



# *Sport Parachutist*

**VOL. 1 NO. 3**

**CHRISTMAS 1964**

**THREE SHILLINGS**



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# Sport Parachutist

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## JOURNAL OF THE BRITISH PARACHUTE ASSOCIATION

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Photograph by Terry Evans—as published in *The Tatler*. (Helen Flambert, British Ladies Champion).

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### DIARY

1965 Army Championships—May 8th to May 16th.

1965 British Parachute Association National Championships—May 28th to June 7th.

Aldershot Show—June 19th and 20th.

# The Dedicated Ones

VERONICA TEWKESBURY.



I have not jumped. I have never been invited or encouraged to jump.

But, although I know nothing at all about sky-diving, I do know the people for whom this sport is more than life itself. I have met "the dedicated ones".

And more than that, I have mixed with them for a long time. Socially and on the airfield. In the pub and in their—"living quarters". I have talked with them extensively and tried to understand.

I like them. I admire them.

This is a wholly untechnical, outside view of some of the sky-diving people—some very special people. The dedicated ones.

**It all seems to start with curiosity. A man—a parachute—and a long, breathtaking drop from point A in the sky to point B on the ground.**

An exciting, risky business. Appealing to those with a fair sense of imagination and an urge to defy danger. An exploit which, perpetrated a couple of times, ought to be a venture completed. Curiosity should be decently sated.

In some cases it is. For after the first two or three jumps there are two definite categories into which the new parachutists fall; the ones who pack it in—who finish with it for good. And the ones who go on—who

devote their lives to it.

There is no half-way. There is no middle of the road. Either you are in—hooked—for good. Or you're out.

For those who opt out the reasons will be numerous and varied. They will not be able to afford it. The journey to the airfield will be too far. They will be frightened out of it—there are, they will decide, too many dangers. They will only have intended to have one or two jumps "just to find out". They will find other sports to take up—less hazardous ones perhaps. They will turn to playing Ludo.

These are the ones who are "out".

Of the ones who remain there is a majority who will make, say, 15 to 20 jumps. Then, for them, too, the keenness will melt away. And the number drops to a very small handful of men who are "the dedicated".

How many men of all who start jumping go on to become really dedicated? 10%? 5%? I doubt it. Perhaps about 2%. But for this tiny percentage of men there are no half-measures. In other sports there are degrees of keenness. But not in sky-diving. Not for the dedicated sky-diver. For by this time a lust has crept into his blood, and a sport which lured him with its appealing enticement of excitement and risk has now achieved a hold over his life. He now seeks further thrill. From parachuting he progresses to sky-diving—and to the sensation of the free fall with its delightful dangers. Now there are new aims to fulfil; new objects to achieve.

For that small percentage of men, this is the way parachuting works. This is how it inveigles its way into the life of the once-inquisitive one—eventually to dominate.

Sky-diving is an expensive sport, but this does not deter the dedicated man: indeed, he will rarely think of it as "expensive". If it is his whole life to him, then he will not count the cost.

These men will go without most of the accepted comforts of life in order to pay for a jump. There are the men who do hours of overtime to save for their jumps—this means hours of work for a jump which lasts a couple of minutes. There are the less scrupulous ones who will spend their wives' housekeeping money on the sport. There are those who are permanently "broke" because all their money has gone on parachuting.

This inevitably means that they have not much spare cash to spend on women or nights out. Mostly the girlfriend will resign herself to paying her own way—buying round for round with her man. Occasionally there might be a special treat when she'll have her drinks bought for her all evening—as long as she's on halves of bitter!

Parachuting does **not** rule out women and beer. But those women who do get to enjoying a beer with them are inundated with "parachute-talk". Most of the girls put up with this. They have to—if the girl isn't interested in parachuting, then the parachutist isn't interested in the girl.

Just how high does sky-diving rate in comparison with the pleasures of a woman? I don't really know, but I do remember these words from an ardent sky-diver. "Of course women are important to me. Wonderful creatures. But in the beginning I'd take it easy with women for quite a few days before I'd make a special jump—exhibition jump, say. Up till then women had figured a hell of a lot in my life. They still do—but the realisation came to me that I rated the sheer exhilaration of the free fall as higher than the enjoyment of a woman."

Whether this is the general feeling amongst parachutists I cannot say. But I have a pretty good idea that it is.

I was going to write, "What sacrifice will these people make for their sport?". But I think it more appropriate to ask this: What sacrifice will these people **not** make?

For the cost of this sport is colossal. There is the hire of the plane to be paid for, the cost of training, and the hire of equipment. But it does not end there. Once past the early stages, parachutists **must** have their own equipment. When, in the beginning, they would make do with borrowing, begging or stealing any old boots and overalls, now they must have their own. To start with, a canopy will cost anything from £45 upwards. Then they will spend money on improving their own personal jumping equipment. They will want new boots, French all-zip overalls. Then they will not want to do with the ordinary scooterer's helmet; it has to be a special Racemaster helmet. Then even their ordinary canopy won't do. It is their ultimate aim to have their own 9TU.

Their money is not only spent on the cost of equipment either. For many, considerable travelling is involved—and some even acquire their own vans solely for carting parachute gear around. And then some of them spend vast sums on literature—on books and magazines on parachuting.

For many, it is not easy to find the money. But by means fair or foul they do.

And what won't they do for a free jump! I have known one man who travelled almost from one end of the country to the other to jump in a display—forgetting that the cost of petrol far exceeded the cost of a jump. And he was delighted that he could jump without paying!

Many of them do offer their services free for jumping in shows, exhibitions or displays. And these are expert sky-divers who could command a fee; yet in their enthusiasm for jumping, the thought of payment is forgotten.

Then there are the ones who can't afford to jump every weekend. Always they can be found at the airfield—taking an indirect participation by packing chutes, strapping others into their kit, and just watching the jumping, discussing techniques, new efforts, fresh ideas on parachuting.

But where does this dedication end? Where does it all stop? That I don't know. As far as I can see, their enthusiasm does not slacken. Do they ever tire of it all? That I can answer—no. Have they ever not been able to afford it? Yes—but they have kept on . . . somehow.

This poses an interesting question. What **is** dedication? Is it permanent—or does it end somewhere?

I don't know. At least, not where these sky-divers are concerned. I have never known a dedicated sky-diver to give it all up. Never.



Brigadier Oliver with the Chandy Trophy which he presented at the Scottish Para Championships in September. On his right is P. J. Wenk, winner of Open Event, and on the left Doc Robertson, winner of the 2nd Open Event.

# Scottish National Championships

## THE CHANDY TROPHY

During the earlier days of parachuting in Britain the Royal Navy lent us their support by inviting civilian parachutists to take part in their Air Day programmes. This tradition has been more than maintained in Scotland, and we wish to thank Captain R. H. Webber and the Officers and Ratings of R.N.A.S. ARBROATH for being the hosts of the Scottish Parachute Championships this year. We found ourselves made most welcome and every possible assistance was given. The liaison was crowned with success and was very much to our mutual benefit.

Competitors began arriving on the Sunday, that is five days before the event which was scheduled to commence on Friday, 25th and finish the following evening. Practice descents were made from Monday until Thursday but the weather, which tended to deteriorate as the week advanced, reached a climax on Friday and the competition had to be compressed into the Saturday which fortunately was a day of sunshine and moderate wind.

Press and television coverage was complete and this was the culmination of weeks of spare-time hard work by the Air Day committee. Posters announcing the event were posted far and wide; small cardboard parachutes printed with exhortations to the public to attend at H.M.S. Condor, fell like autumn leaves over a large town and Messrs. Chandy Bottling Company who presented us with the Chandy Trophy four years ago saw to it that twenty thousand beer mats infiltrated the area, suitably inscribed. Mr. M. E. Pearce of Downtons Ltd. acting for Chandy, performed trojan work in the public relations field, and his naval counterpart Sub. Lieutenant Pat Haggert was no less able. The efforts of all these people reached a zenith on Thursday when we held a press conference. During the afternoon the cameras clicked and whirred to result in excellent publicity. Possibly the greatest excitement was a film

produced by Grampian Television of nearly fifteen minutes' duration which is quite the best short feature film on competition parachuting I have yet seen. The commentary was good and a live interview followed the showing on Friday evening when questions about the sport were answered by Maureen Denley and Diana Knipe. The girls gave a delightfully natural performance doing credit to both themselves and the subject.

