl, on which was inscribed :—"Presented to Hubert Kenrick Beale, Esq., by the employees of the South Staffordshire Waterworks Company, as a token of their esteem on his retirement after 31 years as Chairman of the Company, 31st December, 1945."

In support of the Toast, Mr. W. H. Fellows, Chairman of the Staff Association, said Mr. Beale had been our "Father." We had been a very happy family; Mr. Beale had guided us, steered us and advised us. He had written articles for us in the *Review* which we always appreciated. He had also listened patiently to our complaints. Mr. Beale had pulled us together so that we had become one of the leading Water Undertakings. We were proud of it. The Staff Association would not have been in its present position had it not been for Mr. Beale's guidance, and he thought it fitting that we should express to Mr. Beale our appreciation of the many kindnesses he had extended to us during his long period of office.

Mr. D. Bates, of Moors Gorse, also supported the Toast, and said that he along with many other employees had known Mr. Beale for over 30 years, and he would like to take the opportunity of thanking him on behalf of those who had subscribed to this present

for the many improvements which had taken place over this period. At one time the working hours were more like 84 than the 48 hours which were now being worked each week. All the same, the men had got through it. Now there was an improvement for every man, and he thought the best gift was the best thanks. On behalf of all he would like to thank our late Chairman for all he had done for the employees of the Company.

In acknowledging, Mr. H. K. Beale said he did not know how to thank the speakers for the extremely generous words they had spoken, and the employees for the beautiful gift presented to him. He felt that a piece of bright silver on polished wood, such as his table, would be a permanent memorial of the goodwill extended to him by the employees of the South Staffordshire Waterworks Company. The inscription would be there, and would be sure to give tone to the room.

Mr. Beale said this was a most unusual occasion; the Directors had sometimes contributed to testimonials made by the Staff to one of their members, but this was the first occasion on which the Staff had given a testimonial to the Chairman. It was a compliment which would not be forgotten.

Mr. Beale said the Staff Association was 26 years old, and he looked upon it as his own child; it began in a small way, but grew out of all knowledge and became self-supporting. He referred to the various activities of the Association, including visits to works, which was his own idea, and he hoped it would continue to be popular. Mr. Beale said the Directors got their information concerning the Staff's activities from the *Review*; it was astonishingly interesting, giving particulars of past Chairmen, Directors, Staff and the history of the Undertaking, together with articles by members of the Staff which were extremely good reading. When the *Review* was first issued he had said that it would form a link between the officers, staff and directors, and he thought that had proved to be the case; he had also found it very useful as a book of record.

Mr. Beale said he had seen many changes during his Chairmanship of the Company, one of the most important as far as the staff were concerned being the transfer of the Offices from Paradise Street to Sheepcote Street, and the canteen facilities. He was very proud of being associated with the Water Industry, and he thought the success of the Company had been due to good team work He thought that when a Chairman gives up his chairmanship it should be a clean cut, and the new Chairman should take over the Presidency of the Staff Association. A new Chairman would bring in new ideas; one could keep on too long, but he would like to be a member of the Board, still taking an active interest in the Company. He hoped he would continue to receive invitations to the Staff Association's meetings. The election of a President rested with the Staff Association, and if the members saw fit to elect his successor as Chairman of the Company to the Presidency, he felt sure we should find in Mr. Waters a man who would be sympathetic towards the Association. During his Chairmanship of the Company he had had very loyal colleagues and a very loyal staff, and that evening formed a fitting climax to his term of office. The Association had his best wishes for the future.

A programme of musical and humorous items, in which Mr. D. Bates took part, concluded a very enjoyable evening.

PERSONAL

We extend our very best wishes to Mr. A. H. Rofe, the Superintendent of the Cannock Depot, who retired from the Company's service on 31st January, 1946.

Mr. Rofe has been in the Company's employ since 1st January, 1919, and is held in great affection by all the Company's employees.

We hope that both Mr. and Mrs. Rofe will benefit from a change of residence, and that they will live long to enjoy their retirement.

In the last issue of the *Review*, Mr. J. S. Bird, of Colwyn Bay, enquired whether he was the only survivor of the Mr. W. Vawdrey regime. I am indebted to Mr. A. W. M. Boneham for the information that, in addition to himself, Mr. W. Breakwell, Mr. A. E. Larkin and Mr. H. Spears were contemporary with Mr. Vawdrey.

We extend our best wishes and congratulations to Mr. A. E. Guild, Constructional Engineer, on his appointment as Deputy Engineer and Manager of the Newport (Mon.) Corporation Water Department.

Mr. Guild has been a member of the Civil Engineering Department for twelve years, and has taken an active interest in all the affairs of the Staff Association.

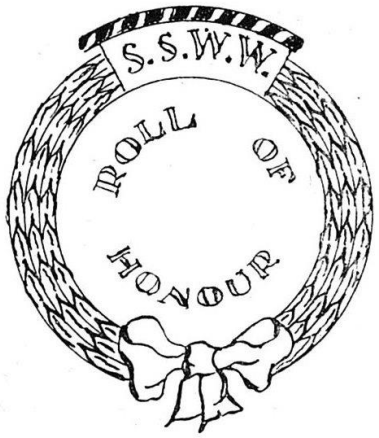
Mr. F. S. Temple, Mechanical Engineer, retired from the Company's service on 31st March, 1946.

Mr. Temple has been in the Company's service since 1919, and has, therefore, been associated with the development of a number of important pumping stations which are now in commission.

Mr. Temple has taken an active part in the interests of the Staff Association, both as Chairman and member of the Committee. He was also a Vice-President of the Benevolent Fund, and for several years a member of the Superannuation Fund Committee.

Mr. Temple has been in indifferent health for some time, and his doctor recommends that he should reside in the South of England.

