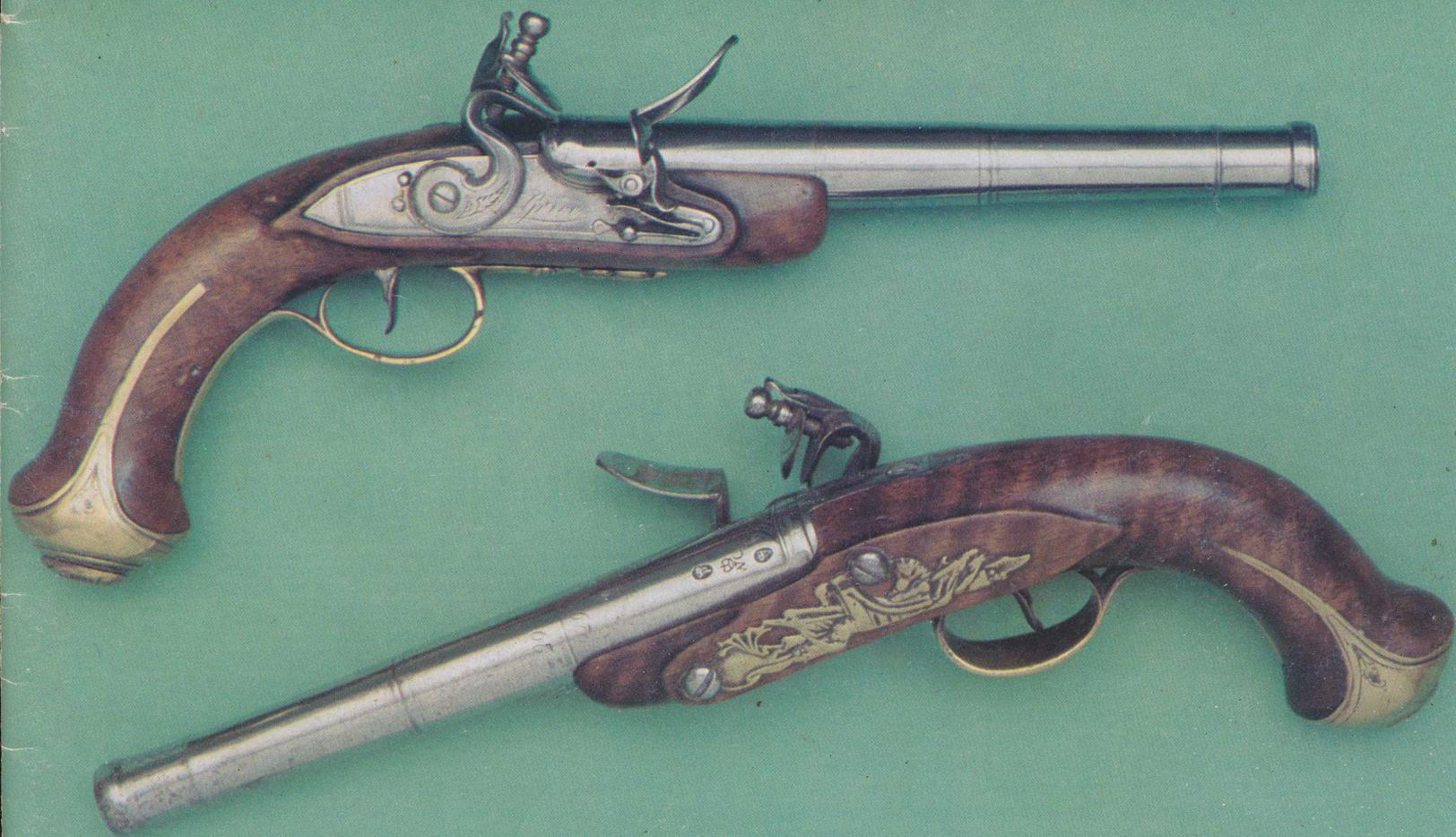


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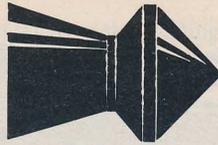
Airgun Scene
Review of the HW77

A School Project
SAFETY IN SHOOTING

TA90 9 mm. Pistol
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The Weihrauch HW77

John Walter

DEVOTEES of "Airgun Scene" will realise that much time has been spent over the past two years in an attempt to assess velocity and accuracy of various airguns. This has not been particularly easy, there have been many false starts, and the difficulty of assessing accuracy — in particular — prevented gun reviews along the lines of those featured in the British airgun magazines, or even the *Guns Review* "gun review" features.

