

BIKES ACTION

NUMBER
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All about
mountainbikes

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Ritchey
Mountainbike

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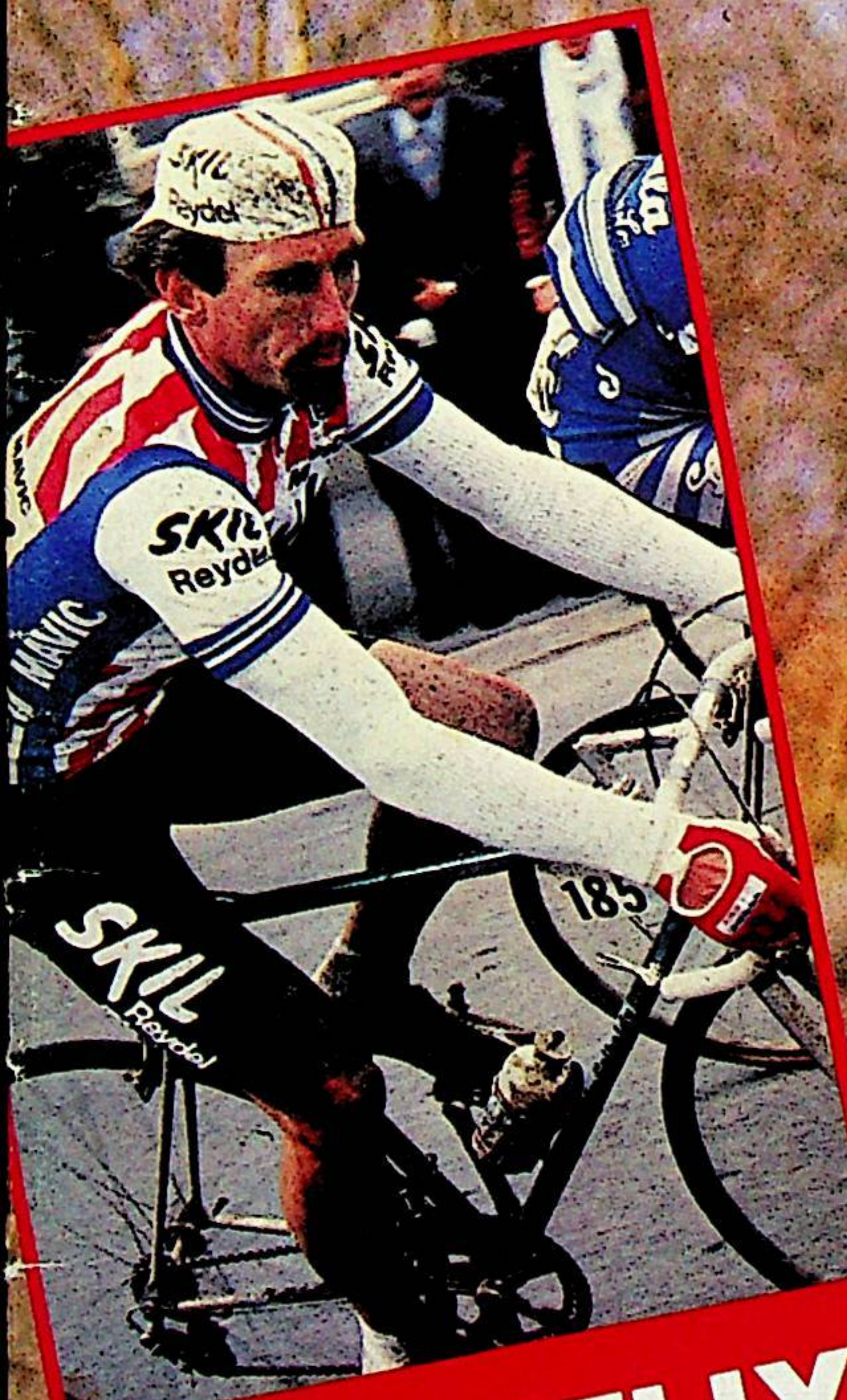
SHANE SUTTON

REPACK REVEALED

CHEATING THE WIND

RICHARD BALLANTINE

CANKELLY
WIN
THE TOUR?



Wild Western Bicycles



The Pioneers of off-road racing

IT WAS only in 1976, in the Chapperal-covered hills just outside Fairfax, California, that they held the first mountain bike races. They were informal affairs – downhill time trials held on a now legendary course called “**Repack**”.

Its name comes from the days before multiple gearing when all fat-tyre bikes used coaster brakes; one trip down the course, a rough and winding dirt road that plummets 1300 vertical feet in 1.8 miles, heated the hub to the point where all the grease boiled away, and the rider would find it necessary to “repack” it.

The first **Repack** races were held for the purposes of sorting out the fastest from what was essentially a small circle of friends. The official results were kept in a tattered notebook that is still in existence, and the seven names recorded for the first race are given just as Fred, Alan, Joe, Charlie, Bob P, Bob B., and Ariel, the dog.

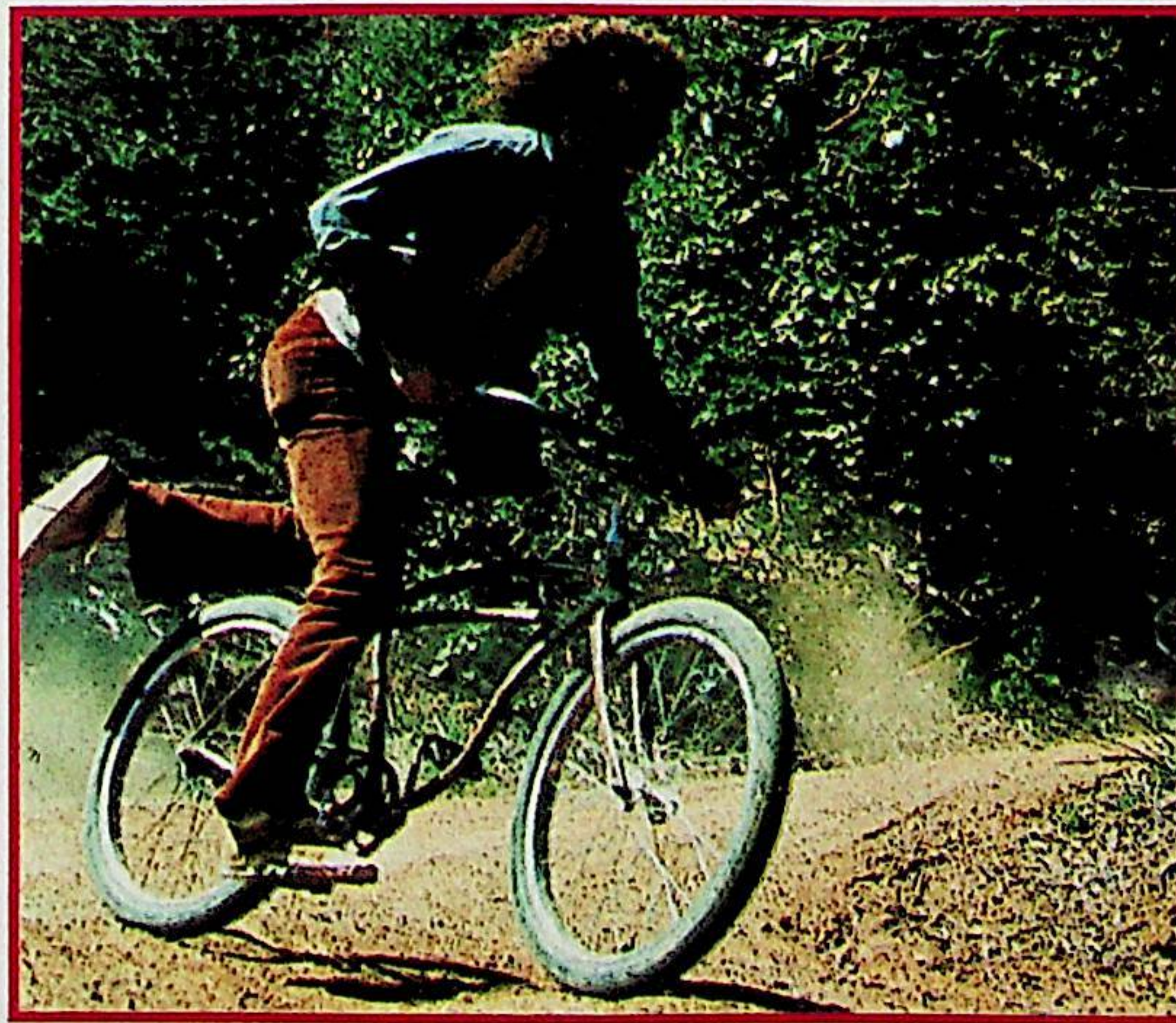
Those first races were timed using a ship's chronometer and an alarm clock with a sweep second-hand. Riders met at the top and agreed on a starting order and interval, which was recorded, then the person designated as the timer would carry one timepiece to the bottom, being careful not to crash, and as riders finished the starting time was subtracted from the finishing time.