In his retirement we hope Mr. Temple's health will improve, and that both he and Mrs. Temple have many years of happiness before them.



BAYLEY, GILBERT (Head Office)
Accidentally killed.

BAYLEY, ROBERT (Head Office)
Killed on active service.

BRUNT, EDWARD (Burton-on-Trent)
Missing, presumed killed.

GARFIELD, LAWRENCE WILLIAM (Head Office)
Killed in flying accident.

GARFORD, GEORGE ANDREW (Tipton)
Missing, presumed drowned.

GODDARD, STANLEY BERTRAM (Laboratory)
Killed in action.

GREGG, JOHN THOMAS (Hinksford)
Missing, presumed killed.

HILL, WILFRED HARRY (Head Office)
Died as result of enemy action.

NIXON, PETER FRANCIS (Head Office)
Killed in action.

RAY, FREDERICK CHARLES (Tipton)
Killed in action

VAUGHAN, ARTHUR FRANCIS (Head Office)
Killed in flying accident.

WARD, GEORGE HENRY (Slade Heath)
Died on active service.

WILKES, FRANCIS RAYMOND (Tipton).
Killed on active service.

WITH H.M. FORCES

RECRUITS

B. G. FINCHER (Head Office)

C. E. PACKWOOD (Head Office)

E. A. TAYLOR (Sandfields)

Major J. D. MONKMAN writes from India—he never fails to get two eggs for breakfast every day! The scenery is of a very high standard, with good views of the Himalayas and hills covered with pinewoods up to 10,000 feet.

Pte. P. J. KIRBY says he is not expecting to be back for another nine months. He is in a P.O.W. Camp with the B.A.O.R., and is comfortable.

Ft./Lt. D. W. BATEMAN is stationed at Hednesford, and extremely busy.

P/O. A. B. M. SIMNETT is in Nottinghamshire. He complains he has not received a *Review* for a long time, and wonders whether the Company has been nationalised. He considers a "Small Ad." column in the *Review* would result in a profitable side-line.

L.A.C. P. F. THOMAS writes from London to say how much he enjoyed the Staff Association Dinner. He hasn't much idea of when he is likely to be demobbed. He sends his kindest regards to all.

L.A.C. N. GITTENS writes from B.L.A., Belgium, after having leave in Paris and visiting quite a number of interesting places. He sends the best of luck to all.

Coder F. J. RICHARDS writes on his way back from Australia, where he appears to have had a good time. He expects to return to civil life by June next.

F./Sgt. C. G. SANSOM has spent some time in hospital, following an accident, but we are pleased to learn he is making a good recovery. He expects shortly to be demobbed.

A.C.2 W. H. HATFIELD sends an interesting account of his life in the R.A.F. At the time of writing he was in Lancashire, but was expecting a move. He wishes to be remembered to all in the office.

We welcome home the following employees of the Company, who have been demobilised from H.M. Forces :—

D. Parker (Walsall)
C. H. F. Gilbert (Head Office)
R. H. Stamps (Head Office)
W. Hunter (Head Office)
F. Shelton (Sutton Coldfield)
A. R. Waddington (Head Office)
D. R. Fletcher (Head Office)
F. L. Brown (Walsall)
B. Williams (Walsall)
G. Staples (Walsall)
G. B. Davenport (Tipton)
T. E. Neale (Cannock)
A. Birks (Lichfield)
T. C. Clarke (Walsall)
A. James (Burton-upon-Trent)
R. W. Keay (Walsall)
C. E. Brown (Cannock)
S. W. Bartram (Cannock)
W. Highfield (Walsall)
R. R. Pearsall (Wood Green)
W. B. O'Neil (Brierley Hill)

The Secretary of the Staff Association would be glad if the members of the Forces would inform him of any changes in their addresses.

The West Midlands Mutual Assistance Water Committee

The Final Meeting of the West Midlands Mutual Assistance Water Committee, held on 13th February, 1946, brought to a conclusion the activities of this war-time emergency organisation.

Formed in December, 1940, the Committee comprised representatives of fourteen Midland Water Undertakings, the object being mutual assistance in case of damage to the works of any of its members.

One of the major functions of the Committee was the purchase of three complete Mobile Emergency Pumping Plants which could be despatched at a moment's notice to any of the Undertakings represented on the Committee in the event of damage caused by enemy action.

Emergency gangs of volunteers were held in readiness to leave for different parts of the country to render whatever assistance lay in their power to expedite repairs to mains and other works which had suffered damage.

Other activities of the Committee included the preparation of a comprehensive Schedule containing data relating to all the Undertakings represented on the Committee, advertisements calling for economy in the use of water and provision of Emergency Food Stocks.

The Chairman throughout the existence of the Committee was Mr. Fred. J. Dixon and the Hon. Secretary, Mr. W. A. Newton, and they take this opportunity of thanking all those who contributed to make the scheme a success.

Practically the whole of the work was carried out by the Staff and employees of the Company, and the Engineer and Secretary wish to express their appreciation of the loyal co-operation of all concerned.

CYCLING IN WALES AGAIN

ONE morning in July last two of us set out to the west. Several stormy wet days had damped our ardour somewhat, and it was still raining at the early hour we had hoped to depart. However, the weather had cleared by 9 a.m., and watery sunshine encouraged our start. Just short of Dudley a sharp shower drove us to shelter, and then we were soon through this busy town down the long slopes that run so easily to Himley Park. Turning sharply right, and soon again to the left, a good road took us to the Bridgnorth cross-roads, where the last shower of that day found us. From here another six miles or so brought us to a small cross-road, where I had long wished to do a bit of exploring. Due west a lane runs on to the Bridgnorth-Wellington road, and crossing over is now disused for a little more than a mile, when it emerges from the woodland at the foot of the hill down to Coalport Station. It is, in fact, one of those tempting short cuts that always entrap some of us simple ones. We enjoyed the experience, though begrudging the time taken in pushing our cycles up a steep, muddy track to the ridge. After which we slithered down the other slope, making up time at some risk.