On Saturday morning we rose from anaesthetic sleep at 6 a.m., breakfasted at 6.30 and all were present at Flights by 7 a.m. when our Scottish Rapide took to the air for the drifter run. This aircraft is owned and ably flown by Group Captain Tulloch who abandoned his farm for the week and gave unstintingly of his time. The second Rapide was obtained through Chrissair and it arrived after a night at Turnhouse in time to assist with the second round.

When the drifter disappeared over the airfield boundary and our American judge Lennis H. Gilliam of the Pathfinder Club, 8th Infantry Division exited next time round it was clear that a 5 m.p.h. ground wind was little indication of the state of things at 2,200 feet A.G.L. This odd wind swung at 1,000 feet and as many a good lad found out, the wind gradient was not uniform. Twenty-six tons of sand spread in a circle fifty feet in diameter was not altogether any easy mark and an ostentatious dusting of sand from instrument boards became a ritual of pleasure and relief for the more fortunate.

Circles painted round the target with radii of fifty and one hundred feet proved an easier mark and covered most landings, but the markers had a brisk time. With much relief the second round of the individual accuracy was completed by lunch and the business had run smoothly due in some measure to Mr. Peter Rayner, the British Judge who was his usual efficient and imperturbable self. We were delighted to

have him with us for the third time. He and Gilliam worked as a team and they made the job look simple—the touch of professionals indeed!

Ten thousand spectators arrived steadily during the morning and they were fortunate not only to see some good parachuting but to be educated and entertained by the maestro Dumbo Willans over the public address system. How many parachute meetings would have been listless affairs for the audience had not Dumbo been there with a mike?

The afternoon flying began with an air display during which a Buccaneer and Lightning performed impressive aerobatic sequences. The crowd should have seen the team event follow hard on the heels of the Lightnings but the weather decreed otherwise and there followed one of those anxious waiting periods which bedevil parachute competitions in this temperate climate. At last the squall passed and the wind dropped to reasonable proportions, though definitely marginal. From the crowd's point of view the wait was worth the discomfort. With remarkable precision the teams exited the circling Rapides, one leaving an aircraft just before the preceding team approached the attack point. For thirty minutes there was a sight to delight the most blasé of parachutists as a wide selection of parachutes turned, drove, and backed across the sky. As the competitors thumped the ground with audible impact and laudable accuracy the spectators began to appreciate the performance. They cheered and clapped with enthusiasm as each successive team struck the target and I think we all felt that at last we had found true devotees of "le sport". No meeting is complete without its incidents, but we are delighted to report that none was disastrous.

During the first round Jim Knipe had an unusual main failure in which the sleeve failed to withdraw more than a few feet up the canopy. He fell quickly and with relief we saw an immaculate reserve deployment. Jim was found intact, but there is a hut near the airfield boundary with a small piece of roof missing. A highlight of the practice period was the despatching of six Naval Officers and one Rating on their first static descent. Instructors Brian Porter and William Hall had an effort to keep the number of enthusiastic volunteers down to manageable proportions. Congratulations to the Royal Navy! Apart from this auspicious occasion there were the usual quota of bum steers during practice. Doc Robertson made a noble effort to wipe out an entire American team, or at least blacken their record when he spotted for the Victory Sport Parachute Club and put them in good shape for the Station coal bunkers. He made it nicely himself and smirched a nice white Irving lo-po with little black marks. The language was non-professional and there followed accusations of "chickening out", for his American brethren made it safely to the grass. In more serious vein, the organisers were delighted to report that no

official protests were received during the course of the competition.

Once more the Chandy Trophy went over the sea and back to the 8th Infantry Division. P. J. Wenk was a worthy and unassuming winner. Doc Robertson came second and so retained the National title just scraping past Bob Reid. The team event was won by the 2nd Battalion The Parachute Regiment represented by J. Baughn, W. R. Catt and D. McNaughton.

The prizes were presented by the Lord Lieutenant of the County, Brigadier Oliver, after a display by the Royal Navy of gymnastics, silent drill, and two excellent bands. A pleasant conclusion to the occasion.



T. M. Cook, 63 Para Coy., R.A.S.C. landing

Already plans are afoot for July of next year when we hope that it will be possible for the event to be expanded and promulgated under the F.A.I. to be known as the Scottish International Parachute Championships. If we are really fortunate we shall have Peter Rayner and Dumbo Willans with us again. But as anyone who has attended a competition knows, there are many people involved in its organisation and I should like to take this opportunity to thank Don Connelly for marshalling, our own Club members for marking, our Club secretary Tom Dickson, Maureen and Peter Denley for making really superb pennants, and Brian Porter for assistance with many things. Last but not least the competitors—Australian, American and British—for making the occasion a success.

FOR FULL DETAILED  
RESULTS  
see over

# SCOTTISH CHAMPIONSHIP RESULTS

## INDIVIDUAL ACCURACY — OPEN CHAMPIONSHIPS

Name	JUMP I		JUMP II		Total Points	Position	
	Distance	Score	Distance	Score			
Wenk	0' 6"	99.5	8' 0"	92	192	1	
Dr. Robertson	18' 1"	81.91	19' 7"	80.42	162.3	2	
Paganelli	16' 9"	83.25	21' 6"	78.5	161.75	3	
Reid	22' 8"	77.33	16' 1"	83.91	161.24	4	
Vatnsdal	27' 6"	72.5	12' 8"	87.3	160	5	
Acraman	7' 10"	92.17	35' 2"	64.83	157	6	
Jones	21'	79	33' 1"	69.91	145	7	
McNaughton	26' 10"	73.17	34' 2"	65.83	139	8	
Dobson	25' 10"	74.17	38' 4"	61.66	136	9	
Baughan	67' 7½"	32.4	21' 6"	78.5	111	10	
Hoyt	78' 1"	21.91	18'	82	104	11	
Porter	— outside 100'	—	3' 8"	96.33	96	12	
Crawley	— outside 100'	—	9' 11"	90.83	91	13	
Gowans	— outside 100'	—	10' 9"	89.25	89	14	
Turner	— outside 100'	—	12'	88	88	15	
Patman	69' 2"	30.83	43' 5"	56.58	87.24	16	
Starkey	— outside 100'	—	13' 5"	86.58	85.58	17	
Howard	23' 1"	76.91	—	—	76.91	18	
Denley	— outside 100'	—	23' 3"	76.75	76.75	19	
Hill	—	—	25' 10"	75.17	75	20	
Horne	—	—	32'	68	68	21	
Meacock	36' 6"	63.66	—	—	64	22	
Milne	—	—	40' 8"	59.33	59	23	
Miss D. Knipe	44' 4"	55.66	—	—	56	24	
Rowberry	46' 1"	53.91	—	—	54	25	
Searcy	52' 2"	47.83	97' 9"	2.25	50	26	
Alexander	—	—	59' 1"	40.91	41	27	
Hall	67' 5"	32.5	—	—	33	28	
Robertson, T.	68' 8"	31.33	—	—	31.33	29	
Cook	68' 9"	31.25	—	—	31.25	30	
Catt	—	—	76' 10"	23.17	23	31	
Dickson	—	—	—	—	—	—	
J. Knipe	Malfunction	Main	— Did Not	Make	Further	Descents	—
Hampshire	—	—	—	—	—	—	—
Chase	—	—	—	—	—	—	—
Smythe	—	—	—	—	—	—	—