This cumbersome system worked well enough, but as riders pushed closer to the limits of possibility it became necessary to time in split-seconds, and the then newly-developed digital stopwatch was adopted, so results could be decided by hundredths.

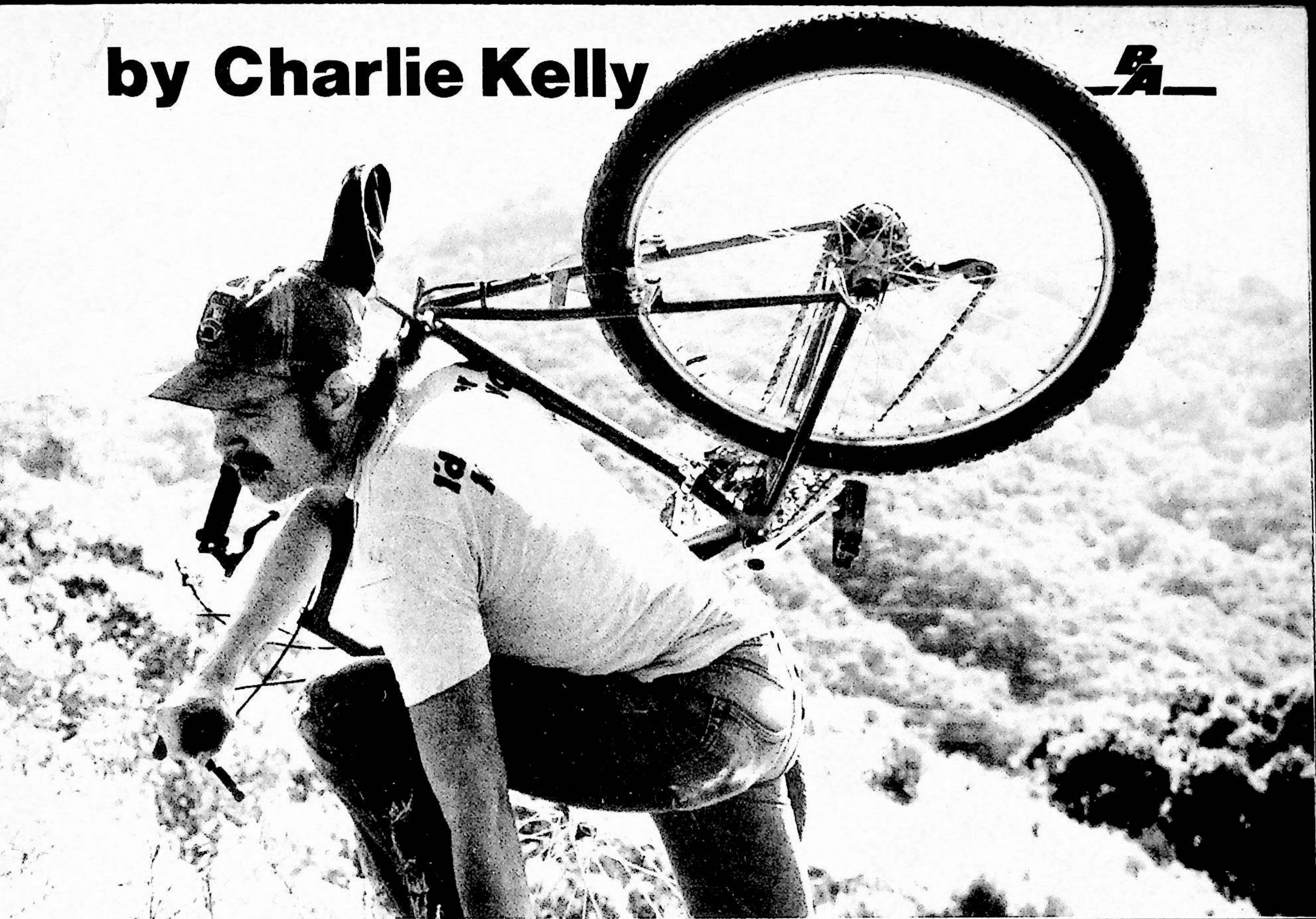
When other pockets of clunker riders got to hear about these guys who were actually clocking downhill

runs, local as well as individual pride stepped up and asserted itself.

The Larkspur “Canyon Gang,” whose turf was another small town a few miles away, let it be known that they had been blasting mountains on their bikes for years, and that no hill in Fairfax was as radical as their “**Roller Coaster**,” where twenty-foot aerial



manoeuvres were not only possible, they were mandatory. The Canyon Gang disdained fancy machinery, preferring one-speeds with the legendary Morrow coaster brakes, and many of them didn't even use a front brake.



They brought with them a one-brake style that featured wild fifty-foot skids with appropriate dust-plumes. After the Canyon Gang starting showing up at races other groups heard of the event, and Repack was on its way into history.

Regard for human safety among the early Repackers compares poorly to that of, say, Ivan the Terrible. Head protection was likely to be a baseball cap turned round backwards, and gloves were considered a better idea than a helmet. Not that riders didn't shed blood on occasion, they just managed not to get killed often enough to matter.

The first era of Repack ended due to its popularity; a rider crashed and damaged a tree while breaking his wrist, then sued a television crew that was filming the race. The outcome of the action is unimportant, but the fact of it brought the unpleasant realization to the underground promoter that there was plenty of liability at stake, and with no insurance or even official sanction, his neck was out a mile. Repack was shelved from 1979 until 1983 when race insurance became available.

In the last two years mountain bike racing has arrived in force, and on the Pacific Coast where it is most popular there is an event scheduled for nearly every weekend from March through November. Most of the races are not downhill like Repack, but are mass-start point-to-point cross country events with fields of up to 250 riders. Distances vary from ten to thirty miles and courses may include bad or non-existent roads, stream crossings, narrow trails, and thousands of feet of climbing and descending.

Mountain bikers have formed a national organization for race sanctioning and insurance, and in 1983 for the

first time there was a "National" mountain bike championship race. This race was won by Steve Tilford, who not at all coincidentally was also national cyclo-cross champion.

The "national" championships were without controversy, however. Heavy rains had turned the normally dry course into a quagmire, and under these conditions riders found it easier to carry their bikes than to ride them, even on the descents. Originally scheduled for five ten-mile laps, after the second it was shortened to

Get your skates off

three, perhaps saving a few lives, but bitterly disappointing riders who felt that any strategy or pacing was thus nullified.

In a short time off-road bicycle racing threatens to eclipse road racing in America, and people who would never consider entering a road event flock to ride off-road races.

There are several reasons for this; first, the rider can get by with inexpensive gear, the same bike he rides on a daily basis. Second, the intimidating aspects of road racing, such as riding at high speed in close company or the sophisticated tactics necessary to win, are less important. At lower speeds slipstreaming is less a factor than strength, and large packs are rare after the first climb. Also, even if a competitor is out of contention, he can still take an enjoyable ride and fly down hills with the assurance that he won't surprise anyone.

In Santa Rosa, California, a charity called the American Lung Association puts on what must be the most popular race in America in terms of participation. The "Rockhopper" draws up to 250 riders from all over ▶



▷ the West, and with such a huge field a win here is considered a major accomplishment. In the last few outings a local rider named Gavin Chilcott has dominated the event, not surprising in light of the fact that he spent a year in Italy riding on a professional team.

One of the interesting aspects of off-road racing in America is the development of a class of professional bicycle racers. In previous years the only way for a bike racer to make any money at his sport was to go to Europe, but in the last year company sponsored off-road teams have been springing up everywhere. Some of the biggest names in American cycling have been turning up in mountain bike race results, including Olympic medalist Eric Heiden, a speed skater turned pro cyclist, Ironman Triathlon winner and former national cycling champion John Howard, and Dale Stetina, who in 1983 won the Coors Classic, America's longest stage race.

The touring aspect of mountain bikes is attractive to those who don't wish to compete. The stability and rugged wheels open up areas that defy ordinary bicycles, allowing the rider to enjoy cycling from good roads or civilisation. On smooth roads tourists find they enjoy the security of the improved braking, and they never need to worry about damaging a rim or tyre in the event they should ride into a hole with a fully loaded bike. The upright position allows the rider to see more, which is after all the purpose of touring.