Little more than two miles brought us to Ironbridge, the road near to the Severn, but surprisingly placarded for one stretch as dangerous and impossible. There were many houses close by, and no one interfered with our passage, so we still wonder what caused these road warnings as we could see no reason.

Just short of Leighton, where the road seemed to be veering away from the river, we sat in a field and enjoyed a wonderful view across the valley while we ate our sandwiches. The hedge behind us gave some shelter from the keen north-west wind, and we saw Wenlock Edge end-on, with the Longmynd and the Stiperstones drawing the eye away to the dark masses of Wales.

Four miles further on we came out on A5, and in another mile to Atcham Bridge, where the wind caught us strongly. Then, at the junction of the bye-pass off to the left we were startled to find the road a military car park, with no passage for civilians. So we continued on A5 through Shrewsbury. From my earliest cycling days I have always thought kindly of the generous public water supply here. Lincoln Pillars every hundred yards right through the borough. What a gift to thirsty, penniless boys!

A few miles the other side of Shrewsbury we crossed the Severn at Montford Bridge, and, tiring of the wind, began hopefully to look for the chance of a cup of tea. But another ten miles had been covered before we got that tea in West Felton. It was welcome, and when we were back on the road again the sun came out for the first time in full splendour, so that we made light of the fifty odd miles behind us and sped down to cross the Dee into Wales, and rise easily into Chirk, enjoying Telford's wonderful road-making. Less than ten miles now to Llangollen, where I was confident of accommodation. Three good places where I had stayed at various times made it rather hard to choose. My confidence was soon shattered, for I quickly found none of my old haunts could offer me anything. Very regretfully, of course, but absolutely no room! Well, the fourth try was lucky, though I don't care for the ordinary café we were glad to be put up. They gave us a good high tea, and the beds were clean.

About a dozen folk were here that night, and we were told three times as many had been squeezed in the night before. There we met two cyclists from London, who had trained to Aylesbury and stayed the previous night at

Worcester. They had been hard put to for accommodation there, but were greatly taken with the city itself.

We had a good breakfast next morning and the weather was fine. Leaving these two sportsmen (making those adjustments to their light machines which seem to take up such a lot of the time saved by their speedier travel) we set out past Valle Crucis Abbey, up the Horse Shoe Pass. They expected to overtake us as we made no secret of our intention to walk up most of the climb. The morning was very warm, and we enjoyed the drink from the brook which goes under the road in the middle of the horse-shoe bend. Still the London boys did not show up, and another mile on we got going down that swinging road round those exhilarating bends described as "dangerous for motorists" into the Vale of Clwyd. Ruthin slowed us up with droves of cattle for market, and we were warm and dry as we ran into Denbigh. We were fortunate to get a dinner here—hot meat pasties with vegetables, fruit and custard, followed by a cup of tea, though we were hotter than ever when we tottered out again. A few miles on the way we enjoyed a siesta in a bit of woodland by the road. Then a few more miles on we turned west for Abergele and the coast. The motor traffic—mostly army convoys—was very bad for about ten miles, so that we were glad to turn off in Colwyn Bay and go down to the beach for some less tainted air. There, by way of an early tea, we finished the sandwiches we had carried from home. We cycled on along the front until becoming involved in that horrible tangle of tram lines and tolls that disfigures the western exit. We thankfully emerged at the top of the Little Orme, and free-wheeled down to Llandudno's fine front. Struggling out of Colwyn, the afternoon had clouded over, and the wind was too keen for loitering, so we pushed on up the first slopes of the road round the Great Orme. When we turned the western point we had a magnificent view of the coast and Anglesey against the towering mountains of Snowdonia. We enjoyed this panorama of land and sea for two more miles before coming down to sea level, and passing through Deganwy to Conway Bridge, where the natural grouping of the bridge, the castle, and the town amid the hills surprises one. In Conway we came to rest before a good tea after ten unsuccessful applications for accommodation. This was the climax of our difficulties and they were less as we went further. The place and the district have so much to tempt the tourist that we were glad to be able to linger here. One morning we went out over the Sychnant Pass, joining the Bangor road at Penmaenmawr, on another ten miles to Bangor—where we looked at the ferry crossing to Anglesey and turned our backs on the temptation, to ride easily up the five miles approaching the Nant Francon Pass. With the sandwiches bought in Bangor, we had a perfect picnic lunch by a rushing stream just off the main road. In Bethesda two rapidly approaching cyclists revealed themselves as our acquaintances of the night at Llangollen, who said the favouring wind earlier in the day coming from Bettws-y-Coed and now the slope down the Nant Francon made their progress literally "jet propelled." After a yarn and a smoke together we parted, and soon had to walk the last three miles against the wind to the top. As we came in sight of Llyn Ogwen, a khaki sergeant politely, but very firmly, told us the road was closed. For the next half-hour or so the army was carrying out an operation. The weather conditions were ideal, and we were fortunate in being allowed to see the whole thing. Troops launched boats to cross the lake covered from their own side by machine guns. Mines in the water went up, more machine guns opened up on the far side, and a smoke-screen was laid on the mountain slopes beyond. Mortars added to the din, and tracer bullets ricochetted all over the water, so fascinating was the vision

that it was an acute shock at intervals to realise the deadliness of it all. Just a hardening practice—with comparatively no danger—so the sergeant said. We were left stunned by the heavy explosions when quiet settled again on the lake. For more than a mile we passed men sweeping up the empty cartridge cases, and watched the smoke thinning away on the hillside. Then we came down to Capel Curig and sped down the easy grade into Bettws-y-Coed for a cup of tea. An impending thunderstorm which finally drifted away toward Snowdon made us languid as we tackled the hilly road back to Conway.