Name	No.	Team	Individual Positions		Team Positions	
			Points	Place	Points	Place
1. P. G. Gowens	No. 8	1st PARACHUTE REGIMENT	—	—	0	10
E. Rowberry	No. 9		—	Z.A.P.		
S. Vatnsdal	No. 10		—	—		
2. W. Hall	No. 4	SCOTTISH PARACHUTE CLUB TEAM	—	—	100	8
P. Denley	No. 5		11' 10"	88		
B. Porter	No. 6		88' 3"	12		
3. Dr. C. Robertson	No. 1	SCOTTISH NATIONAL TEAM	61' 1"	39	110	6
T. Dickson	No. 2		—	—		
R. Reid	No. 3		29' 7"	71		
4. S. A. S. Hill	No. 20	R.H.Q., THE PARACHUTE REGIMENT	86' 2"	14	91	9
T. Robertson	No. 21		—	—		
P. Starkey	No. 22		23'	77		
5. I. W. Alexander	No. 14	AUSTRALIAN PARACHUTE FEDERATION	81' 7"	19	101	7
J. Patman	No. 15		18' 3"	82		
V. J. Turner	No. 16		—	—		
6. R. S. Acraman	No. 11	63. PARACHUTE COY., RASC	26' 7"	73	218	4
T. M. Cook	No. 12		1' 4"	99		
P. Paganelli	No. 13		54' 3"	46		
7. R. C. Hoyt	No. 31	GOLDEN ARROWS, 8th INF. DIV., U.S. FORCES	25' 8"	74	221	3
J. E. Horne	No. 33		46' 4"	54		
P. J. Wenk	No. 34		7' 4"	93		
8. R. Searcy	No. 23	VICTORY SPORT PARACHUTE CLUB, U.S. FORCES	35' 0"	65	222	2
M. Howard	No. 24		11' 10"	88		
P. A. Dobson	No. 25		30' 10"	69		
9. J. Baughan	No. 20	2nd PARACHUTE REGIMENT	18' 10"	81	229	1
W. R. Catt	No. 21		3'	97		
D. McNaughton	No. 22		49' 6"	51		
10. T. Crawley	No. 36	GREENJACKETS	58' 1"	42	149	5
D. Smythe	No. 37		73' 2"	27		
W. J. Meacock	No. 38		19' 5"	80		

### JUDGES

Great Britain  
Mr. P. K. RAYNER

U.S.A.  
L. H. GILLIAM

COMMENTATOR  
MAJOR T. W. WILLANS





## EDITORIALY

**R**EGRETTABLY, the second issue of "Sport Parachutist" was late in coming out, also in being sent out. Readers are not interested in why this should be, I am sure, after all they have paid their three shillings per issue. However, in order that this should not happen again, the reasons must be made known, in order that a cure may be found.

Firstly, there is absolutely no one apart from your Editor and one other to organise and effect the dispatch, and in view of the large and increasing numbers involved, help must be found in the form of voluntary assistance, centring on the Witham, Essex, area. So if any reader could offer help, **of any kind**, I should be most grateful.

Secondly, gearing a production like this to a date of publication, i.e., the dates of issue, December 1st, March 1st, June 1st and September 1st, must obviously mean that the material to be used must be available for editing, and what follows at least thirty days before the publication date. This has been a serious problem. Generally speaking, those writing articles have kept to the date required, whilst others have not replied to repeated requests, and finally failed to produce what they promised to write. Your Editors fully understand the difficulties—there are jobs, families, parachuting itself, which will naturally take precedence over an extra burden, but in as much as people undertake to do something, they should do it, or not undertake it. If you're going on parade, get there on time—you should get there early.

Three issues of Sport Parachutist have now come out. Your sensible and constructive criticisms and hints are urgently required. Write and say what you like and dislike about the magazine—what articles you like, and wish to see more of, say whether it's too technical, not technical enough, hasn't enough pictures, lacks appeal in one direction or another. Generally speaking, I find that the workers are few, the lookers-on many—it's true in practically every walk of life, but up till now I hadn't thought this situation existed amongst Sport Parachutists. Prove that it doesn't—**do** something for **your Magazine**.

## Qualifications for BPA Instructors

1. *Should be examined by two BPA Examiners who shall verify from his/her personal records that he/she has a total of 75 delayed fall descents entered and signed for in a log book by a qualified person, and is rated as a Category X Parachutist.*
2. *The same Examiners shall also be provided with a written recommendation by a Club Chief Instructor, or, if this is not practicable, by a "BPA Instructor" with personal knowledge of the candidate's background, experience, instructional ability and general suitability, stating that in his/her opinion the candidate is in all respects suitable to be rated as a "BPA Instructor".*
3. *The examiners must personally satisfy themselves to the best of their ability that the candidate:—*
  - (a) *Is a mature and reliable individual with a high degree of safety consciousness and an awareness of the responsibilities as an instructor.*
  - (b) *Has the qualities of an instructor, including experience, intelligence, patience and thoroughness.*
  - (c) *Is guided by the desire to maintain a high standard of parachuting safety which he/she is likely to retain when no longer subject to supervision.*
  - (d) *Is fully qualified to instruct in the following subjects:—*
    1. *All stages of ground training (in accordance with "The BPA Provisional Ground Training Programme, 1964").*
    2. *Parachute, safety inspections.*
    3. *Parachute Packing (main and reserve assemblies).*
    4. *All aspects of static line operation.*
    5. *Exit techniques.*
    6. *Body control in free fall and the theory of stabilisation.*
    7. *Emergency procedures including the deployment of the reserve parachute and the procedure for cutting students loose in the event of static line foul-ups.*
    8. *Ground signalling code.*
    9. *Acceptable and unacceptable wind speeds and weather conditions.*
    10. *Use and limitations of stop watch and altimeter.*
    11. *The laws, customs, regulations and procedures governing sport parachuting in Britain.*
    12. *BPA approved canopy modifications.*
  - (e) *Has been tested in briefing, despatching, observing and debriefing students on static line and free fall descents.*

The jumper half a second after exit. He is no doubt wondering if he is:

1. Over the correct Opening Point.
2. Have I allowed for throw-forward.
3. What's my drift in Free Fall going to be.

## HOW MUCH

BY MIKE TURNER  
(B.P.A. No. 220)



In this article I will be covering the following subjects: —

1. The use of Airphotos in Sport Parachuting.
2. Wind Drift Indicators, their construction and use.
3. Drop Zone layout.
4. Projection (throw-forward on exit).
5. The effects of the wind against the body in Free Fall (Drift in Free Fall).

In my last article I mainly covered what to do after the canopy deployment and development. Now I want to take a step back through the air and back into the Aircraft, to see and discuss what can happen before the main Parachute is activated. Let's take a look at the Drop Zone.

### Drop Zone

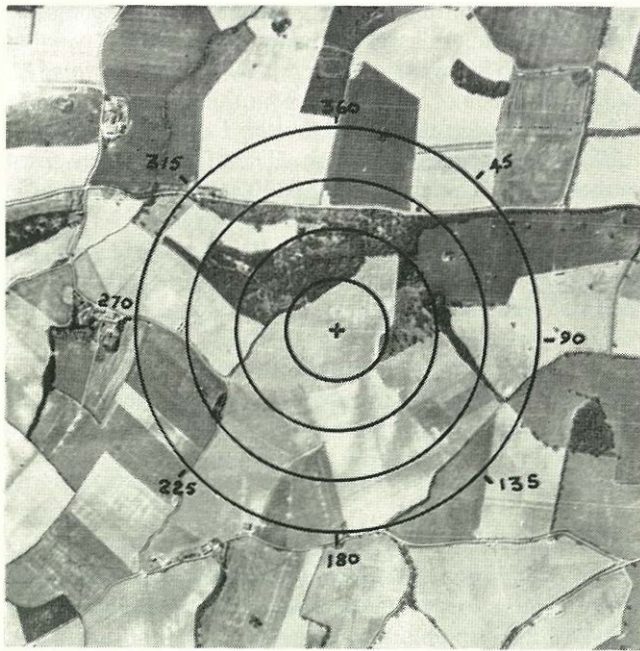
Most active jumpers are now consistently jumping at the same Airfield most week-ends, whether it is at Blackbushe, Stapelford, Thruxton or Netheravon. Therefore there is certainly the need now for a good Airphoto at these Centres. This is not entirely essential, jumping will not come to a halt if you haven't got one, but it is of tremendous value to the Jumper and a very good aid to the Pilot. If you don't have an Airphoto at your Airfield, why not next time you go up to 7,000ft. (or better still 9,000ft.) take your camera with you and make your own. If you plan to do this, here are a few things to bear in mind.