After fat-tyre touring 1000 miles in New Zealand over every type of road, two tourists reported that not only did they have no punctures, but their tyres still looked nearly new! Among their other touring adventures, at one point

they picked up a pair of young ladies hitchhiking and gave them a twenty-mile lift on the handlebars of their already loaded bikes, an application that would go hard on the typical "skinny-tyre" touring machine.

The most popular and well known event for mountain bikers is an annual tour in the tiny town of Crested Butte, Colorado. In 1978 the **Crested Butte-to-Aspen** tour was completed by thirteen hardy riders, and although the original premise was apparently to have a travelling party that included bikes almost incidentally, by 1983 the two-day, 40-mile tour had expanded to a week of mountain bike events culminating in the ride to Aspen, and the roster had grown to 300 riders. "**FatTire Bike Week**" features daily tours, a major race, lectures, and a trade show by manufacturers who see it as an ideal

Limiting the entries

proving ground for new products. Although there are no doubt several thousand riders who like to participate, the logistics of shepherding such a large group over a 13,000' pass on virtually no road, as well as feeding them and finding them a place to camp, force the promoters to limit the entries.

Beyond Crested Butte, touring companies are springing up all over the United States. Generally these offer package tours with varying degrees of support and a range of prices to match. Services may include any or all of the following: use of a bicycle, lodging, meals served, gear trucked, mechanic or guide, and sagwagon. At least two groups are planning tours from coast to coast, a total of 3000 miles all on dirt roads. There are also mountain bike tours of Mexico, Peru, Nepal, China, Australia, and the list grows daily.

BLAZING A NEW TRAIL



The long wait is over.

Medium priced production mountainbikes are now available. But what do you get when you invest in the latest in off-the-road hardware? And what sets a mountainbike apart?

BA took four mountainbike regulars and one novice down tank country to report on the new breed of go-anywhere personal transport.



Kuwahara Alley Cat
 PRICE: £306
 FRAME: 012 Hi-Tensile Steel (Lugged) Seat Tube Cr-Mo
 RIMS: Araya 26 x 1.75 Alloy
 BRAKES: Dia-Compe s/pulls
 CHANGERS: F: S/Tour "7" R: S/Tour "7"
 CHAINSET: Sugino No 6 Swaged
 FREEWHEEL: S/tour Perfect 6
 BARS: Nitto Alloy
 STEM: Gran Coupe

SADDLE: Takahashi HS-808
 PEDALS: SR-SP H58 i Reflectors
 EXTRAS: Chain Spake Guards
 HUBS: Suzue non sealed
 LEVERS: Dia-Compe
 SHIFTERS: S/tour Alloy (LD-2800)
 RINGS: 50/40
 SPROCKETS: 14/17/20/24/28/32
 GRIPS: OGK Rubber
 SEAT POST: Unnamed steel not Q/R
 TYRES: Kuwahara 26 x 2.125
 WH'BASE: 42" STAYS: 18"
 FRAME SIZE: 22"
 ANGLES: H: 70° S: 70°
 B. BRACKET HEIGHT: 11"
 CRANK LENGTH: 170mm

| | | | | | | |
|---------|----|----|----|----|----|----|
| RATIOS: | 32 | 28 | 24 | 20 | 17 | 14 |
| INNER | 40 | 30 | 37 | 43 | 52 | 61 |
| OUTER | 50 | 40 | 46 | 54 | 65 | 76 |

Fat tyres, cantilever brakes with outside brake levers, bar-mounted thumb gear shifters, ultra-low gearing, quick release seat adjusters. And a price range that's almost as wide as their gear ratios. These are the features that instantly set the new breed of bike apart from the rest.

Yet walk into a bike shop until quite recently and ask for a mountainbike and you earned the sort of an old-fashioned look that suggested you'd slipped a few gears upstairs.

Most had never seen a mountainbike. The name alone seemed to strike terror in the hearts of those then trying to come to terms with BMX.

In the last few months the worst fears have been slowly forgotten as brand after brand of off-road production bikes have reached the shops.

Mountainbikes may be fun but one glance says they're not frivolous. Their engineering content alone says they are serious machinery. Their history may be shorter but mountainbikes are as researched, designed and developed for their purpose as any roadracer or touring bike. Fully set-up, a mountainbike is a multi-purpose go anywhere machine. (A mountainbike was BA editor Peter Murphy's choice when he made his '83 Trans Sahara trip with Tim Garside.)

The best are capable of surviving steep muddy 1 in 4 off-road climbs, smoothing out nightmare potholes on commuter routes and sufficiently low-g geared to take the slog out of heavyload touring.

Resistance has come because mountainbikes look very different to other bicycles and uncomfortably close to motorbikes sans motor.

The early prototype mountainbikes of



THE RACE IS ON. The BA test team charge flat out through the Aldershot sand.

their No. 1 hallmark. Fat tyres. To anyone raised on thin high pressures, fat tyres represent a complete reversal of most of the cherished principles of tyre technology.

Knobbles

With their square, knobbly treads the 26 x 2.125 inch tyres look like something off a tractor that went on a diet. But then traction is their business.

Run them spongy soft with pressures as low as 30 psi and with ultra low gears they can spin through a trodden cow pasture at milking time as if it was just another stretch of tarmac.

At the other end of the scale the rims will accept 26 in. raised centre-rib road

the mid-70s were a combination of cruiser frame and tyres and cannibalised touring components. Over the years the bikes have become increasingly more sophisticated as a new generation of frames and components has been developed.

But mountainbikes have never lost

MOUNTAINBIKES

tyres as thin as 1.75 that can take 75 psi (ignore the cautious sidewall 45 psi message) and stay reasonably competitive on tarmac.

The knobbly is the most common off road pattern and the one most likely to be fitted as standard on out-the-carton bikes. But as the test bikes revealed tread designs are like mousetraps. The varieties are endless.

Everything in reach

The next most eye-catching aspect on a mountainbike is the bars—or at least what's mounted on them.

Squared off and wide they carry within handreach what can only be politely described as heavy-duty brake levers and thumb gearshifts—so called because you should be able to operate both without your hands leaving the grips.

Whether the all-in-one bar and stem bullmoose combination is a mountainbike essential is debatable. Most of the test bikes came equipped with the triangular braced bullmoose bars but three were fitted with separate bars and stems. Clearly some believe that being able to adjust the bar position is more important than having it 100% resistant to moving under any pressure. Only the worst bone-shattering juddering downhill stretches will prove the wisdom of either argument.

More stopping power

There is less debate over braking systems. Cantilever brakes now reign supreme. (Well almost). Hub brakes were tried and discarded because of their weight disadvantage.

The superb stopping power of cantilever brakes has long been known to tandem and cyclo-cross riders. The main reason they have never found wider acceptance is that they have never been offered. In the past mass manufacturers tended to fear that the public would not appreciate the difference and pay the extra production and component at factory cost (about £20) of brazing the cantilever bosses on to the forks and seatstays.

Hand on bar with the cantilevers come the outsize brake levers. Their dog-leg design stems from their motocross origins as does the extra thickness of cable. Stylish they may look but they are totally functional. Hurting downhill on a rutted forest fireroad you need all the