When we left Conway by the Bangor Road through those fine road tunnels, it was a perfect morning, lasting us right through to Caernarvon. As we stood looking at the Castle, a sharp shower induced us to pop into the nearest house offering teas. They were able to offer us the customary eggs and bread and butter. The streets were very wet when we came out to get going again. Gradually rising through pleasant country we came, in about eight miles, to Llyn Cwellyn, where a heavy storm drove us to the indifferent shelter of a hedge. When the rain slackened we went on in our waterproofs to climb the ridge before Pitts Head, and got very warm in the process. Then a couple of fast miles down the grade brought us to Beddgelert, with the rain worse than ever. A cup of tea and half-an-hour's shelter did not end the unkind storm, so we pushed on through this delightful scenery with our view limited to the width of the road until we came out of the rain patch in another half hour two miles short of Penrhyndeudraeth. Then it was easy running with glorious views all round except for the ominous storm clouds behind. After a good high tea at Harlech, we walked around the castle and down to the sea, but had to hurry back to get under cover for the next storm as darkness came on. The rough wind continued all night, but we got away in the dry about nine o'clock and plugged away to Barmouth and across the bridge to lose ourselves in a Navy camp on the far side. On again to the south it was very hard going, and we were glad to ease up for a lunch at Llyngwril. Later in the afternoon coming to Aberdovey, a barrage balloon floating above the town surprised us. We found a small steamer in the harbour was holding it down, and also that the ferry across to Ynys-las was closed to civilians. This was a blow, but when we turned from our laboured progress southwards to run east and north-east up the estuary, we revelled in the easy going—our turn at "jet-propulsion." In Machynlleth we dallied with ice-cream, and debated continuing southward. As you may guess, the easy road was chosen and off we dashed again wind-assisted up the easy, long slopes to Cemmaes Road Station and Llanbrynmair, where we hoped for tea. Nothing offered until five miles further on a wayside tea house at six o'clock brought us to a full stop.

The good lady provided a solid meal, and I traced her in my C.T.C. list as a farmhouse which I had overlooked for years. After a stroll down to Carno—about a mile each way—we were found good beds, and turned in well pleased. A substantial breakfast started us off next morning in gleams of sunshine which soon fell off into showery conditions. We had intended turning off southwards to the Elan Valley, but now preferred to continue eastward and, incidentally, homeward. Fifteen miles on at Newtown, sheltering in a garage, the wish to go over Kerry Hill towards Ludlow was also dropped by reason of the weather, and we went on, wind-assisted, by the easy main road to Shrewsbury, driven to shelter once more after another twenty miles. A minor shock was given us when blasting quite near showered grit and stones about us. Then we reached Shrewsbury soon after mid-day and found a fair meal near the bus station, and were glad to learn that the Midland Red strike had been settled since we left Birmingham.

Now definitely on our way home,

we came through Shifnal—more rain, this time really heavy—to Wolverhampton, hoping for tea. Failing to find anywhere attractive, we munched the last of our cherished chocolate iron rations and trundled up the road to Birmingham.

Wales still makes its appeal to cyclist and hiker, though, for the time being, accommodation is difficult. More than I had expected, though the worst is certainly over. On the average we paid ten shillings each per night, or twice as much as ten years ago. Distances of sixty miles per day were easily ridden, with eighty or so for the starting and finishing days.

With more settled weather more of Snowdonia, Lake Vyrnwy and the Elan Valley would have been covered, but they will keep for another year.

OUR WEEK-ENDS

The thought had been in our minds for months, and we searched everywhere within easy access for a country cottage or bungalow for week-ends. At last our search ended when a friend heard of a bungalow situated in a very nice field on the canal side.

The purchase completed, we set to work cleaning, painting and decoration and, though it was "hard labour," it was justified by the result. Many happy hours were spent during the years that followed, combined with various little incidents, such as being awakened in the still of the night by a cow rubbing against the corner of the bungalow, or an owl hooting in a nearby tree.

One incident I particularly remember—it was a real wintry day, and the canal was frozen over. Our drinking water had to be fetched from the farm pump, and on my return the cows spotted the two buckets and immediately made a bee-line for the contents. They followed down the field, and when I stopped for a rest, into the buckets went two heads, and soon not a drain of water remained. So back I trudged to the pump, washed the buckets, re-filled them, and started off again, this time almost running, and managed to reach the bungalow with the water intact. This was not the end, however, for, as I returned to the kitchen I found that one cow had followed me and was busily engaged eating the sprouts from the colander on the kitchen sink, so I had to take her by the horns and back her out again, and, believe me, they are stubborn animals to handle.

During that period of frost we had a most enjoyable day of sports on the ice, when all and sundry from nearby bungalows and farms joined forces. Skaters came from miles along the canal, and we were sorry when darkness compelled us to retire to our respective homes.

After several years houses commenced to spring up, and so we sold "Gable" and looked for another spot. Our second search terminated at a delightful and historic site, which once was part of the Forest of Arden. We viewed it first at its best, with carpets of bluebells everywhere, the banks surrounding it looking just like fairyland, and around the far side of the banks was a moat, a tiny rustic bridge the only means of getting across. We were indeed cut off from the world, for no sign of habitation was visible. Many happy week-ends were spent there, and lots of visitors found their way to such a charming spot. After four years, however, we decided that it was too damp, being in a hollow and overhung with trees, and so made efforts to secure a third position. This time we were fortunate in finding a cottage, and have been here nearly nine years. No, don't be misled, and think these week-ends are all spent in leisure, for work has to be done, and gardens attended to, but it is a great pleasure to which we look forward during the week and then to cycle proudly home with a load of home-grown garden produce.