I am now reasonably confident that our analysis system works properly, and among my resolutions for the new year is to offer a few conventional reviews. This month's article is the first.

The Weihrauch HW80 is the European version of the R1. The shape of the cheekpiece are distinctive (Courtesy Hermann Weihrauch KG).

The Weihrauch HW77 is comparatively new to the airgun scene, though I made passing mention of it earlier in the year when reviewing events at the SST Show, the first time I had been able to examine an actual gun. Since then, appreciable quantities have been distributed in Britain by Hull Cartridge Company, and the rifles have become known for high power and outstanding accuracy. The origins of the HW77 lie in a request from Beeman, Weihrauch's US agent, to develop a fixed-barrel rifle based on the HW80 barrel-cocker, but incorporating a sleeve-type breech inspired by the principal spring-air target rifles. The current Beeman airgun catalogue states that:

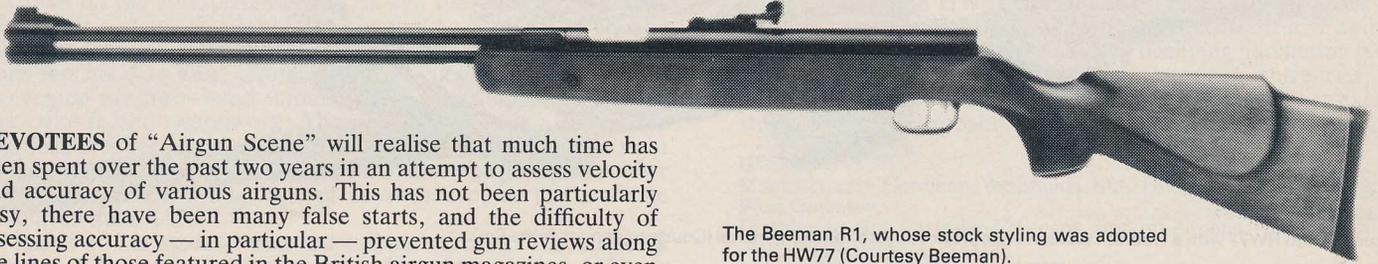
We had long felt that combining a straight line, fully opening breech block mechanism with an underlever or sidelever cocking mechanism and true magnum air power would produce an outstanding sporting rifle. . . Finally, in 1982, our ideas came to fruit when the famous Weihrauch firm of West Germany indicated their interest in using our design ideas to develop such a sporting air rifle. . . The underlever arrangement was selected over the sidelever

system because it was determined that the limited compression area that would be available in a well-balanced sidelever design could not produce the magnum power we sought. Finally, Mr. Hans-Hermann Weihrauch spent several weeks at the Beeman facilities in California where, together, we finished the design of a sleek new rifle which we designated the HW77.

How much of the rifle design is due to whom must remain a subject for speculation, as both Beeman and Weihrauch claim much of the credit.

The perfected HW77, which appeared in the summer of 1983, is a complete departure from Weihrauch's previous guns. It is an underlever-cocker, with a fixed barrel and a sleeve-type breech that permits pellets to be inserted directly into the chamber. The cocking lever runs forward from the chamber area beneath the barrel — the HW77 looks much like a tube-magazine cartridge rifle — but lacks something of the elegance characterising the Airsporter.