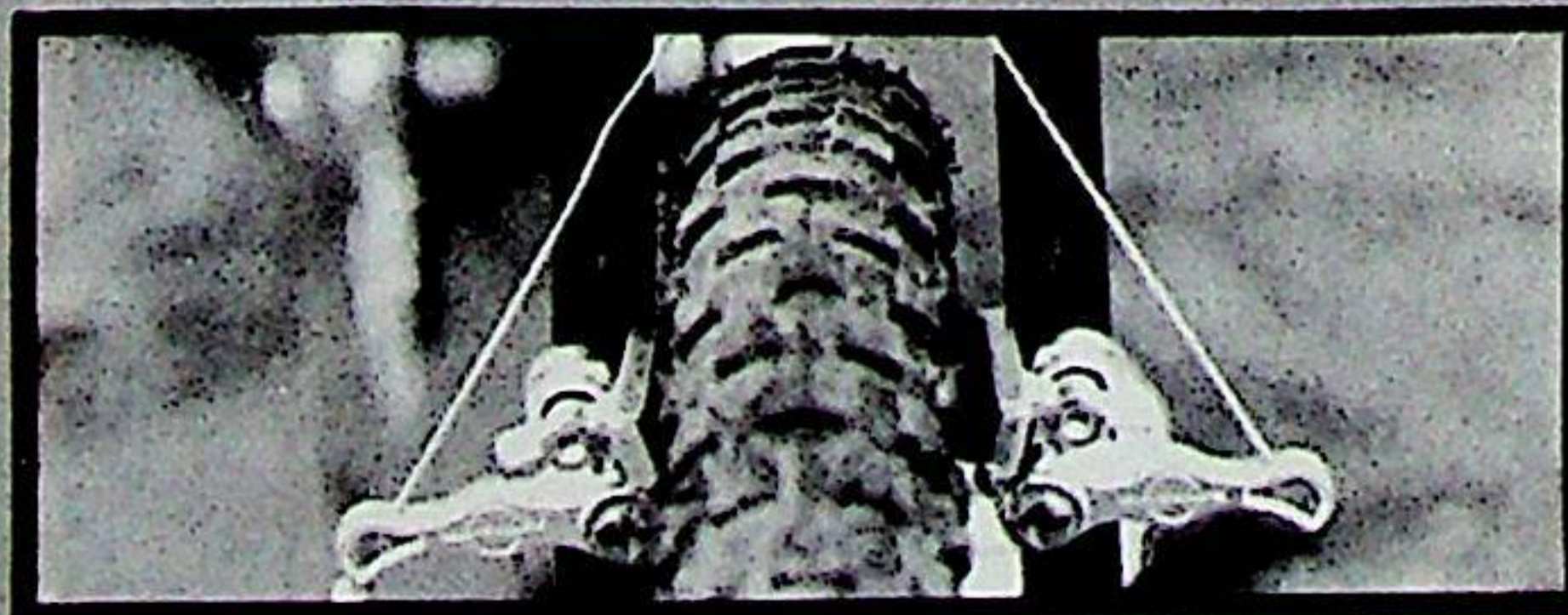


LEFT: "Look Mum—no feet!" James Black loses control over a bump.

Muddy Fox-Explorer

PRICE: £282
 FRAME: Tange Champion Cro-mo
 RIMS: Araya 7x
 BRAKES: Dia-Compe 980 C/Lever
 CHANGERS: F: Shimano AL
 R: Shimano AL
 CHAINSET: Sugino Pro MX
 FREEWHEEL: Shimano Gold
 BARS: Nitto B801
 STEM: Nitto Pearl
 SADDLE: Kashimax
 PEDALS: Shimano
 EXTRAS: Braze on for Bottle Cage,
 Carrier Eyelets

FORKS: Mangaloy
 HUBS: Shimano HBAN S/F
 LEVERS: Dia Compe
 SHIFTERS: Shimano EM
 RINGS: 28/36/46
 SPROCKETS: 14/15/17/20/24/30
 SEAT POST: SR Laprade
 TYRES: Panaracer 26 x 2.125
 FRAME SIZE: 20"
 ANGLES: H: 70° S: 70°
 FORK RAKE: 2½"
 WH'BASE: 43½"
 STAYS: 18"
 B. BRACKET HEIGHT: 12"
 CRANK LENGTH: 170mm



| RATIOS: | 30 | 24 | 20 | 17 | 15 | 14 | |
|---------|----|----|----|----|----|----|----|
| INNER | 28 | 24 | 30 | 36 | 43 | 48 | 52 |
| MIDDLE | 36 | 31 | 34 | 47 | 55 | 62 | 68 |
| OUTER | 46 | 40 | 50 | 60 | 70 | 80 | 85 |

MOUNTAINBIKES

stopping power you can muster. Ditto if you're taking on rainy day city traffic. Combined with cantilevers the large easy to grab levers reduce both the risk and the stopping distance required when riding in the wet. With the extra wide handlebars and fat tyres slow speed stability improves immeasurably and riding in traffic feels bags safer.

Wider and lower

If the early clunkers borrowed multiple gearing from touring bikes, cantilevers from tandems and cyclocross and their levers from motorbikes, the much-despised fold-up shopper bike was the source of the quick release seat mechanism. (The origins of the QR mechanism itself are more respectable. The device was invented for hubs by the late Tullio Campagnolo).

On a mountainbike the QR mechanism allows a rider to quickly change saddle height according to the change in terrain. Uphill you need the post high to obtain as much torque on the pedals as the length of your legs allow. For downhill, the seat drops low to let you pitch your bodyweight over the rear end and glue the back wheel down for added traction on slippery hairpins.

Mountainbikes tend to offer more and lower gears than the average touring bike. Turn one upside down and the clusters of cogs look a bit like a cuckoo clock that's just undergone open heart surgery. Fifteen gears is standard. Eighteen years are not uncommon.

Early critics who feared they were unnecessarily over-engineered tended to overlook the main point: the bike had to run gears low enough for the steepest off-road uphill climbs yet high enough to provide good touring speeds. A range starting around 20 inches and rising to 90 plus is fast becoming standard for the off-road industry. In the process of developing wide ratio gears mountainbikes have led to some radical redesign of componentry. Derailleurs that can accommodate a 20 tooth range have become common. The few front triple changers available before mountainbikes were hit-and-miss affairs that seemed biased against changing down from the middle to the inner small ring. With the advent of the mountainbike several manufacturers have decided to cure these problems. Not that all the criticisms are totally without foundation. Early off-road bikes (and some existing ones) still fall into one of the two traps. The gears either wastefully overlap or are so widely spaced that the noise the derailleur makes recalls the name mountainbikes were first given: clunkers.

What you pay is what you get

MOUNTAINBIKES do not come cheap. Prices are comparative with quality touring bikes. The SP on the most basic is around £200. And it's possible to shell out over £500 for a top quality version.

Those in the test bunch ranged from £225 up to the top end. The nine bikes fell into two categories—those costing over £350 and those that were obviously built for the more budget conscious.

What is missing from the range is the equivalent of the £99 touring bike—itsself the result of a market glut and a price cutting war. But anyone hoping to sit back and wait for the price to fall to these levels is going to need a mammoth dose of patience.

Mountainbikes will continue to be more expensive than other varieties because the production process consumes more raw materials, more stages, more engineered components and more expertise than the assembly of an ordinary touring bike. (One British manufacturer investigating production of its own downmarket mountainbike has found the main stumbling block to be the difficulty in automating the welding of cantilever bosses to tolerances that guarantee the brakes will seat properly first time.)

Virtually every mountainbike on the streets today, including those tested, owe their origins and fundamental design to the inventive comings and goings that took place in a shack of a bicycle shed in Northern California in the mid-70s.

It was here that pioneers Gary Fisher and Charlie Kelly first had the inspired idea of marrying up derailleur gears with an old-fashioned beach cruiser and calling it a clunker.

In time they ditched the cruiser frame and started building their own with Tom Ritchey. Someone christened them mountainbikes and the name stuck. (A later rival wrongly fearing Fisher and Kelly had copyrighted the name tried to coyly re-christen them All-Terrain bikes. Apart from its sheer plasticity the ATB tag only served to confuse them with the Honda three-wheelers of the same name. It quickly fell into disuse).

The test-to-destruction demands Fisher and Kelly placed on componentry and the enthusiasm they generated just in Northern California soon had Japanese component makers beating a path to their backwoods residence. Names like 'Sunny' Kwai from Suntour and Yoshi Shimano of Shimano left their calling cards at the well-sprung of mountainbike technology.