OBITUARY

We regret to report the death, on 11th January, 1946, of Mr. Stephen Frederick Neale, formerly a stoker of Trent Valley Pumping Station.

Mr. Neale retired from the Company's service on 1st August, 1945, owing to ill-health. He had been employed by the Company since October, 1934, and his death, at the early age of 37, is deeply regretted. The funeral took place at St. Chad's Church, Lichfield, on 16th January, 1946.

It is with regret we report the death, on 21st January, 1946, of Mr. John Humphries, of 17, Shakespeare Crescent, Bloxwich.

Before his death Mr. Humphries was employed at Walsall Depot as a Trenchman, and had been in the Company's employ for 24 years.

We also deeply regret to record the death, on 25th January, 1946, of Mr. Thomas Dyer, who retired on 15th November, 1944.

Before his retirement, Mr. Dyer was employed as an Engine Driver at Hinksford Pumping Station, and had been in the company's employ for nearly 29 years.

The Company's employees heard with deep regret of the death, on 31st January, 1946, of Mr. George Bird, who retired from the Company's service on 9th August, 1933. Mr. Bird will be remembered as Foreman of the Trent Valley Pumping Station, and had been in the Company's employ for 28 years. At the time of his death Mr. Bird was 77 years of age.

SEA POWER AND AIRCRAFT

(*Continued*)

IN preceding issues of the *Review* the fundamentals of sea power have been outlined and brief indication has been given of some of the factors involved in the attainment of command of the sea under modern conditions, but readers are reminded that the utilisation of sub-atomic energy for military purposes had not become practicable when this series of articles was planned, and (as mentioned last October) the text completely ignores the present existence of the atomic bomb, to which reference will be made at a later date.

Even before their potentialities became enormously expanded as a result of the astounding achievements of atomic physicists, aircraft had developed into extremely powerful and vitally important weapons possessing capabilities which made them essential factors in the exercise of sea power during the " Second World War," but it should be noted that none of the machines in operational use prior to the Japanese surrender had any justifiable claims to omnipotence. On the contrary, many of their successes against warships and merchant vessels were due to the deplorably tardy implementation of the recommendations of those who did foresee the magnitude and gravity of the menace inherent in air power

The primary objective of defensive measures is the destruction of enemy aircraft before they reach a position from which an attack could be launched but fully effective defence of that kind is impossible without adequate warning of impending attack, fighter protection, and very large, powerful and well-directed A.A. batteries. The inadequate practical application of these principles during the early war years was responsible for heavy losses in ships and invaluable lives, and even now the A.A. armament provided in many warships fails to satisfy persons who appreciate the possibilities of concentrated and heavy air attack on individual naval units. However, recent events have shown that an effective degree of defence against air attack *is* practicable. Radar can give timely warning of the approach of enemy aircraft by day or by night, and under conditions of zero (optical) visibility; fighter protection can be provided by means of aircraft carriers if ships are operating in areas beyond the tactical radius of land-based fighters; finally, the armament now available includes a variety of excellent heavy and light guns and subsidiary additional devices, together capable of providing defence against many kinds of air assault.

Although the striking power of aircraft increased during the war comparatively greater progress was made in the provision of defensive equipment. For example, the success of continued research and the rapidity of practical application increased the original capabilities of radar to a remarkable extent. In addition to other functions, it can be used for highly efficient gunnery control and for directing fighters to a point from which interception of enemy aircraft may be made either by visual sighting or by A.I. radar. The efficacy of A.A. gunfire was substantially improved by the adoption of radar control alone, and that increase in accuracy became enormous when shells were fitted with the radio-proximity fuse, which automatically caused detonation if the projectile merely approached the near vicinity of its target.

Many different kinds of strategic operations, involving land and air, as well as naval forces, may be needed to ensure continued ability to exercise sea power, but shortage of space has made it essential to confine these notes to cursory consideration of purely tactical methods of protecting merchant shipping against enemy action. Although the provision of armament and various devices to lessen the danger from mines enables merchant ships to make a contribution to their own defence, some form of extraneous protection is essential. For this purpose navies have remained necessary because, independently of other considerations, even defence against air attack (at sea) ultimately depends on warships of one kind or another, for only vessels designed and built specifically for battle can provide radar installations, fighter cover and gun batteries on the scale necessary to afford an effective degree of protection against heavy air attacks. Thus, far from being rendered obsolete as a result of progress in aeronautics, warships have been more than ever necessary *because* of the capabilities of modern aircraft.

A secondary factor in defence consists of ability to manoeuvre with ease and rapidity, for such characteristics will enable a ship to avoid a proportion of, or perhaps all, the missiles directed against her by aircraft which do succeed in penetrating the fighter screen. Obviously, high and even medium altitude bombing will be ineffective if the target is a fast warship readily able to make a large alteration in course whilst the bombs are falling. Consequently, as the war progressed, air attacks against naval units tended to involve a much closer, lower altitude approach to the target but, although this made possible more accurate aim, it necessarily brought the attacker within the range of the multiplicity of light guns

produced for defence against precisely that form of close assault.

In the last resort, of course, defence against aircraft (and all other forms of enemy action) involves design and structure for these factors determine a ship's ability to localise the effects and minimise the consequences of any damage which may be sustained. The vital importance of this aspect of defence was vividly revealed by some war losses, but illustrative examples must await a future publication. For the time being, it is sufficient to note that, although technological developments in marine engineering, ingenious design or the use of special materials and methods of construction may compensate to some extent for lack of tonnage, as a general rule ability to withstand damage tends to increase with size. For example, battleships are able to survive damage of a magnitude which would prove disastrous to smaller and more lightly built vessels, such as cruisers or destroyers.