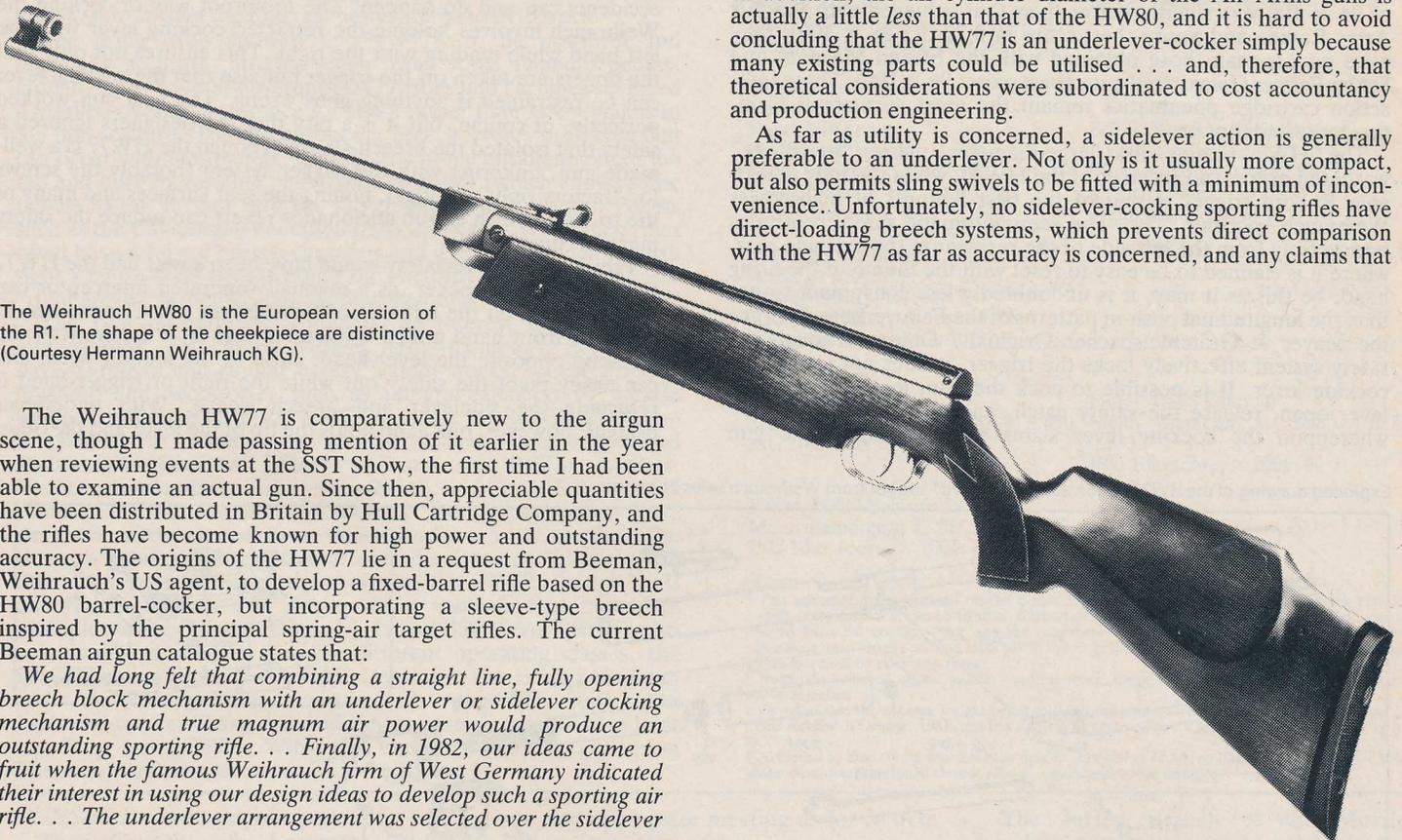
The claim that a sidelever of similar size could not develop