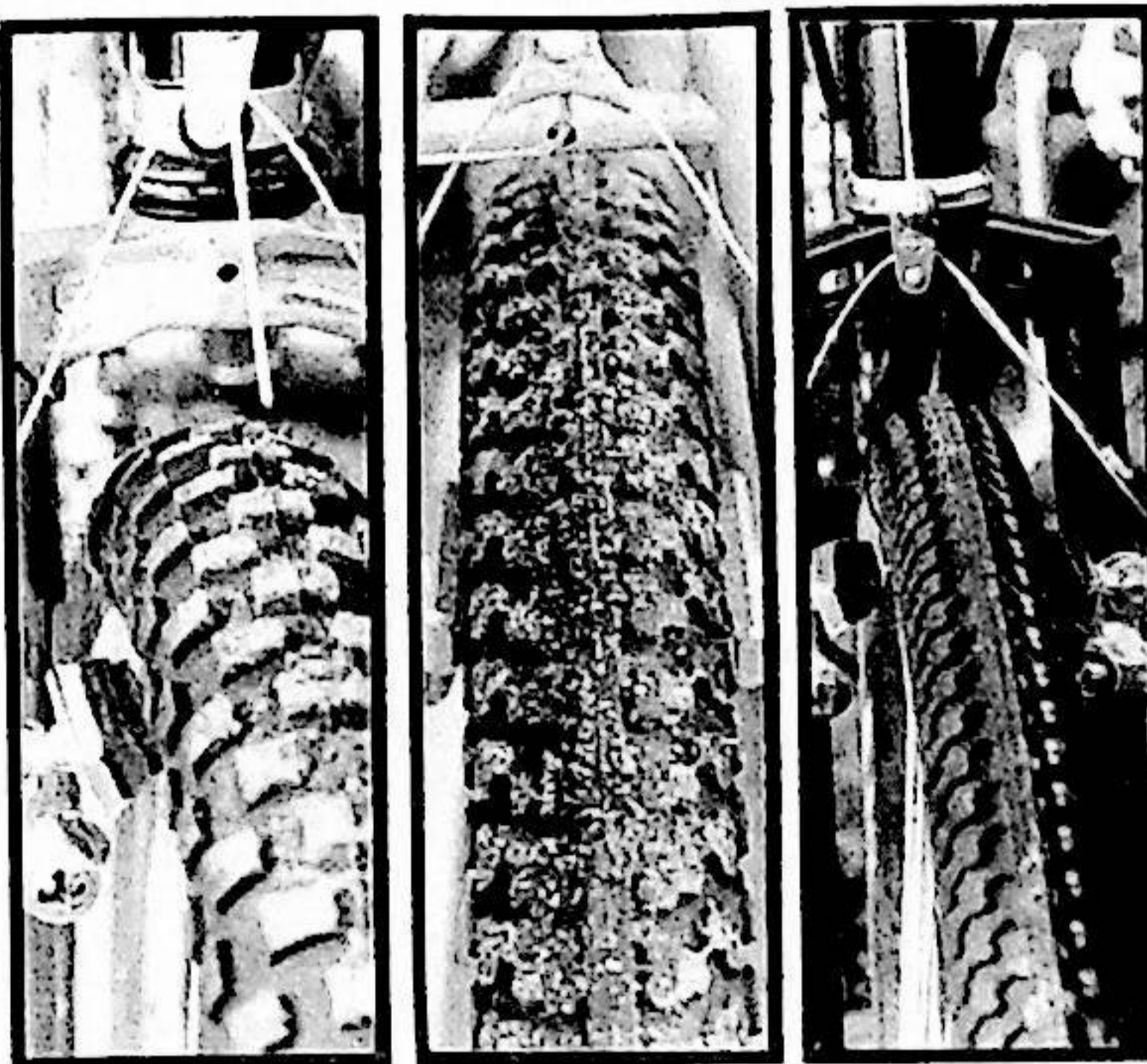
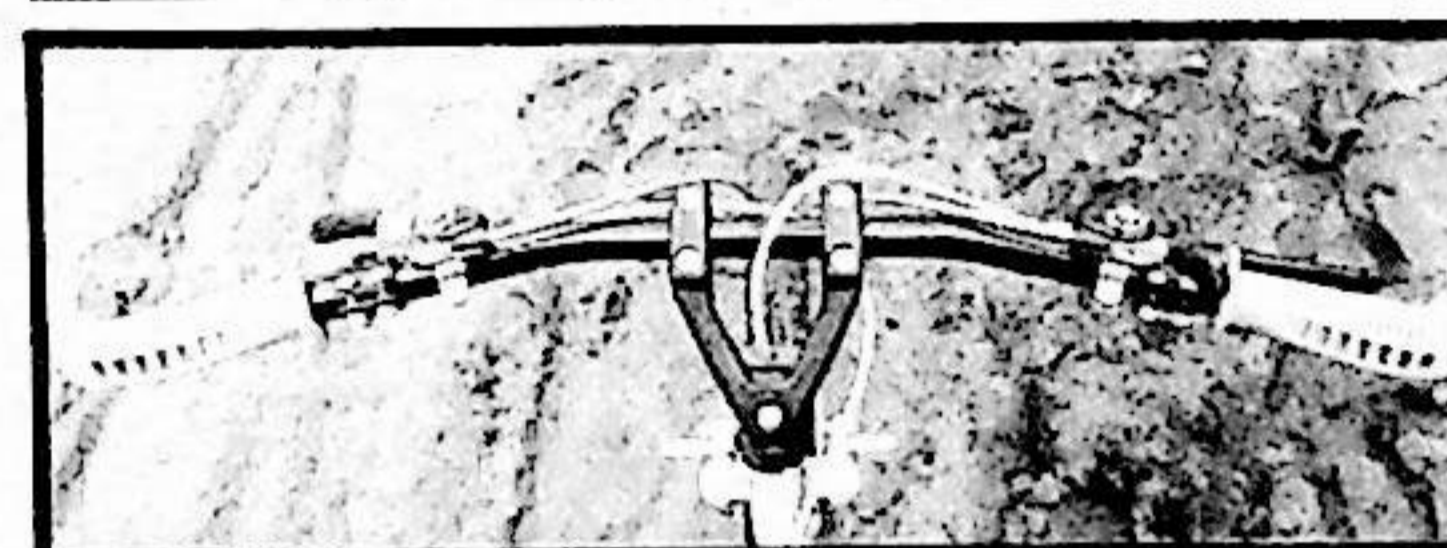
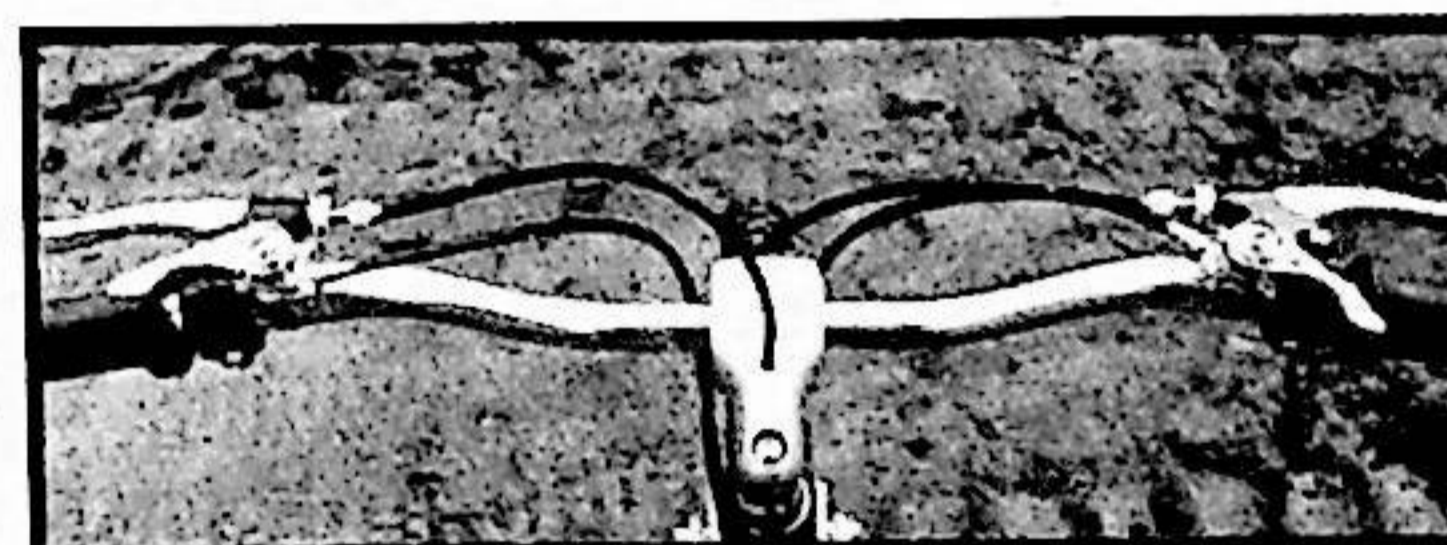
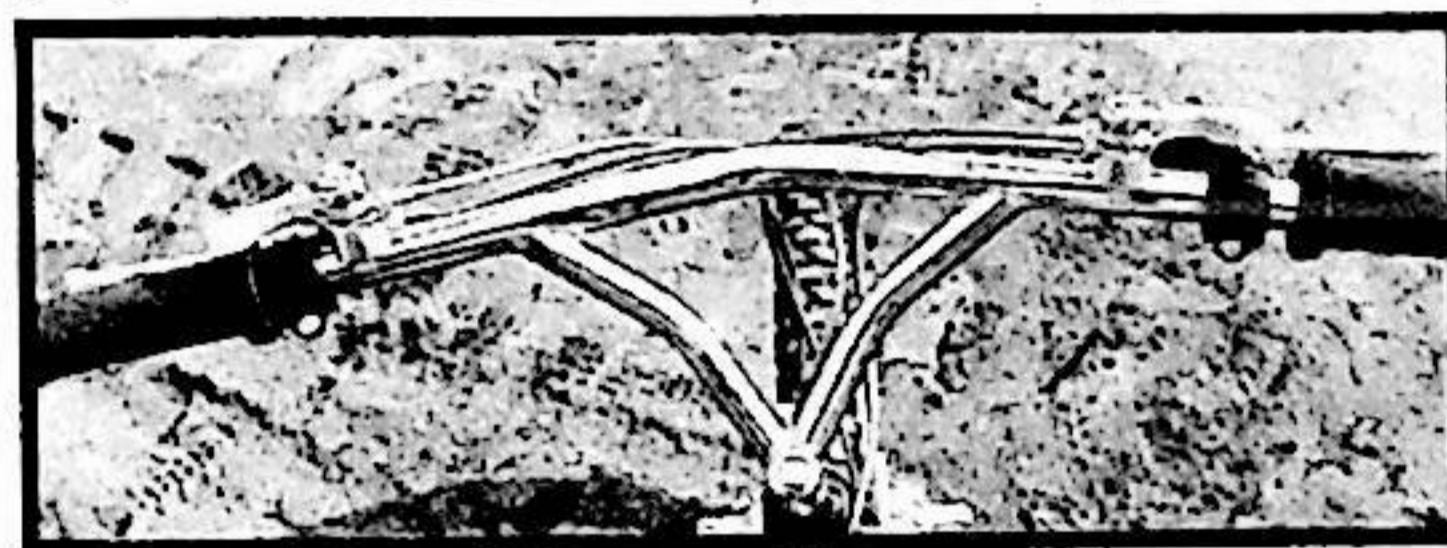
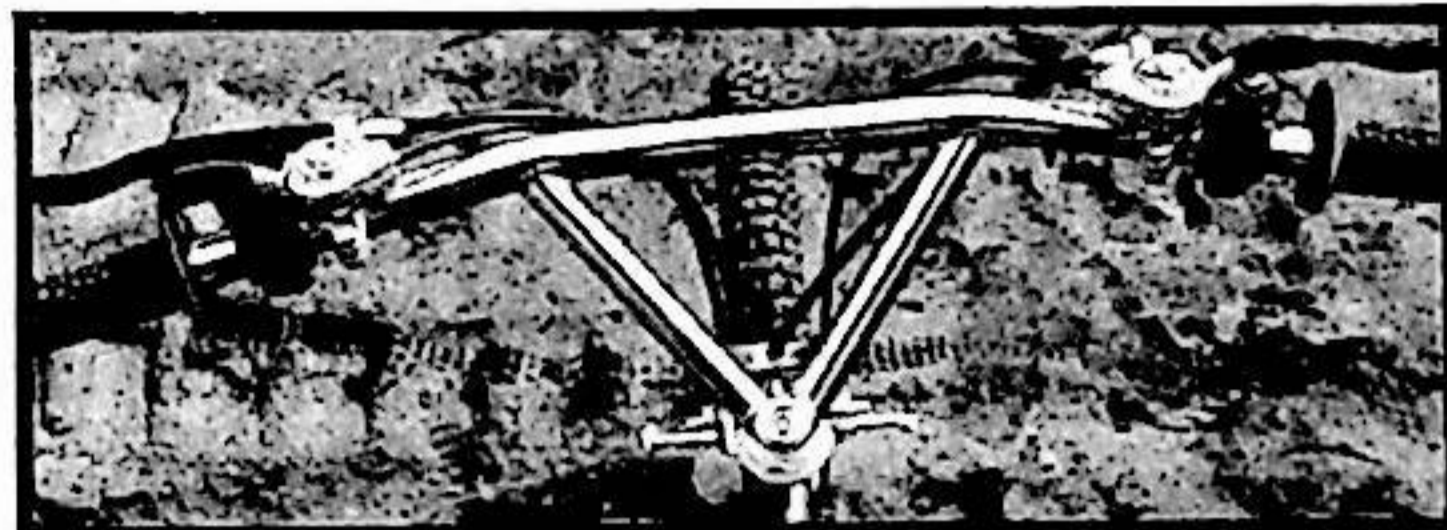
The results of those series of visits have helped influence mountainbike developments ever since. Little wonder then that most of the test bikes bore components that came from either Suntour or Shimano and associated suppliers like Dia Compe and Sugino.