These structural considerations are closely associated with the battleship's classification of " capital ship." In Naval Treaties warship categories are defined with precision, but their specific characteristics are partly determined by purely arbitrary considerations. Consequently, Treaty definitions of " capital ships " are not always synonymous, but when the term is used in the general (not Treaty) sense, it means that type of warship which possesses such fire power and structural strength that no unit of any other class could hope to challenge its supremacy under normal conditions. In short, the capital ship constitutes the supreme individual embodiment of naval might.

In recent years it has been claimed that the aircraft carrier is the modern capital ship, the implication of that claim being that the battleship is now in a lower category. If that is so, then by definition no battleship could hope to challenge any aircraft carrier. But it was explained in the last issue of the *Review* that there are periods during which it would be very easy for a battleship—and even a cruiser or destroyer—to close and destroy a carrier. The sinking of H.M.S. *Glorious* by German surface forces was an illustration of the utter helplessness of the aircraft carrier once it is brought within range of gunfire from other naval units.

On the other hand, the tactical radius of carrier borne aircraft is many times in excess of the maximum range of the heaviest naval ordnance, a fact which would permit hostile surface forces to be attacked before they could bring the carrier under fire. In the battle of the Coral Sea, for example, U.S. and Japanese naval forces each suffered damage and loss from carrier based aircraft, but there was no " visual contact " between opposing surface units (carriers, cruisers and destroyers) during the whole of the engagement. In spite of these facts, however, it is doubtful whether carrier borne aircraft alone could protect their parent ship from a modern, large, well-designed and soundly built battleship operating under heavy fighter cover.

Some readers may at once regard the above remarks as being an unfair comparison, but the desirability of fighter cover for battleships under modern conditions in no way diminishes the battleship's own claim to capital ship status. The battleship did not cease to be the " capital " ship when destroyer screens against torpedo attack became desirable, and it does not now cease to be a capital ship simply because fighter cover against air attack has become necessary.

This subject has been mentioned for the benefit of readers who may have formed an incorrect opinion of the relative merits of battleships and aircraft carriers as a result of uninformed or misleading wartime statements. From a practical standpoint, however, all arguments concerning fine distinctions as to what is and what is not a capital

ship are a sheer waste of time. Battleships need aircraft carriers to provide fighter cover against enemy air attack ; aircraft carriers need battleship support or cover to ensure continued and adequate protection against powerful hostile surface forces shielded from carrier based air attack by their own fighter squadrons ; both classes of warship were essential to victory.

No doubt many persons have attached very great significance to the fact that aircraft have become capable of sinking even battleships, but no proper assessment of the relative merits of different instruments of war can be made without due consideration of *all* the relevant factors. It has been mentioned that many of the naval and mercantile shipping losses inflicted by aircraft were due to unpreparedness and, in fact, most of the battleships destroyed by air attack during the war were sunk as a result of circumstances which need not apply to battleships in general.

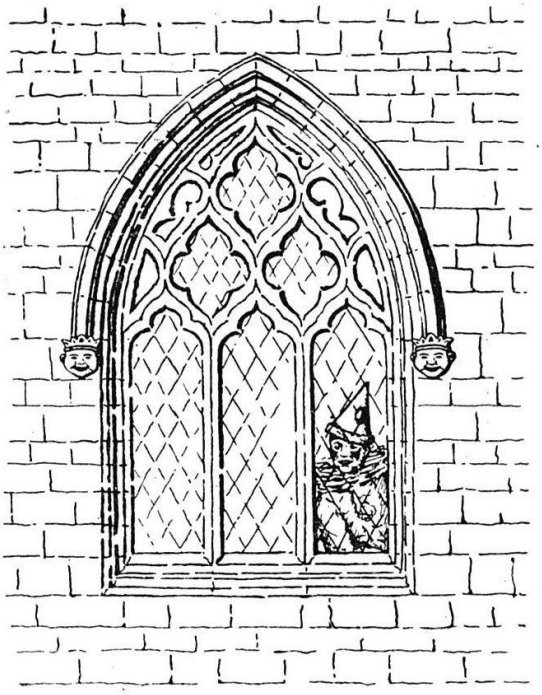
The sinking of the *Tirpitz*, for instance, cannot justly be regarded as constituting vindication of the claim that " the bomber is superior to the battleship." Though no longer relevant, one point of interest is that claims of that nature were made long ago, but actually it required years of wartime developments in aeronautics and munitions production before any form of orthodox *bombing* attack succeeded in sinking a battleship of modern design. Briefly, the main factors directly responsible for the destruction of this giant German battleship were the absence of fighter cover, and the fact that the vessel was a stationary and therefore ideal target for " precision " bombing assault. Innumerable wartime events have demonstrated the immunity or comparative immunity conferred by fighter cover, and it is virtually certain that provision of such protection would have foiled the Lancasters which made the final attack so effective. Again, the importance of ability to manoeuvre was stressed when the basic principles of defence were outlined and war experience has shown the extent to which freedom of movement can mitigate the efficacy of precision bombing.

The really significant feature of the destruction of the *Tirpitz* was not the fact that a battleship had been sunk by bombing, but that a powerful naval unit had been sunk *at an anchorage* exposed to enemy air attack. Even warships should not be left to fend for themselves in such circumstances. On the contrary, in addition to any defences necessitated by purely naval considerations, protection against air attack is essential and facilities for such protection must form part of the local system of (land) defence ; if this is deficient, the consequences may be serious or even disastrous. The latter fact is the principal lesson implicit in the fate of the *Tirpitz*, but it is not a new lesson, nor is it confined to the subject of air attack, as we discovered to our cost when the battleship *Royal Oak* was sunk by torpedoes from a German submarine which had penetrated the then incompleted defences at Scapa Flow.

D. S. W.

(*To be continued*)

From the Chapel Window



We are told that the lift should be allowed to remain at rest for a few seconds before attempting to open the gates. In fact, just sufficient time to say R.I.P.