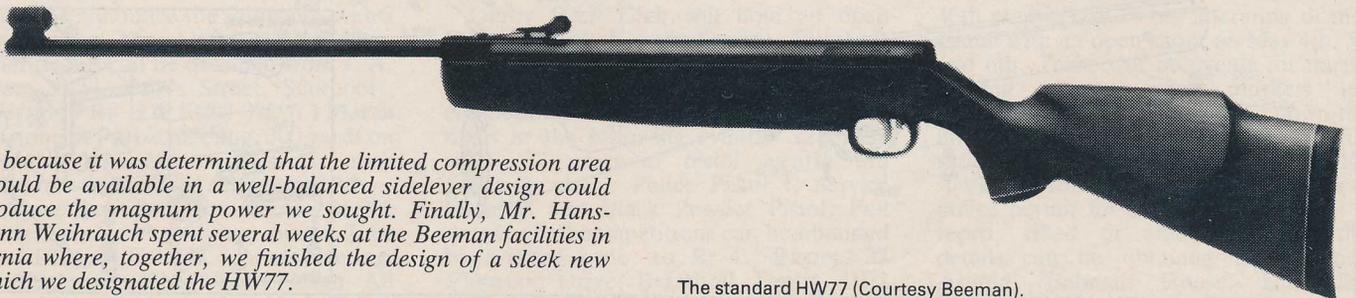
The Beeman R1, whose stock styling was adopted for the HW77 (Courtesy Beeman).

comparable power is interesting and controversial, as the Air Arms rifles, particularly, are not that much less powerful than the "export" power HW77, though undeniably more difficult to cock. In addition, the air cylinder diameter of the Air Arms guns is actually a little *less* than that of the HW80, and it is hard to avoid concluding that the HW77 is an underlever-cocker simply because many existing parts could be utilised . . . and, therefore, that theoretical considerations were subordinated to cost accountancy and production engineering.

As far as utility is concerned, a sidelever action is generally preferable to an underlever. Not only is it usually more compact, but also permits sling swivels to be fitted with a minimum of inconvenience. Unfortunately, no sidelever-cocking sporting rifles have direct-loading breech systems, which prevents direct comparison with the HW77 as far as accuracy is concerned, and any claims that



The standard HW77 (Courtesy Beeman).





A customised HW77 with a walnut Tyrolean style stock and internal refinements (Courtesy Venom Arms Co.).

the Weihrauch underlever action is inherently better than side-lever systems (owing to unbalancing vibration, stress or other seemingly plausible reason) are — in Scottish legal parlance — “Not Proven”. As the results of the firing trials show, the HW77K proved to be extremely accurate; however, though the best return of 94 × 100 was slightly better than that achieved with the Air Arms Rapide and Supra (best score in 0.22 in., 88 × 100), they were poorer than those obtained with the Ensign Magnum and Saxby-Palmer Galaxy trial guns (best score: 96 × 100). These bolt-action cartridge pneumatics remain the most accurate 0.22 in. designs tested thus far.