Have your Cross (target) in position. When you take the "Shot" make sure you are directly over the Drop Zone. An oblique shot will not give you the best result. Try to get the Target right in the centre of the Viewfinder. This will mean that you get the whole Airfield into your picture, also sufficient of the surrounding countryside to cover your worst winds. Have your prints blown up (I suggest 9in. x 9in.)—this will give good detail of objects on the ground, such as buildings, roads, tracks, fields, etc. Now take your print and a compass and using the

target as a centre point, describe circles on the photo at 200 metre intervals out to as far as 800 metres. This will cope with the worst wind conditions, which might be 7 metres per second. Now mark in on the 800 metre circle Magnetic North, South, East and West. Also 45°, 135°, 225° and 315°. With these points marked on your photo you should be able to judge accurately any compass bearing. Of course there is nothing to prevent you from marking in all the points of the compass, however, bear in mind that your Photo should give as much detail as possible to the jumper and not be badly obliterated by detail. What I have suggested is in fact the minimum detail that you will require. Now that you have gone to all the trouble to produce your Photo you will want to make it as durable as possible. Therefore, using a strong clear plastic covering, secure your Photo to a piece of 4 or 5-ply wood. Ideally, your Drop Zone will need at least two such Photos, one for the Aircraft and the other for the Drop Zone (to be made available at the emplaning point) so that Jumpers waiting their turn to jump can familiarize themselves with the Drop Zone layout. Attach a chinagraph pencil securely to these photos so that they can be marked easily. (See Drop Zone photo No. 1 for example layout.)

### Wind Drift Indicators

These are used to give an accurate indication as to the direction and distance the plain canopy will drift after opening at a predetermined height above the Drop Zone. A Wind Drift Indicator *must* be dropped prior to any jumping taking place. In fact, if organised properly, there is absolutely no reason why each individual Aircraft lift shouldn't drop its own Indicator. It is the most accurate method of measuring your canopy drift. The Wind Drift Indicator can be constructed very easily in only 10 to 15 minutes. They are very inexpensive, costing as little as 1/6d. each to produce. Their value to the jumper, however, is enormous. To construct them, use a good quality crêpe paper, adhesive tape and 6 or 8 gauge wire. They should be of the following dimensions: — 2ft. long and



This photo shows the ideal layout for a Drop Zone photo. Normally the lines can be much narrower so as not to cover up too much detail.

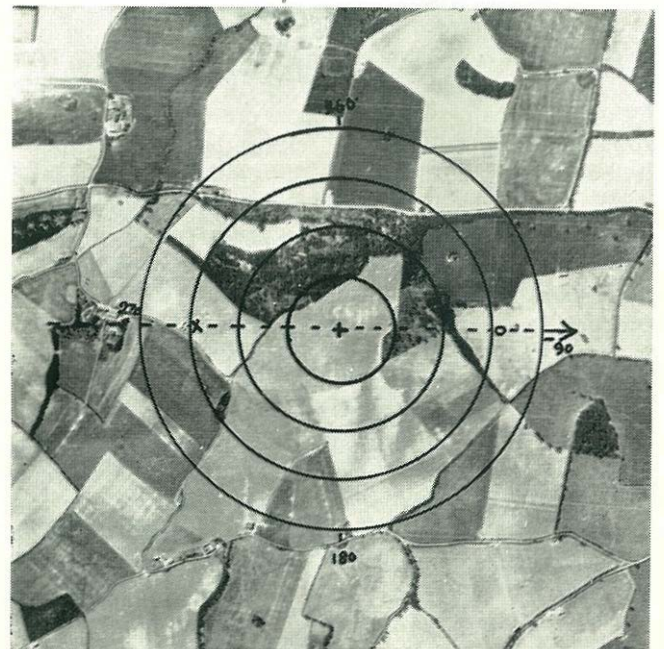
exactly 10in. wide. When you have joined the paper together to give you the 21ft., weigh the paper and then add 10in. lengths of wire until you have a total weight of paper and wire equal to exactly 3 ounces. Make up about 6 at a time and always take at least two in the aircraft. The ideal rate of descent of a Wind Drift Indicator from 2,000ft. is between 100 and 120 seconds. Remember that on a calm day the Indicator will descend more quickly than on a windy day. Also remember that your canopy acts in the same way. Now take a tip from me: providing your Wind Drift Indicator opens properly, it will never tell a lie (about the wind behaviour) so if you are in any doubt always trust it. What are the best colours to use? I strongly recommend you to use Black and Yellow. Black for the lower 10½ft. and yellow for the upper 10½ft. This combination of colours can be seen easily from the Aircraft against light and dark backgrounds and is easily visible from the ground against the sky.

#### Dropping the Wind Drift Indicator (A few points on Spotting)

Before you take off you want to know the following information regarding the wind: (1) Its strength (metres per second) and (2) The direction from which it's blowing. Assume that the wind is of even strength all the way up to the opening height (which it rarely is), now, pre-plot the point on the ground where you expect the Wind Drift Indicator to land. Let us assume the wind to be 6 metres per second and the direction 90° (from the East). I know that it takes me about 100 seconds after my canopy opens at 2,000ft. before I reach the ground. Therefore in a 6 m.p.s. wind I will drift about 600 metres. If I drop the

Wind Drift Indicator directly over the target it will drift to the west of the target by about 600 metres, landing near the 4 haystacks on your Drop Zone photo. (Take a look and see what I mean.) Now, at least before take-off you have a plan and a good idea of what to expect, which is very important. Before you brief the Pilot, draw a line through the 4 haystacks, through the target and continue it upwind. All you have to do now is show the photo to the pilot—"give me a pass over the target on 90° along this line". So you see how easy it can be by using a photo and it leaves no doubt at all in the Pilot's mind as to what it is you want. How often have you been given the signal from the Pilot that he is on jump run and, on looking out of the door, the run is not in the direction you wanted. The result is you have to re-explain the run in a noisy aircraft and circuit again. This all costs money. All aircraft take off into wind and this means we are travelling in the wrong direction. We need to get downwind as soon as possible after take-off, so tell the Pilot that as soon as he heels he has enough height to turn to do so. Always try to keep your D.Z. in view after take-off so that you can spot any changes in wind, etc., also you will see any emergency signals the ground party may find it necessary to send you. If your door is on the Port side brief the Pilot to do a left-handed circuit. It doesn't take the Aircraft very long to climb to 2,000ft. so you only need to go about 1½ to 2 miles down wind of the target before turning in on the Wind Drift Indicator run. Some Pilots will take you as much as 4 to 5 miles up wind before turning down. This means you are at 2,000ft. and passing the Airfield still going downwind

This photo shows the Drop Zone laid out after Wind Drift Indicator has been dropped, X marks the position on the ground where the Wind Drift Indicator has landed. O marks the Opening Point and the broken line is the direction and line over which the Aircraft will pass.



before you can turn in on the jump run. Now you can start giving the necessary corrections to get the Aircraft on the correct line. "Left 5" or "Right 5", whichever it may be. The points you have to be careful of here are: — to ensure that the eye is kept directly in line with the edge of the Aircraft. If you try and spot from leaning too far out you will in fact be guiding the Aircraft 100 to 150 metres too far to the *left*. Likewise if you have your head too far inside, you will be guiding the Aircraft too far to the *right*. The method I use to prevent this from occurring, is by leaning the left shoulder against the inside rear edge of the door. This makes it impossible to spot too far inside, and reduces considerably the chances of leaning too far out. Of course, you must continuously be aware of these errors and try to anticipate and prevent them from happening. Now for straight down. To assist me here I place a finger either on the floor by the edge of the door or at the bottom of the door depending on the type of aircraft. When you look down it's very difficult to tell exactly what point on the ground you are directly above, but if you place your finger on the line of sight, you will get a much more accurate idea. A word of warning is required here: when the winds through which the Aircraft is passing are strong, the tendency is to give the Aircraft a nose-up position. Now the spot on the ground which the jumper imagines is directly below him is in fact 300 to 400 metres further ahead. There is a clue, which the Aircraft gives you, to put you on your guard, namely that owing to the strong head winds, the Aircraft will be flying considerably slower than normally. So watch this one, it's happened to me more than once. To correct this, give the "CUT" about 400 metres before the target, this will give the Aircraft plenty of time to settle back in level flight and also give you time to re-check your position.

Now, back to the Wind Drift Indicator. This, as we all know, is roller starting at the weighted end, and we usually keep it closed, using an elastic band, which tends to compact it. So, as you turn in on the jump run, remove the elastic band and unfold at least 6ft. Gather the whole lot up in the palm of your hand to prevent the slipstream from damaging it. When you release the Indicator throw it downwards violently, so the 6ft. tail is presented to the wind and the remainder of the indicator will unfold easily. This method will normally give you a successful drop, but always carry at least 2 spares with you just in case. Now look back to see that your Indicator has opened properly then shout "O.K." to the Pilot who should then make a slow turn to Port. This enables you to keep the Indicator in view all the time until it touches down. Always time your Indicator as a double check that all is correct. Next, mark in on your Airphoto the position of the Indicator. Using a small ruler draw a line through the target and continue it upwind. Now measure the distance from the target to the spot where the Wind Drift Indicator landed. Measure the same distance upwind and mark the Opening Point. Mark an arrow-head on this line denoting the direction of flight of the Aircraft.