At present the Japanese dominate the component side though Huret and Simplex are about to introduce mountainbike parts.

More stopping power

The close similarity between some of the Suntour and Shimano parts, especially the ergonomically designed

thumb ratchet levers indicates a form of consensus about components. But there is less agreement about frame design. There is no agreed standard length of wheelbase or bottom bracket height let alone the angles of the head and seat tubes. These variations in frame geometry throw up considerable variations in riding position as the bottom bracket appears to move 'closer' or 'further' from the rider. Devising a formula that determines riding positions requires something to stay constant from bike to bike. There is no such thing. Even crank length varies from 165mm to 180mm according to make and model.



Eventually how a bike rates comes down to how a rider feels about it and how the mix and match of components and frame design and construction withstands fairly testing conditions.

Out on the range

BA'S FIRST TEST expedition used open land close to Aldershot and strayed once onto tank range country. Apart from one request to 'Move along please—we want to fire our Shermans' it was the sort of funday that beats blinking at a wordprocessor.

The test riders were a mixed crew. Peter Murphy and Tim Gartside both rode mountainbikes across Europe, the Atlas mountains and the Sahara last year. James Black and Chris Simmonds both own mountainbikes and at some stage in their dubious bike careers have tested between them about every BMX cruiser ever seen in the UK. Pete Williams is a more-or-less retired biker (leather variety) discovering that pedal power has a lot going for it.

Later the bikes were ridden regularly to work and re-thrashed on the lower reaches of Hampstead Heath by other BA staffers including three who regularly commute on their own mountainbikes.

As the session developed it became apparent that the most expensive bike, the Montare, which retails for £550, but is in reality currently commercially unavailable here would serve as a marker against the rest. Built in Japan it represents the last fruit of the Fisher-Kelly partnership before they split. In design terms it also represents the latest refinements and five years development of frame geometry. As Tim Gartside put it: 'This bike feels the most sorted out. There are no transmission problems as with some other bikes and the Shimano derailleur was really good.'

'The slacker angles mean a greater feeling of confidence when descending at speed or cornering fast. The bike is bloody expensive but its class does show.' The last remark reveals in fact how deceptive the niceties of mountainbike frame geometry can be. The Montare's angles are no slacker than several others. In fact with its 70° seat tube and 68° headtube and 11.75 in high bottom bracket it is tighter than its 68° paralled predecessors.

Into the budget conscious category fell the Ridgeback. The Muddy Fox Explorer, the Kuwahara Alley Cat and the Pro Lite.

The Ridgeback could claim to be the model T Ford of the UK mountainbike world. It was the first low cost version and distributors Madison can probably boast more models off the road at present than any other mountainbike.

Its design bears close similarity to the Specialised Stumpjumpers that first appeared two and three years ago. These in turn closely copied the first Fisher-Ritchey bikes. The main exceptions were longer headstock and separate handlebar and stem design.

On detail the Ridgeback is generously finished like most mountainbikes with braze ons for water bottle cages and mudguard eyelets. Unique to it is a tubular metal rear derailleur guard. A clever and novel touch and something that the manufacturers of more expensive models could do well to copy.

The Explorer and the Alley Cat share the same inverted motocross type handlebars with separate bars and stems. The Ridgeback has a separate bars and stem arrangement but the bars are held at two points. Interestingly, the

MOUNTAINBIKES

Pro Lite, the cheapest bike in the test featured bull moose type bars.

As far as appearance goes the Alley Cat is the exception that proves the rule. No cantilever brakes, no triple chainset and no quick release seat pin. The fat tyres though are there and curiously for a bike obviously more intended for around town it had the best set of tyres yet encountered for heavy mud.

Listed on the specification sheet as IRC Duro Max, their wide pattern tread proved to be excellent at dispersing heavy clay. Even conventional knobblies like those on the Montare gummed up in boggy conditions. Dual purpose tyres with raised centre street riding ribs like those on the Ridgeback and the Comp III copy Hutchins on the Saracen fared even worse.

Although an obviously under engineered around town bike in intent, the Alley Cat showed a genuine off road capability when the going got rough. The same can also be said of the Explorer which apart from looking great, was remarkably light and lively. With a price tag of £282 it represents great value for money. An even bigger surprise though was the Pro Lite.

An all steel Taiwanese machine it had the snobs among our testers turning up their noses at the thought of putting it through its paces. Certainly it had its limitations but nowhere near as many as the snobs imagined. Don't be surprised if you soon see a few of these on the streets because at £225 there's going to be quite a few of them sold.