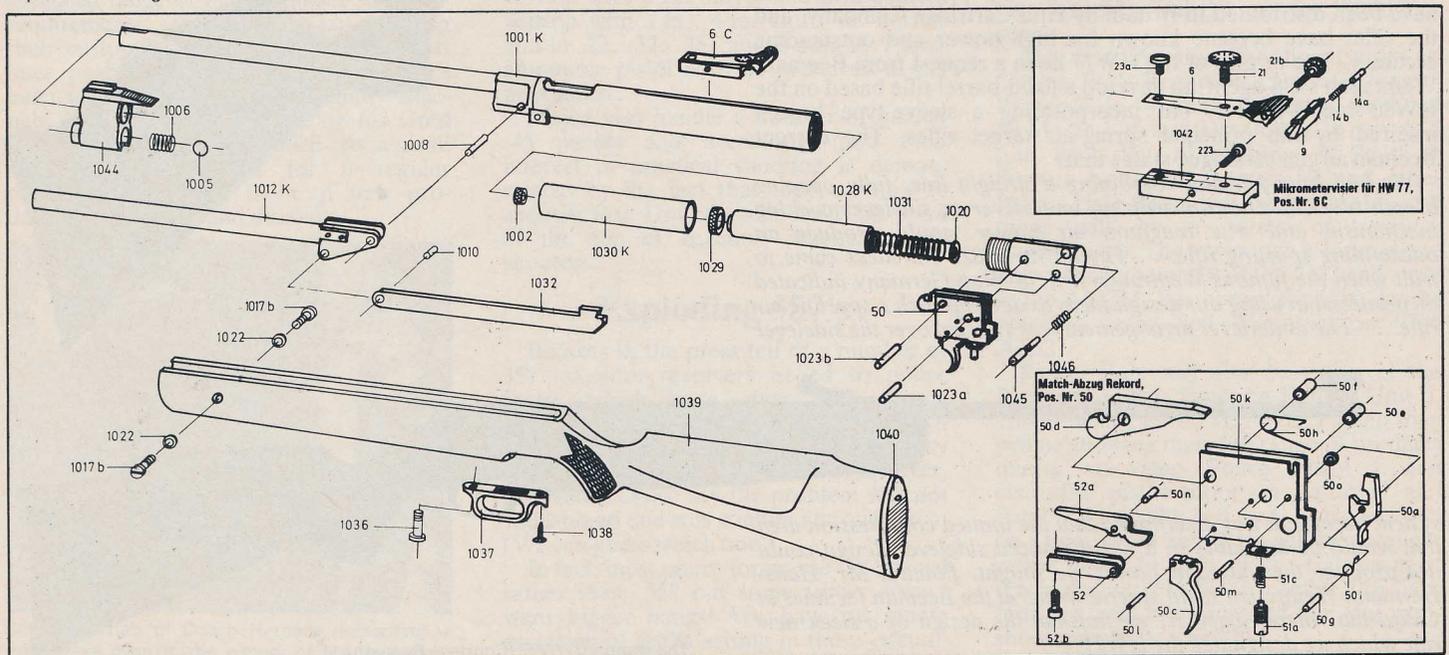
The HW7 retains the large-diameter nylon “parachute” washered piston and receiver of the HW80, while the fully adjustable Rekord trigger is one of the best features of high-power Weihrauch sporting rifles. The semi-automatic safety protrudes transversely from the left side of the receiver in the extreme rear, where it is claimed to be easy to reset with the thumb of the firing hand; be this as it may, it is undoubtedly less convenient to use than the longitudinal push-in patterns of the Feinwerkbau Sport or the Mayer & Grammelspacher Original / Dianas. Though the safety system effectively locks the trigger, it does not isolate the cocking lever. It is possible to cock the gun, leave the cocking lever open, release the safety catch, and press the trigger . . . whereupon the cocking lever slams shut, damaging the gun

(usually by breaking the muzzle block) and smashing the fingers if the firer is in the act of loading a pellet into the breech.

Whatever the theoretical disadvantages of tap-loaders, at least this particular problem can never arise. Of course, a trigger should NEVER be touched during the cocking / loading cycle, but accidents can and do happen. The foolproof way of cocking the Weihrauch involves holding the retracted cocking lever with the left hand while loading with the right. This ensures not only that the fingers are taken off the trigger but also that the cocking lever can be restrained if anything goes wrong. The trial gun worked perfectly, of course, but it is a pity that the designers ignored a safety that isolated the breech-sleeve. Though the HW77 is a well-made gun, tinkering with the trigger system (notably the screws for “factory only” settings), honing the sear surfaces and many of the tricks to which airgun aficionados revert can reduce the safety margins considerably.

Providing a sleeve-safety would have been easier had the HW77 been a sidelever-cocker, as a manually-operated interceptor can then be fitted on the left side of the receiver (cf, Chinese Em-Ei 45). The front hand grasps a sidelever-cocker at the front of the fore-end opposite the lever-head, close to the loading area, and can easily pivot the safety out while the right or trigger-hand is returning the sidelever and breech sleeve. With underlever designs, however, one hand holds the tip of the lever and the other

Exploded drawing of the HW77 action and its “Rekord” trigger from Weihrauch sales literature.



is usually grasping the wrist of the butt — too far from the loading area to disconnect a manual interceptor easily. Thus, any under-lever safety must operate automatically, complicating manufacture and reducing reliability.

Most firers will undoubtedly replace the ineffectual Weihrauch open sights with optical equipment. The front sight is a fixed blade, integral with the synthetic muzzle-block into which the cocking lever tip locks, while the spring-leaf back sight sits on a block that can be moved along the sight rails. This enables the firer to find a sight-radius that suits him, and is an improvement on the usual pre-determined distance.