* * *

We understand the Editor is missing his fan mail since the men and women are returning from the Forces. But rude people say he's losing his S.A. Nevertheless he did receive a birthday card from " Grace, Disgrace and Candlegrace," and we understand he put a bold face on it.

* * *

It is comforting to learn that if restaurants put horseflesh on the menu, the fact must be disclosed to customers.

* * *

With the withdrawal of the Essential Works Orders from the Water Supply Industry, we can no longer regard ourselves as eternal squirts.

Extract from letter : " A gentleman called to-day . . . . I presume he had come from you." Of course !

* * *

I am asked to enquire who was the Reservoir Attendant who threw himself into his work.

* * *

Now that towels are not provided for the staff we have to provide and wash them ourselves. But we don't use Persil —only blood, sweat and tears.

* * *

A contributor submits an article, " Cycling in Wales Again." That's the worst of these austerity saddles.

* * *

Another contributor complains that a cow got into her kitchen and ate the sprouts in the colander; we hope it returned later to chew the spud.

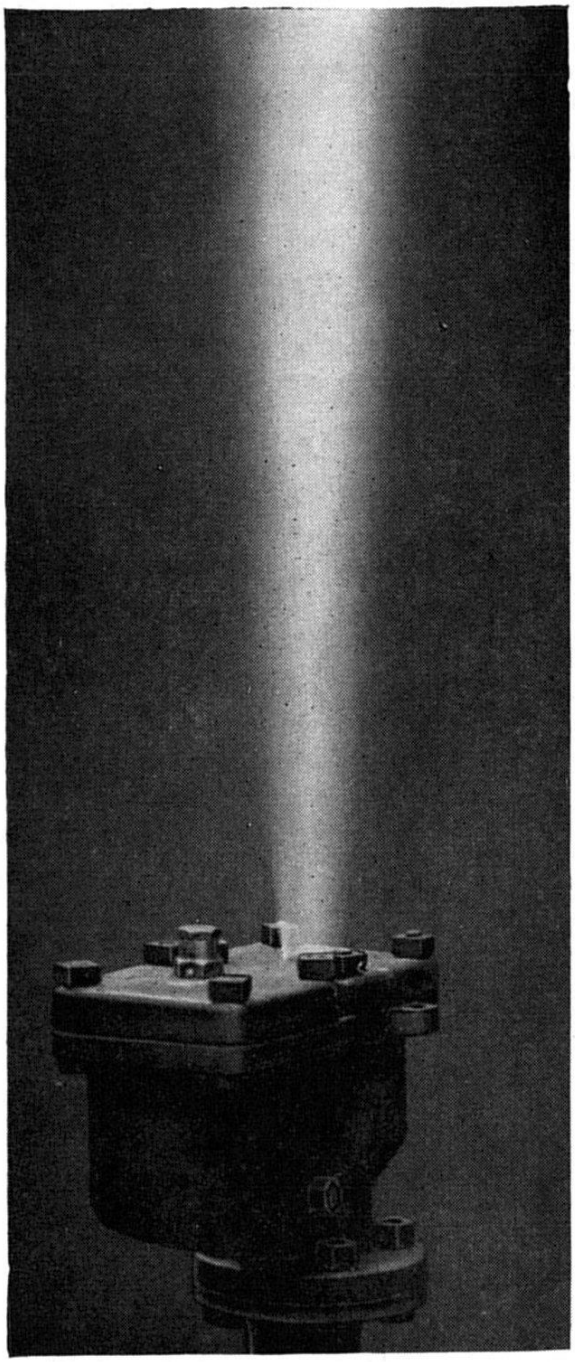


Illustration shows Type H40k KINETIC AIR VALVE under test, the velocity of the jet of air and water spray escaping from the orifice being nearly 1,000 ft. per second.

Kinetic Air Valves

It is impossible for the Glenfield Pater Kinetic Air Valve to blow shut howeve great may be the velocity of the escaping air but it will positively close immediately th main is full.

This is an important advantage, especiall when mains are being filled at high rates, a there is no possibility of the trouble—so ofte experienced with ordinary air valves—cause by the escaping air stream lifting the ball an so closing the vent. This is a frequent caus of great inconvenience, and many expedien have been tried in the attempt to overcom the trouble.

It has been proved that however fast the a may escape, the Glenfield Patent Kinetic A Valve cannot close even should the speed the escaping air reach the critical velocit beyond which, of course, no increase possible. The Glenfield improved seat joi is incorporated in all these valves and whol eliminates any possibility of adhesion betwee the ball and seat, the weight of the ball at a times being amply sufficient to ensure th proper functioning of the valve.

Glenfield Patent Kinetic Air Valves are mad in all sizes from $1\frac{1}{2}$ in. to 8 in. diameter, types corresponding to our standard a valves.

Write for a copy of leaflet "Glenfield Kinet Air Valves," free on request.

Glenfield

GLENFIELD & KENNEDY, LIMITED, KILMARNOCK

DRAWING OFFICE REQUIREMENTS.

DRAWING PAPER, TRACING PAPER, TRACING CLOTH,

DRAWING AND SURVEYING INSTRUMENTS.

DRAWING OFFICE FURNITURE AND SUNDRIES.

We also supply all types of Thermometers, Pressure Gauges, Indicators, etc.

Catalogue on Request.

J. HALDEN & Co., Ltd.

Birmingham Branch: 31, COLMORE ROW, BIRMINGHAM, 3.

Registered Office and Works: Rowsley Works, Reddish, STOCKPORT

Also . . . . Manchester, London, Newcastle, Glasgow, Leeds

The ELECTRIFICATION *of* FACTORIES *and* WORKS

J. & P. occupy a unique position in that they are able to undertake undivided responsibility for the supply of complete equipment for the Electrification of Factories and Works.