All you have to do now is to pass the photo around to the other jumpers and everyone can see exactly what the score is. Show it to the pilot so that he too understands. For the normal weekend jumping, if you drop the Wind Drift Indicator from between 1,800ft. and 2,200ft. this will be accurate enough. Therefore if your Pilot judges his climbing rate to 2,000ft. you should be able to pass over the target anywhere between 1,800ft. and 2,200ft. without reducing the climbing rate. So you see there is really no reason why each lift in fact cannot drop its own Wind Drift Indicator, to get the maximum benefit out of every jump. Use these tips and you will find you can reduce your jump fees considerably.

See Drop Zone photo No. 2 for D.Z. layout after Windrift Indicator drop.

### **The Effect of the Wind against the Body in Freefall (Drift in Free Fall)**

The upper winds can and often are considerably strong in comparison to the surface wind. You can in fact have a lovely calm day with a surface wind of 2 m.p.s. and at 10,000ft. it can be blowing 50 knots. Here once again we run into our complicated system of measurements and speeds. You will recall in my last article I suggested that you convert all distances and speeds to metres and metres per second. Now let's get rid of this knots per hour, as it means very little. If you try to imagine it as a distance in relation to time within the Airfield, 1 knot is equal to 2,026.6 yards. If you can imagine an Aircraft travelling at 2,026.6 yards per hour, you can visualise the distance but the time is much too great. Even converted to minutes it is still too long, so let's settle for seconds. This is something we can easily picture. The measurement we want, however, is metres to tie in with our canopy work. So 1 knot per hour = 2,026.6 yards per hour or 101 feet per minute or  $\frac{1}{2}$  metre per second. Take a look at all four sets of figures and I am sure you will agree that the  $\frac{1}{2}$  metre in each second is the simplest to visualise. Remember all these figures are only an approximation but are sufficiently accurate. Now if you are quoted a speed of an Aircraft as 80 knots you can immediately visualise this as 40 metres per second, this, of course, makes much more sense to the jumper.

What effect has the wind on the body while it is falling through the air? If the human body is falling through the air for a period of 10 seconds and the wind is blowing at 10 knots, or as we prefer it, 5 metres per second, for every second the body will drift 5 metres, or a total of 50 metres for the full 10-second period. So you can see even on a short delay of 10 seconds in a moderate wind, the body is affected considerably. Now you may say "What is 50 metres on the modern canopy?" Well, it's nothing provided you leave the Aircraft at the correct point. If your "spot" is already 50 or 100 metres out, then a further 50 metres can make a considerable difference. Therefore we must always consider what the upper winds are doing and how they are going to affect *where* you Exit the Aircraft in relation to the Opening

point. You may well say "What difference does it make anyway, I'm pretty good at tracking and I've never had any trouble tracking to my opening point before". Well, this is very true, but who wants to go up to 12,000ft. and then have to track all of 60 seconds to an Opening Point. Or, if you are planning a Baton Pass, who wants to walk 2 miles back to the D.Z.? Many of us are being asked to give demonstrations at local Air displays, etc. If the commentator has been briefed to give a commentary on a Baton Pass and 10 seconds after exit both jumpers abandon this task to track for the opening point it looks a little silly.

Where do we get the information regarding the upper winds from and how do we use it? In most cases your local Airfield will know where to get this information. Do remember most sources require a week's notice, also a 24-hour reminder. When you are given this information you will normally get it at intervals of 1,000ft. from 0 to whatever height you intend to go. You will be given the speed of the wind in *knots per hour* and the direction the wind is blowing from in degrees (magnetic). To help you, make out a card as shown below. Using three main headings: —Height, Speed and Direction. In this example we intend to make a 45 second delay drop from 9,200ft. We receive the following information regarding the winds from 0 to 9,000ft.

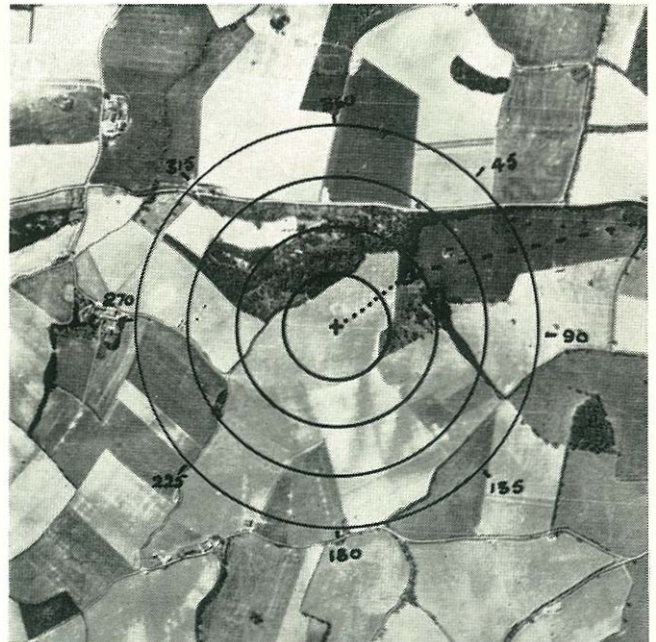
1 Serial No.	2 Height (feet)	3 Speed knots / metres		4 Direction
1.	Ground Level	2	4	55°
2.	1,000	1	2	55°
3.	2,000	2	4	64°
4.	3,000	2	4	92°
5.	4,000	10	20	110°
6.	5,000	7	14	100°
7.	6,000	15	30	105°
8.	7,000	13	26	56°
9.	8,000	20	40	52°
10.	9,000	22	44	45°
Total	9,000	182		624°

Now let us take a look at this chart. In column 3 in the metres side of the column you will have to complete this yourself, bearing in mind that 1 knot per hour equals  $\frac{1}{2}$  metre per second. There is no need to convert the altitude from feet to metres as the only figure we want from the altitude is the delay in seconds, in this case 45 seconds. The figures below the double dotted line will only be used for calculating your drift in Free Fall. Above this line they will only apply after the Parachute is open. These figures can be important. For instance, take the Battle of Britain weekend, here in many cases the programme will be so tight you will find it impossible to drop a Wind Drift Indicator. So you will have to calculate your opening point from these figures. Using Drop Zone photo No. 4 let us calculate the following from the above chart: (a) the Opening Point; (b) the Exit Point, and the drift in Free Fall. Take a look at the figures in the Totals column. We have 9,000ft., a total of 182 metres per second and a total of 624°. The last two sets of figures we shall have to average out. We have

eight sets of figures in the making of the total figures, so let's work out the average:

<i>Metres</i>	<i>Degrees</i>
22½	78
8 )182	8 )624

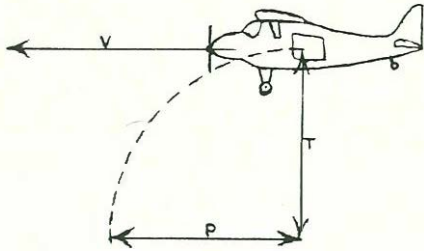
We can see that for every second of Free Fall we will drift 22½ metres on a bearing of 78°. In this case we are on 45 second delay, so our total drift in Free Fall will be  $22\frac{1}{2} \times 45 = 1023$  metres, on a bearing of 78°. Now for the opening point. Here we are going to use the wind speed and direction and strength from ground level to 2,000ft. We again total up to wind speed and direction and average them out. For the wind speed we have an average of 3½ m.p.s. and an average direction of 58°. We allow 100 seconds from the time it takes to reach the ground from opening height. In every second we will drift 3½ metres, in 100 seconds, we will drift 330 metres on a bearing of 58°. Let us plot this onto the Drop Zone photo No. 3.



This photo shows the Drop Zone layout for our Drift in Free Fall problem. O in this case being the Opening Point. A is the Exit Point and the broken line showing the line of drift from Exit Point to Opening Point. It's important that every jumper in the Aircraft knows of these two points, if they don't you will find jumpers soon after exit, tracking for the Opening Point and being amazed at the effect of the track. Which of course they don't have to do in the first place.