The bikes costing about £350 and up are marked by refinements that mark the reason for the bigger price tag and increased performance capability. Better frame materials, sealed bearings, a better standard of engineering and overall an increased feeling of confidence as you head off into the wild.

The Saracen is built with Reynolds 501 tubing and is a well thought out bike and will be a serious challenger as market leader in the top company of mountainbike models. It is clearly geared to the UK market with the emphasis on people more intent on sauntering along bridlepaths and long distance footpaths. Hence the steeper angles and shorter wheelbase.

The only items that spoil it were an ugly cluster of cables routed through the bullmoose bars and an unnecessarily cheap chain. Like the racier top range Kuwahara Puma it's equipped with SunTour Mowntech front and rear derailleurs. On both bikes the rear worked smoothly and precisely on 14-34 freewheels. There was little to choose between them and Shimano's self-centering XT Deore. An unusual and smooth as silk changer was the Suntour Superbe Tech fitted on the Diamond Back. Along with Kuwahara this company's pedigree in off-road bikes was earned in BMX. (Both outfits also build touring bikes for the US market). But their approaches to mountainbikes

BA

Kuwahara Puma

PRICE: £460

FRAME: Kuwahara 4130 Chrom-moly (Lugged)

RIMS: Araya Alloy 26 x 1.75

BRAKES: Dia-Compe C/lever

CHANGERS: F: Sun Tour mowntech
R: Sun Tour mowntech

CHAINSET: Sugino Super Maxy

FREEWHEEL: Sun Tour Perfect 6

BARS: Kusuki "Rocky" non braced

STEM: As Bars - not integral

SADDLE: Jaguar Champion

PEDALS: KKT I reflectors

EXTRAS: Spoke Guard; Brazed rack

eyelets; 2 bottle cage bosses

HUBS: Suzue L/F not sealed

LEVERS: Dia Compe

SHIFTERS: Sun Tour Thumb

RINGS: 34/48

SPROCKETS: 14/17/24/28/32

SEAT POST: Unnamed steel not Q/R

TYRES: Kuwahara 26 x 2.125 X-1

Knobbly

FRAME SIZE: 22"

ANGLES: H: 70°

S: 71°

FORK RAKE: 2½"

WH'BASE: 42" STAYS: 18"

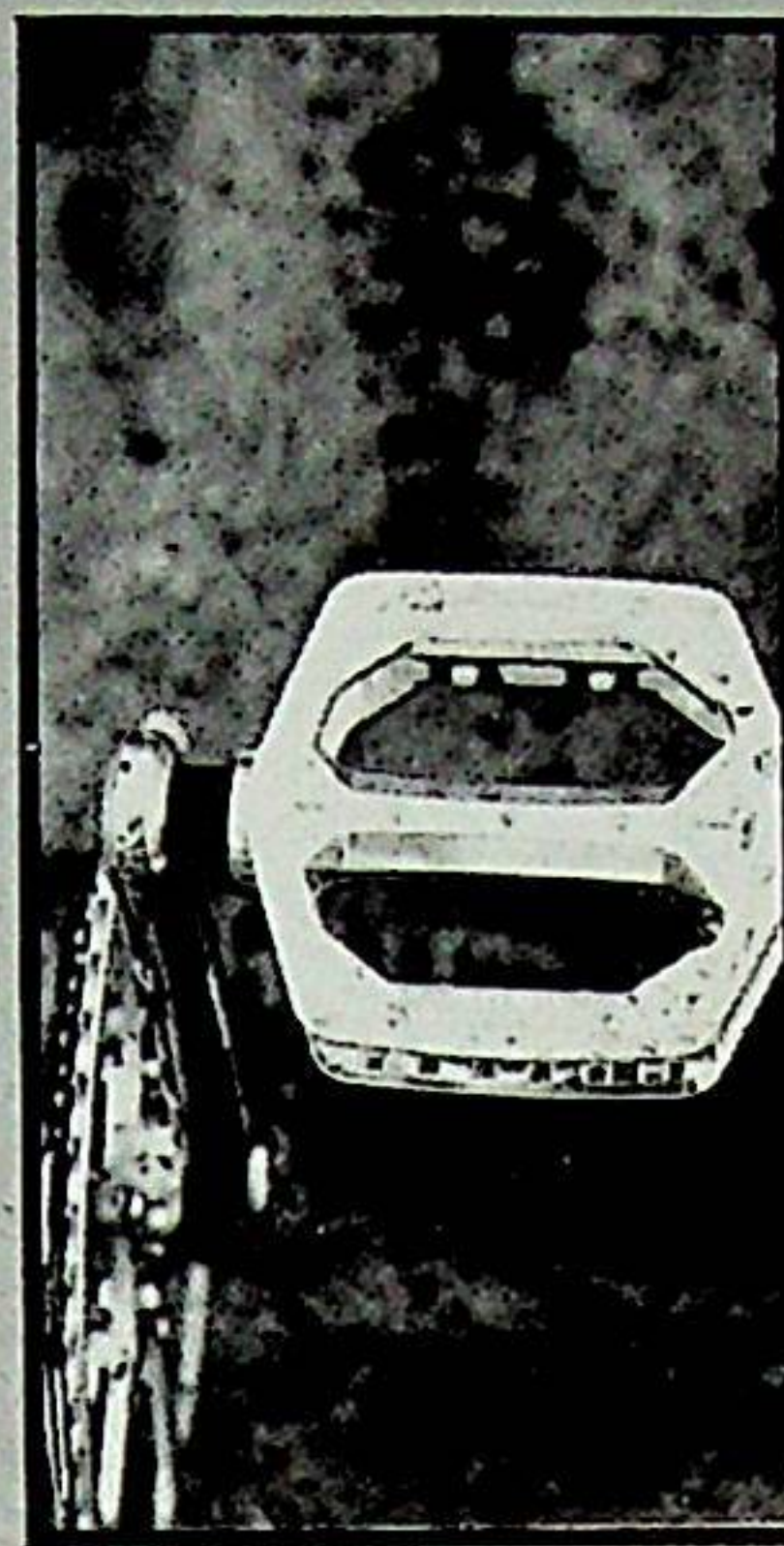
B. BRACKET HEIGHT: 11½"

CRANK LENGTH: 175mm

RATIOS: 32 28 24 20 17 14

| | | | | | | | |
|-------|----|----|----|----|----|----|----|
| INNER | 34 | 28 | 31 | 37 | 44 | 52 | 63 |
|-------|----|----|----|----|----|----|----|

| | | | | | | | |
|-------|----|----|----|----|----|----|----|
| OUTER | 48 | 39 | 44 | 52 | 62 | 73 | 89 |
|-------|----|----|----|----|----|----|----|



RIGHT: In trouble—but not for long. Even with the chainwheel bedded it was possible to manoeuvre out of this.

AND BELOW: Show Off! BMX rider Chris Simmonds shows what can be done if you've got the skill—and the courage.





direr. The Puma's separate motocross style handlebars proved effective on downhills and adjustable for steep climbs. The Diamond Back's has curved cut-off bullmoose bars that give the knees some room in tight turns. Murph found the narrower bars provided a comfortable and more confident riding position but wanted those extra inches back for corners and fast downhills.

Much depended on how a bike was set-up. One BA staffers first serious experience of a Mowntech front derailleur was on a 1-in-3 uphill US mountainbike course when the changer proved reluctant to kick from middle to inner ring under load. (He's been biased against them ever since).

However on the test no such problems were encountered. Both the Mowntech and the rival wide cage Shimano Deore XT performed faultlessly.

With the exception of the XT Deore range of the Montare, Dia Compe have a near monopoly of cantilever brakes. Both systems use cold forged alloy and are remarkably light. The Dia Compe system has the edge by all of 23 grams (less than an ounce). Both systems are remarkably effective but the Shimano has the edge on engineering sophistication. The Shimano has a sealed spring, protrudes less and has the bonus of a quick adjuster to compensate for brake shoe wear. An interesting feature on the Diamond Back was the use of a pulley as a brake yoke instead of the more familiar two pronged job. A nice touch that helps to keep the brakes centered properly.

All the pedals on the test bikes owe their origins to BMX. Unless you are tarmac touring toestraps are not recommended. Tim though uses strapless clips on his own bike and the BA staff are keen to experiment with mini clips. The best off-road foot grips seems to come from a combination of waffle-soled shoe wrapped around a BMX pedal.