The contours of the beech stock are based more on the Beeman R1 than on the European HW80, though the Beeman catalogue also shows a plain "standard" stock, without a cheekpiece, equally suited to left- or right-handed firers. The comfortable rounded fore-end handles well, though fore-end chequering would have prevented the front hand skidding from the beautifully-finished, but silky-smooth woodwork. The pistol-grip features a separate cap, cut chequering, and a slight Wundhammer swell on the right side to hold the hand at an acceptable angle. The generous rubber butt-plate proved useful as well as attractive, as the test rifle displayed quite a kick.

The HW77 is made in rifle and carbine versions. The former is elegant, but long and a little clumsy; the latter, which sacrifices a little of the cocking leverage in favour of compactness, is handier and better balanced. The full-length cocking lever is awkward to use, and something of an encumbrance in the field as it is open as long as loading is being accomplished. Though the HW77K carbine still tips the scales at a respectable 8.2 lb. it is about four inches shorter than the rifle and better suited to field work.

The firing trials showed the HW77K to be powerful and unusually accurate, notably when firing RWS Diabolo pellets; indeed, firing several different HW77 rifles and carbines revealed a marked overall preference for RWS rather than H&N pellets in 5.5 mm. calibre. The direct-loading breech avoids problems that can occur with tap-loaders, through fractional misalignment of the tap and bore or variable pellet-skirt diameter (which allows some pellets to fall further into the tap-chamber than others). Pellets such as the Caledonian benefited from seating, as Weihrauch rifles often have minimal breech chamfers and it can be difficult to push tight English-style pellets home satisfactorily — particularly as a "right angle", rather than linear seating tool is needed.

The rifle has already attracted the interest of the custom airgunsmiths, particularly Venom Arms Company. Some guns have Tyrolean and similar luxury walnut stocks, special internal finishing and accessories such as integral silencers or muzzle weights, while the "export" HW77 — made for the US market — is claimed to achieve up to 705 ft./sec. with unspecified (lightweight Beeman Laser?) 5.5 mm. or 0.22 in. pellets. Weihrauch sales literature quotes 260 m. sec., or 855 ft./sec. for standard 4.5 mm. or 0.177 in. pellets, though customised FAC guns will often exceed these velocities by a wide margin. The Beeman catalogue suggests that only the Beeman R1 spring-air rifle will regularly exceed the power of the HW77, though trials undertaken for the *The Airgun Book* indicate that individual examples of the Original/Diana LG45 and BSF S55 or S80 will also occasionally exceed it. Among different operating classes, the FAC Theoben Sirocco, the FAC Daystates, the Ensign Magnum and its Saxby-Palmer equivalent, together with the Japanese-market Sharp Ace and Innova, are all capable of at least equalling the HW77. With the exception of the gas-spring Theoben, however, these are all pneumatics.

GUNSHOP continued from page 238

The County of Lancaster Rifle Association announce the following events to be held at the Altcar Rifle Range. Further details can be obtained from J. A. Sainter, 20 St. Paul's Street, Southport, Merseyside PR8 1LZ (0704 37296.) **March 31st** — one day prize meeting, 300 yards on 300 metre UIT targets, own or issue ammn., free or standard rifles. **April 7th** — CLRA one day open prize meeting at 900 and 1,000 yards, own or issue ammn. **June 9th** — CLRA CCF Public Schools meeting. **June 22nd and 23rd** CLRA 110th All Comers Meeting. **September 22nd** CLRA

one day open prize meeting as for March 31st.

Derby R&P Club will hold an open Police Pistol I and Service Pistol B competition on June 29th and 30th. They are also staging open postal knockout competitions with shoulder to shoulder finals in the following events: .22 prone rifle, .22 precision pistol, centre fire precision pistol, Police Pistol I, Service Pistol B and Black Powder Pistol. Full details of all competitions can be obtained by sending s.a.e. to R. L. Baxter, 37 Elmwood Drive, Breadsall, Derby, DE2 4GA.