The final factor I will deal with is one which we very rarely consider in this country. The reason for this is that I have never known a day's jumping in this country when there has been no wind or just about no wind. If you ask the members of the British Team who were at Leutkirch they will tell you tales of throw-forward. I despatched the Irish Team in the team events and I can remember when the Opening Point was 100 metres upwind of the target leaving the Aircraft 100 metres downwind of the target and arriving after 15 seconds delay right over the Opening Point.

How do we calculate throw-forward? Well, some people will say about 100 metres, in fact it's a good guess. Let's take a closer look. Imagine that the conditions are absolute calm.



$$\text{Formula} = P = \frac{5 v T}{T + 5}$$

Where **P** = Projection on exit.  
**v** = Speed of Aircraft in metres per second.

**T** = Time in Free Fall up to a maximum of 12 seconds.

Example:

We are jumping from a Rapide which has a Speed of 70 Knots per hour (35 m.p.s.) and we are doing a 10 second delay.

Therefore

$$P = \frac{5 \times 35 \times 10}{10 + 5} = \frac{1750}{15} = 117 \text{ metres throw-forward.}$$

### Warning

When you are taking throw-forward into account remember it only exists for 12 seconds, so **T** in the Formula will never be greater than 12. Also check the winds from the exit point for the first 1,000ft. (the time it takes to fall 12 seconds approximately to see how much it will effect the throw-forward). For instance if the wind at exit height is 20 knots or 10 m.p.s for 10 seconds, this will mean you will drift 100 metres in the first 10 seconds. This will reduce the throw-forward to 17 metres which is negligible. So do bear these points in mind thereby getting the best value from your jumping and also for your money.

If you have any questions or comments on this article, please write to me c/o The British Parachute Association.

## THE AIMS OF THE BPA

When, I wondered idly the other day, does a young Sport come of age? One answer is "When it has become accepted outside the circle of those who practise it". This leads logically to a further question: "When can a new Sport be considered to have become accepted?" This is less easy to answer but, again, one possible answer might be "When it has established itself as an activity which has a significant following, is sensibly conducted, speaks with one voice and commands the respect of the public at large".

And where does parachuting as a Sport stand in this respect today? We must firstly acknowledge that in a number of other countries it has progressed much faster and gained much wider recognition than in Britain. In such countries Government support has been achieved, Centres of instruction have been firmly established, and a national organisation has been set up and vested with the necessary authority to develop the sport along progressive lines. In most of those countries I have in mind, great account is taken of the performance of their national teams abroad, and a considerable amount of public interest is thus assured. In such countries I would say, parachuting has come of age.

This stage has not yet been reached in Britain. Here, our active participants still number a few hundreds, although the number is growing fast and the British Parachute Association membership, which is not limited to participants is increasing steadily week by week. As far as we can judge these numbers will continue to grow, and as more clubs are formed the rate of expansion will also increase. However, this growth in the numbers of those who practise the sport will not necessarily establish the respect we seek for it in the mind of the public. To achieve this we must speak with a united voice, and must show that we **all** subscribe to the necessity for a fully representative organisation which can speak with the full backing of all who parachute for pleasure. This organisation already exists in the BPA. In its short existence it has already gained a wide measure of support, but it really needs **every** active parachutist as a member.

1. The British Parachute Association exists to further the interests of all sport parachutists in Britain and in doing so to guard, guide and promote the sport throughout the country.
2. To ensure that sport parachuting is practised only with the highest degree of safety, the B.P.A. issues regulations for its members to obey and advice concerning training and other matters for their guidance. It has recourse to certain disciplinary measures to enforce, when necessary, this paramount policy of safety.

Continued on page 28

## THE THRUXTON LETTER

HAVING found that good photographs of parachutists in action assist in the instruction of students we have now purchased three excellent cameras, one of them being motorised. Our instructors are now busy taking photographs covering every aspect of parachuting and sky-diving and we are having enlarged prints made which will be available for all beginners. In addition we have been making many cine films of air-to-air shots from cine cameras attached to helmets. Some of these in colour have proved really excellent but at the same time we are afraid we have far too many shots of pure sky!

We are also experimenting with various makes of automatic barometrically-operated opening devices as in time we hope to have one fitted to every reserve chute.

Since writing our last letter we have had visits from sky divers from the United States, Sweden, Holland and even Iceland, whilst we still have with us the official Australian sky-diving teams, who have delayed their return to Australia after taking part in the World Championships in Germany. Of our ten instructors four have qualified to instructor status from our own ranks in the last three months. With our two instructors resident on the airfield we are able to continue our courses throughout the winter, and are thus giving instruction seven days a week throughout the year.

Of new members joining us the percentage of young ladies continues to rise and as all of them are very attractive as well as being very keen we find it most gratifying.

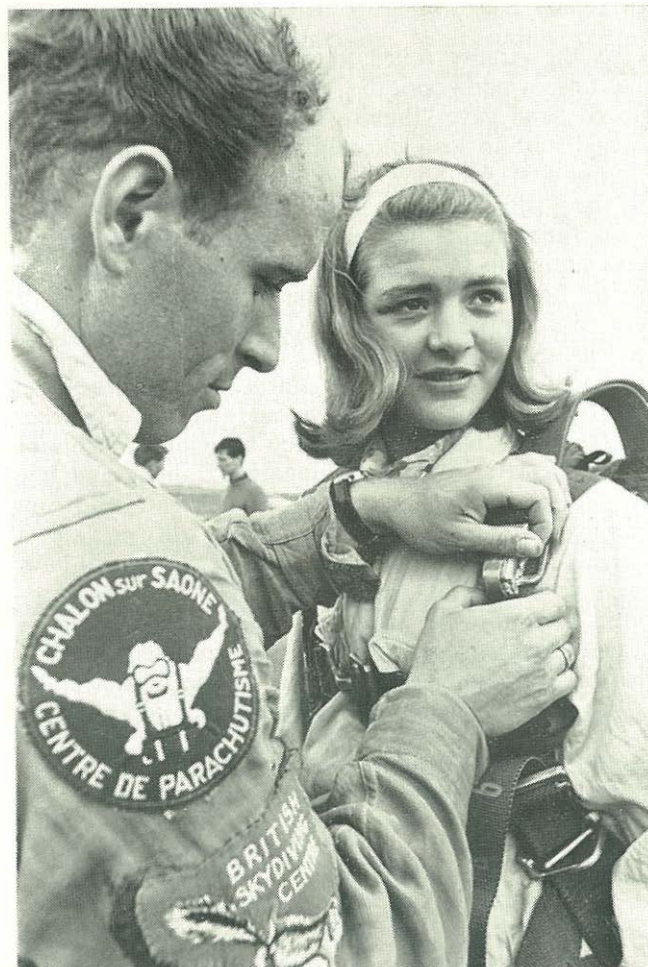
As well as operating our own aircraft we have made frequent calls on other aeroplanes, especially at weekends. Chris and Clare Roberts have been over with their Dragon so often that they have both become almost members of our Centre. Clare has dropped so many parachutists that we take her skill for granted; she told us recently that apart from her experience with parachutists in the past she has "dropped" 825 since starting with us at Thrupton in April of this year.

We have found the services of two or three new lady members most useful; these few ladies do not wish to jump but have joined us with the express idea of becoming expert parachute packers . . . naturally we have given them every encouragement and they are well on the way to obtaining their Certificates.

In the last few months we have been asked to give a number of displays and have willingly travelled to various parts of the country and have "dropped in" at a number of Shows and Sports Meetings. At these displays we are dependent to a large extent on the weather but usually try to do at least one drop from 8,000 feet or above.

Weather permitting we have been able to offer jumps to all our own members and those visitors who wished

to jump with us, which has been appreciated by all concerned. At this moment we are arranging for visits of a Dakota which will drop "sticks" of 26 at a time; and already we have it booked for a number of "lifts". When we drop from the Dakota we think it will be the largest number of descents at one time made by civilians in this country. Our cameras are all ready and we should have some good "shots" to offer Sport Parachutist for the next issue.



At 17 years and 2 months Jackie goes up for her first jump.

At the end of each season we have our Annual "Get Together" at the Airfield. This is a very free and easy meeting, which closes off the Summer jumping. Our ANNUAL ORGY this year was voted the best ever; about 150 men members were present and about 30 ladies and with a guitar, a record player and amplifier, and enough refreshments to refresh everybody far into the night it left nothing but a pleasant memory . . . and a few headaches, and only goes to show that sky-diving isn't all jumping!