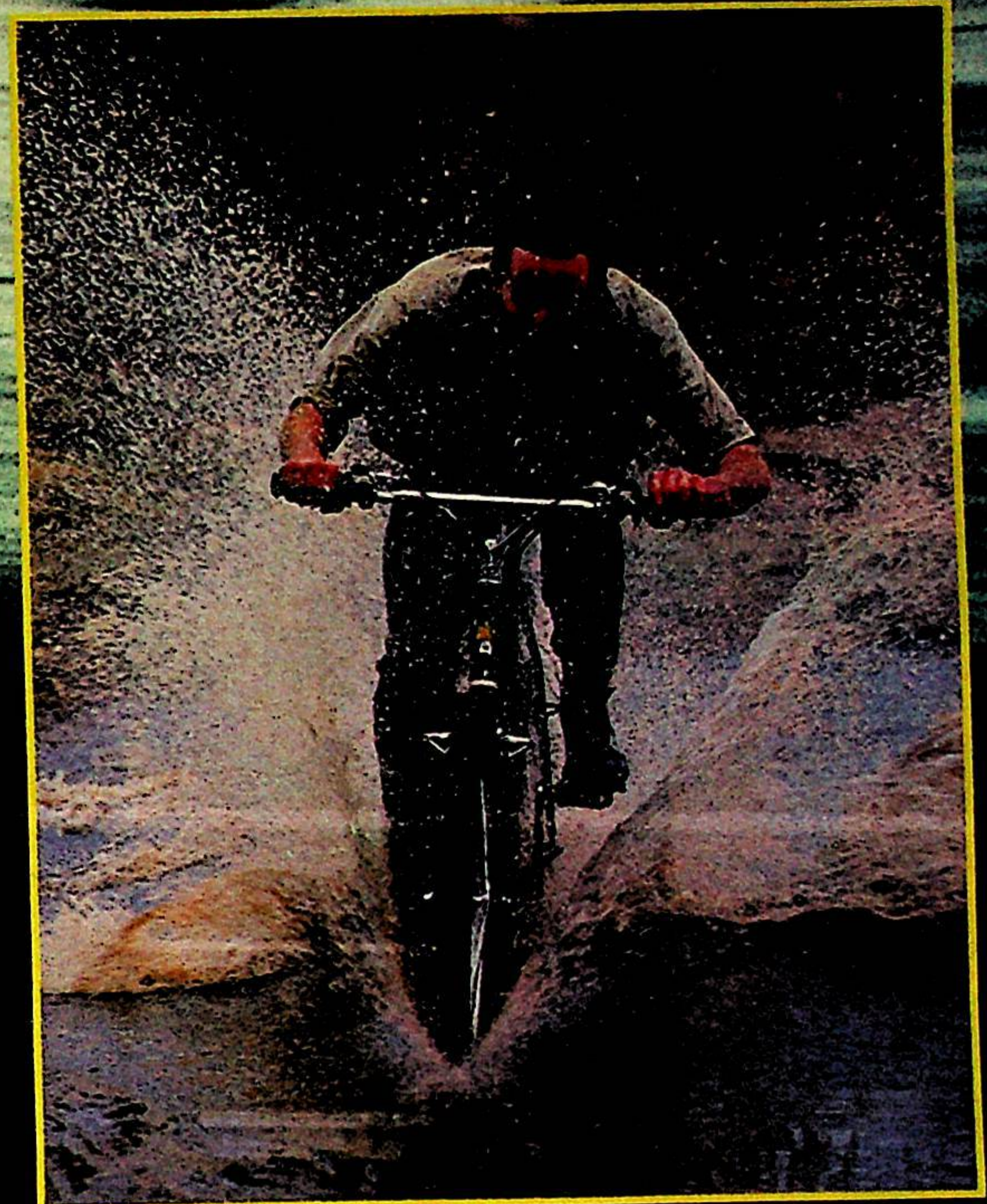
Two varieties of these are available: either cage pedals or studded alloy platforms like the KKT's on the Kuwahara and the Shimano DX type found on the Prolite. Regardless of pedal type the principle for off-road riding seems to be the bigger the pedal area, the better the adhesion.

The test favourite proved to be Suntour XC beartraps found on the Diamond Back and Saracen. The circular cages with their triangular teeth look especially lethal but like most mountainbike components they are there for a good reason.

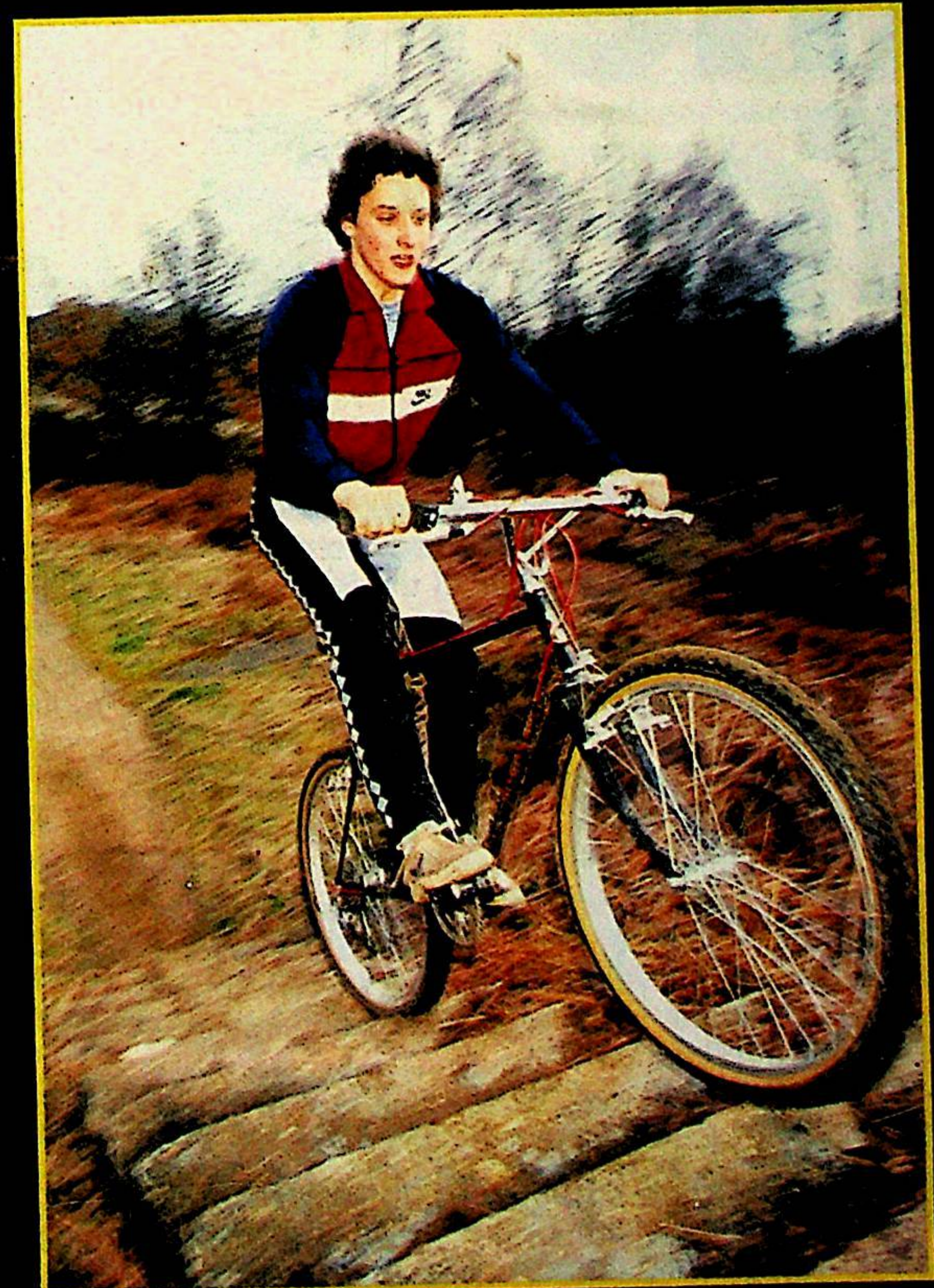
As with any bike all mountainbikes feel different. In general what you get is what you pay for. More expensive models such as the Puma and the Pathfinder really do show their class in everything you ask them to do. What is reassuring is that we are beginning to see a broad range of bikes that will enable you to experience the thrill of mountainbike riding within the limits of your budget.



The backwheel slider is the favourite way out of trouble—especially on downhill hairpins. Lock the back brake, steer the way you want to go and flow the backwheel round.
The hat is not obligatory.



TOP RIGHT: All in the line of duty. BA editor, Peter Murphy gets his feet wet.



BOTTOM RIGHT: We know they're go anywhere bikes—but up stairs?