J. & P. Cables and Cable Accessories, Switchgear, Transformers and Overhead Lines are used by discerning engineers throughout the Empire—they are the result of over half-a-century's specialized experience.

May our engineers discuss your present and future works electrification problems with you?

ELECTRICAL ENGINEERS & CABLE MAKERS

Johnson & Phillips, Ltd.

CHARLTON, LONDON, S.E.7.

Birmingham Branch: **SUFFOLK HOUSE, SUFFOLK STREET**
Telephone: Midland 4141 and 4142
Telegrams: "Selbac, Birmingham."

Established 1825.

Head Office :
CURZON STREET,
BURTON-ON-TRENT.
Telephone 3535-6
Telegrams :
Contracts, Burton-on-Trent

London Office :
BROADWAY CHAMBERS,
HAMMERSMITH, W.6.
Telephone : Riverside 2983 & 6214

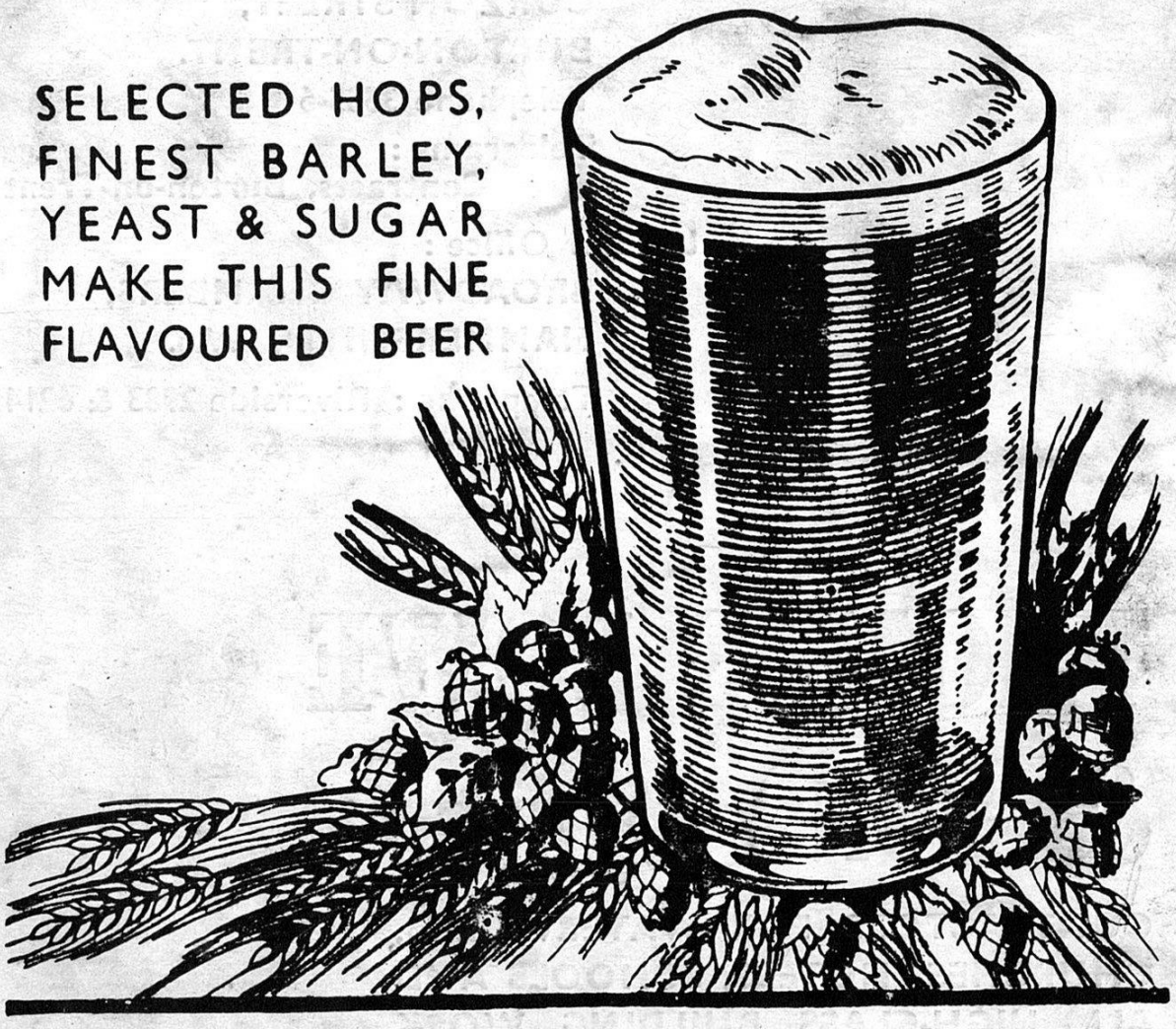
THOMAS LOWE & SONS LIMITED

CONTRACTORS FOR WATERWORKS,
CHURCHES, HOTELS, SCHOOLS AND
ALL HIGH-CLASS BUILDING WORK

CONTRACTORS TO AIR MINISTRY,
MINISTRY OF SUPPLY,
MINISTRY OF AIRCRAFT PRODUCTION
AND MINISTRY OF WORKS, etc.

Members of National Federation of Building Trades Employers
Federation of Civil Engineering Contractors
London Master Builders Association
Birmingham Association of Building Trades Employers
Reinforced Concrete Association

SELECTED HOPS,
FINEST BARLEY,
YEAST & SUGAR
MAKE THIS FINE
FLAVOURED BEER



Mitchells & Butlers

"Good Honest Beer"

THERE'S AN "M & B" HOUSE QUITE NEAR TO YOU

JOSEPH WONES LTD., PRINTERS, WEST BROMWICH.