With our general activity and the enquiries for membership increasing weekly we all look forward to a most successful year in 1965.

E. J. G.

# The RAF Display Team

by PETER WILLIAMS

As the Argosy rolled to a stop a few yards away the tiny window on the flight deck opened and a gloved hand gave "thumbs up". We could now move in and start to load our equipment before moving off for our first Air Show 1964. It is May and the start of the "silly season". This scene will be repeated many times during the coming weeks for there is much parachuting to be done and many places to visit. No matter how many descents you have in your book or how well travelled you may be, the excitement is evident. Are we all set to go?

The display season really starts in April when the nights are beginning to draw out and descents from 12,000 feet increase in frequency bringing thoughts of actual displays. Winter continuation training and free fall instruction will give way to concentrated team training for a specific task which will provide a spectacle for many thousands, some of whom will have never seen free fall parachuting. The more sophisticated spectator will appreciate the aerial manoeuvres in free fall, the close grouping at the opening point, and the stand-up landings on or near to the impact point. "And do you mean to say that you can jump out of

an aeroplane flying two miles up, have your feet on fire and land where you want to, standing up?". "This is our aim Sir/Madam and the results are not too bad at all!" And so the real start comes when the file containing the list of displays arrives in Headquarters. How many shows are there? Four in France, about five in the U.K., one in Norway (we haven't jumped in Norway before), Brussels, Denmark (Smørrebrøds), Holland; a break, then the Farnborough Air Show followed by Battle of Britain and a final fling in France. Whichever way it is looked at there are about three and a half months of display parachuting and the first one is in three weeks!

The same old questions arise each year. Who will be available? What kind of display shall we give? What is the state of the "Smokes"? Have we got the new parachutes yet? Will we miss Wimbledon on the television and WHO MENTIONED LEAVE? From this early panic there emerges a system which lends itself to each display, only the dropping zone looks different. The type of display will have to be one which can be readily adopted by parachutists of varying experience. This will allow us to cope with injury, sickness, the sport parachute club, compassionate reasons, competition parachuting and the inevitable posting away from the School. Displays on the continent will start on Friday and finish on Monday. Tuesday and Wednesday will be used for recovery and preparation together with more local jumping. Thursdays for money change and a quick brief on timings for wives and girls friends to know when we will return.

So far, so good; a list of displays, a choice of display, a team of ten, a big white calendar on the wall of the team room which tells us all we need to know



by courtesy of Punch



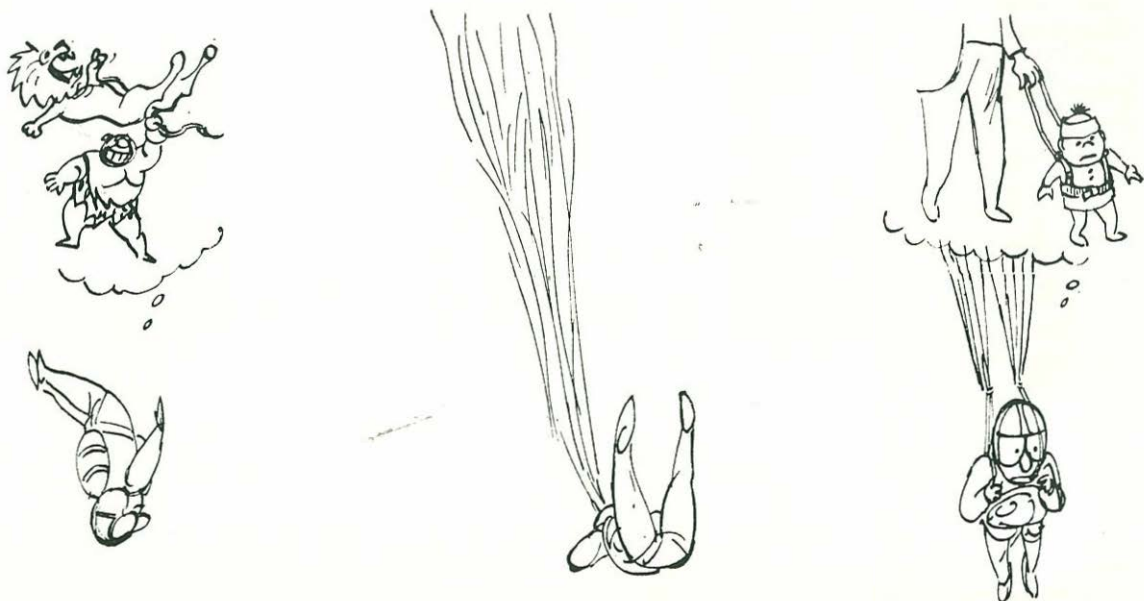
to date and a duty display roster which must never be taken seriously because it never works after the first few weeks! Three weeks have dwindled down to three days. The file is now thick with instructions and signals yet not a single display descent has been made. At least most of the snags have been ironed out: like the one from the pleasant voiced character who wanted to know if a team of parachutists could drop in at the local fête next day. "Oh yes, there is a lake behind the house but the railway line is in front . . . yes, an electric railway. I don't know if they'll switch the power off, they may for the pylons next to the wood. But the lawn has been freshly cut and so have the sandwiches and someone told me you chaps can fly for miles through the air and still land on a sixpence. . . . Put it in writing for next year?". The telephone is replaced "Tearstring Incorporated" has turned down a job.

Sterling is changed for Francs, Guilders or Kroner and Friday morning finds everyone preparing for the afternoon to the continent. A white figure announces that all chalk bags are full, the zips work and "hands that use French Chalk can be soft and so smooth . . .". The smoke grenades are mounted in their brackets by two industrious parachutists whilst someone looking like an out of work draughtsman pores over maps and aerial photographs, measuring and marking with all kinds of clever instruments. "All that for three minutes in the sky?" asks the dropping zone control officer as he tests his neat little radio set. Parachutes, reserves and instruments are loaded and the Land Rover which we take on all overseas displays is driven out onto the pan. The familiar thumbs up from the Argosy captain and the team goes into action. We are all set to go.

It is surprising how quickly ten parachute jumping

instructors, under the watchful eye of the Air Quartermaster, can load an Argosy. While this is going on, the Captain, Navigator, Team Leader and the dropping zone control officer discuss the weather prospects, type of DZ, provisional timings, rehearsal space before the actual show, what is the best buy from this particular country and anything else that comes to mind. This crew is specially selected to drop the display team: they are, in fact, very much a part of our team but never hear the appreciative applause from the crowd or get fussed by interested spectators and congratulated by well pleased organisers. We certainly appreciate them! Our trip to Northern France takes about an hour and a half and we're soon unloading the Argosy in just about half the time it took to load. There is a representative of the Air Show to meet us and accompany us to our accommodation. If it is a service display we eat and sleep on the base but if the organisers are the local Aero Club the whole team is booked into a local hotel. The latter is more suitable as it allows the team to remain together throughout the weekend and makes organisation and movement much easier. A hotel it is! A shower and change followed by a meal in company with other participants from all over Europe. The weather is always a good topic for starting a discussion and fairly soon aerobic teams from Italy, Belgium and France are screwing up bits of paper and pulling tight turns over the table whilst parachutists are discussing the merits of different parachutes. A stroll around the local Bistros and a reasonably respectable turn in reminds us that there is work to do tomorrow.

Croissants and delicious coffee at about seven makes us sniff the weather through half closed eyes. The day looks good and if the organisers have put us down



for a rehearsal we'll "Get a quick twelve thousand by mid afternoon". There is always some shopping to do: perfume for the wife, Bon Bons for the kids and a bottle of brandy or wine for the interpid parachutist himself. Out at the DZ the briefing takes place, in French, and everyone has a chance to say his piece about the timings or safety factors or emergencies. There is a rehearsal planned and by late afternoon the aerobic teams have sorted out their reference points and the parachutists have fixed the hazards with gimlet eyes. Saturday night is the same as most Saturday nights.