IN CONCLUSION . . .

The HW77 represents a significant move from a manufacturer that had previously relied on barrel-cocking designs. It handles well, notably in its carbine form, can be used by left- and right-handers with equal facility (apart from the right-handed safety catch), has a superb trigger, and is sturdy, well finished and attractively stocked — in other words, a typical Weihrauch and a worthy stablemate for the HW35 and HW80. Accuracy and power on the test specimen were both impressive, and it is sufficient recommendation that I was sufficiently impressed to *buy* the carbine for long-term pellet trials.

Prices in the shops are highly attractive, anywhere between £95 and £120, and the HW77 is well worth considering against rivals such as the Air Arms Rapide, the BSA Airsporter S and the Webley Omega. Owing to the steadily declining purchasing power of the pound in relation to most European currencies, the Deutschmark included, the price of imports will rise once existing stocks decline. It probably pays to buy your German airguns now!

HW77K

Manufacturer: Hermann Weihrauch KG, D-8744 Mellrichstadt/Bayern, West Germany.

Distributor: Hull Cartridge Company, Bontoft Avenue, National Avenue, Hull, Humberside HU5 4HZ.

Serial number of test gun: 10089XX.

Dimensions

Nominal calibre, in.: 0.22 (5.5 mm.)	Approximate cocking effort*: 90
Length, in.: 39.85	Piston seal material: nylon
Barrel length, in.: 14.53, 6-groove rifling, right hand twist	Breech seal material: nylon
Weight, lb.: 8.22	Safety features: lateral crossbolt at rear of receiver (see text)
type: fixed barrel, underlever-cocking with "sleeve" breech	

Performance

VELOCITY†

Pellet: Silver Jet	Pellet: Beeman Silver Bear
Average weight, gr.: 15.00	Average weight: gr.: 11.28
Mean velocity, ft./sec.: 592	Mean velocity, ft./sec.: 686
Velocity index, per cent: 2.98	Velocity index, per cent: 1.93
Mean energy, ft. lb.‡: 11.67	Mean energy, ft. lb.‡: 11.80

Pellet: Prometheus

Average weight, gr.: 9.12
Mean velocity, ft./sec.: 737
Velocity index, per cent.: 1.25
Mean energy, ft. lb.‡: 10.99

ACCURACY

Pellet: Caledonian	Pellet: RWS Diabolo
Mean diameter at 32.8ft., in.‡: 0.450	Mean diameter at 32.8ft., in.‡: 0.273
ISU 10m. score, × 100‡: 83	ISU 10m score, × 100‡: 94

Pellet: H&N Barrucuda

Mean diameter at 32.8ft., in.‡: 0.436
ISU 10m. score, × 100‡: 85

NOTES

* This arbitrary index is based on the notion that continuously cocking the Weihrauch HW 35 (=100) is the most that can be handled comfortably by a person of normal physique. The index is derived from the cocking force and the reciprocal of the logarithm of the distance from the "operating hand" to the cocking lever pivot; values below 50 indicate relatively easy cocking, while 150 or more will be extremely tiring!

† Nominally achieved at the muzzle, but in practice, owing to the design of the chronograph, at about 10 inches.

‡ Provided that the average weight pellet attained the average velocity. For reasons explained in *Guns Review* in October 1981, this is a dangerous assumption if average energy approaches 12 ft. lb.

§ Achieved by directly transforming the figures obtained at 47.6ft. to 10 metres. It is assumed that progressive deterioration in accuracy has no significance at the distances involved.

The Jersey Branch of the Muzzle Loaders Association are to celebrate the 40th anniversary of the liberation of their Island with an open shoot on May 4th, 5th and 6th. There will be events for muzzle loading pistols, rifles, muskets and shotguns. Shoots will include down-the-line clays, and a 20 round offhand rifle shoot in four stages from 150 to 300 yards.

Visitors to Jersey will need a temporary police permit for all firearms, original or repro, rifled or smoothbore. Further details can be obtained from George Arnold, Balmain House, Undercliffe Road, St. Helier, Jersey, CI (0534 36871.)