That coffee again and an eager look at the sky. Bright blue with the surface wind at 5 to 8 m.p.h. We must be in France and there are no complaints. A coach arrives and all teams climb aboard fully booted and spurred for the day's work, their little packed lunches under their arms, knowing that the organisers have been fortunate with the weather. At the DZ "good luck" is exchanged and we head for the Argosy to fit our parachutes. About twenty minutes before we take off the control officer drives over and gives us all the information on the winds, the release point, the opening point, cloud formation and further outlook. The team is then briefed and a gentle nudge from the Argosy captain tells us that the talking is finished and the flying is about to start. We are soon up to 12,000 feet and the final dropping instructions come through. These are interpreted by the navigator and team leader; then release point, opening point and surface wind is marked in on the aerial photograph. The team is called together to study the picture, each member absorbing the ground features he should see immediately he leaves the aircraft and the type of ground under the opening point. No questions and it is five minutes to go. Smoke brackets are on, chalk bags secure, goggles all cleaned and ready for the final check. Main parachute, reserve, altimeter and stop watch marked with chinagraph pencil for each manoeuvre. What else? We won't take the guitar this time. Thirty seconds to go and the team moves round to the doors for an exit in simultaneous fives. A quick glance by the number ones and a thumbs up means it is a good run and we are right on time to the second. That's fine because there is a high speed run by an aerobic team ten seconds after we land. The red light comes on for five seconds, chalk is swirling and fingers tighten on the cord that fires the smoke grenades. There's the green, a quick tug and two steps into the 115 knot blast. The watch ticks away those important ten seconds for immediate orientation and as the needle crosses the first chinagraph mark the display begins. Six parachutists do a maximum track on a pre-set course for 20 seconds, turn and back track for a further 20 seconds, flare out and edge towards the opening point. The remaining four parachutists will do criss-cross patterns close to each other, finishing at 5,000 feet. The effect will be an outward burst in six

directions followed by a return to coincide with the criss-cross pattern coming down through the centre. There are ten men in the sky and each one will open within fifty yards of each other. Three will pull at 2,000 feet, four at 2,200 feet and three at 2,500 feet. The cross is twenty yards from the Tribune or VIP enclosure, an overshoot could mean a premature introduction to the Mayor. Well, here we are above France and a quick glance around gives the position of the rest of the team. Our red, white and blue parachutes in the shape of the Royal Air Force roundel look good against the blue sky. The wind looks reasonable, drive and hold but watch this chap next to you. A few spirals will take you further down and well out of his way. The cross is the indicated landing spot and as this is not a competition all parachutists aim to stand up on or near the cross, giving way to men below them near the ground. The display is pure spectacle for the crowd and upright arrivals impress much more than twenty mile an hour tent peg impacts! With orange, green faces and white eyebrows caused by smoke and chalk the team looks skywards as a team of nine Fiats make a terrifying low pass and burst upwards into the space from which we had just arrived bursting downwards. Very strange indeed. As we collect up our bits and pieces an official hurries out and takes us over to meet the Mayor in a manner befitting to accurate parachutists. Behind us the Argosy whines down the runway and as it passes ten thumbs go up as one. "Très formidable," says the Mayor, "Merci," mutter the bold linguists. Now for some liquid refreshment.

In the evening at the formal dinner it is time to relax and look forward to the trip home in the morning. The speeches are made and each team is presented with a memento in appreciation of their contribution to the show. French hospitality is at its best and as this is Champagne country what better than the sparkling wine itself to help the evening along. Ideas are exchanged and songs are sung until the coach arrives to take everyone back to their respective hotels. There is much handshaking before farewells are taken and suddenly it is all over and time to turn in. Everyone seems to sleep quite well.

That cup of coffee supplied by our ever-watchful Air Quartermaster goes down well as we cross the coast. Next Friday seems very close again, the trip to Norway will take longer of course and as the air base is on the coast the winds are sure to be strong . . . there is nothing through from Holland yet . . . may as well change the Francs straight into Kroner. A wave to the captain as the Argosy goes back to base. Here come some of the wives to pick us up. "Had a good weekend?" "Fine thanks, we got the top height and the display looked good, what sort of weekend did you have?" "It rained and the television broke down." . . . Normal parade in the morning and we can start all over again . . . what a rotten television set.

# Malfunction report

I would like to bring to the notice of BPA members a malfunction experienced by a member of the Rhine Army Parachute Association during a recent session at Bad Lipspringe DZ. The parachutist involved has a packing certificate and has been involved in sport parachuting for some months.

The descent in question was carried out on 19th October, 1964, from a Rapide and was a straight-forward 5 secs. delay. The free-fall part of the descent was carried out well but, on pulling, the sleeve left the jumpers back and although line deployment occurred normally the canopy failed to emerge from the sleeve and the jumper continued to fall earthwards in an upright position, with the parachute still inside the sleeve streaming above him. Correct reserve procedures were used and the reserve parachute successfully developed. This descent was observed by myself, I having dispatched the jumper.

On examining the main parachute on the ground it was found that the apex peripheral band and apex vent rigging lines were protruding from the top of the sleeve between two of the sleeve tapes and had been solidly locked in this position by the strain of the pilot chute dragging these tapes together. Obviously, as the speed of the jumper increased the drag of the pilot chute would increase and so would the locking action of the tapes onto the apex hem and lines. The sleeve was of normal width across the top.

It is obvious from this incident that jumpers should ensure that the apex vent portion of the canopy is pushed well into the sleeve. Even with sleeves that are slightly shorter than the canopy no damage should occur by pushing the apex well down (2-3 inches) into the sleeve.

P. W. SHERMAN,  
Member B.P.A. Safety Sub-Committee.



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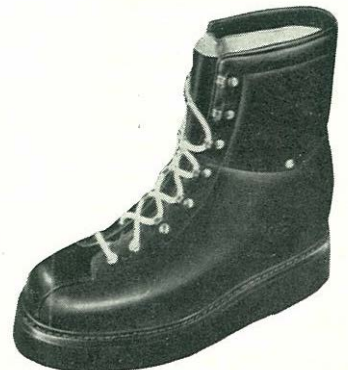
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One of the regrets I have about the World Parachute Championships (and the only one which I can think of at the moment) is that so few of the world's parachutists can get there. Even when it is held in a neighbouring country, as it was this year, few enthusiasts who are not selected to participate can afford the time or the money to make their own way. Let me not begin, however, by overstressing this point, since at Leutkirch, in the Australian contingent, there were approximately three spectators for every competitor. Nevertheless, the inclination to go and watch must be weighed against many other factors, and in the end the majority must rely on first hand accounts, the written word and films for their impressions. This article is designed to provide some of those impressions.



Member of British Mens Team landing in the accuracy competition

The Championships recently conducted in Federal Germany were the seventh in the series. From a modest start in Yugoslavia between competitors from seven countries, including Great Britain in 1951, so well described by Dumbo Willans in his recent book "Parachuting and Sky-diving", the Championships have steadily gathered momentum until now they rank as a major world sporting event. The intervening stages were set in 1954 in France, 1956 in Russia, 1958 in Czechoslovakia, 1960 in Bulgaria and 1962 in U.S.A. On each occasion the number of competitors has increased until this year a record number of 131 men and 39 women representing 29 nations was entered.

The DZ was, of course, already well known to a number of British parachutists who have competed there in other events during recent years. Situated three miles from the small town of Leutkirch in a lovely Bavarian rural setting, and overlooked from high ground by the imposing Schloss Zeil, it proved to be an ideal location. The treacherous and changeable winds

experienced by others failed to materialise, and though the weather was far from ideal for much of the time, most of the planned programme was completed.

The competitors were accommodated in two large schools and had their meals in the gymnasium of a third. The administration for the most part was first class, as was the organisation which was set up under the controlling influence of the German Aero Club. The Director of the Championships and the driving force behind most of the detailed organisation was Herr Arndt Hoyer a well-established personality in West German parachuting. What a truly magnificent job he made of it all. His firm but tactful handling of every situation coupled with inexhaustible energy and good humour were probably the most significant contribution in assuring the success of the championships.

The British team, as many readers will know, was selected from the Order of Merit reached during the British National Championships earlier in the year.

## RESU

MEN'S TEAM  
CHAMPIONSHIPS

	Points
1 Czechoslovakia	6,662
2 U.S.S.R.	6,647
3 U.S.A.	6,645
4 East Germany	6,533
5 Canada	6,532
6 Hungary	6,499
7 Bulgaria	6,442
8 France	6,394
9 Austria	6,374
10 Poland	6,267
11 Spain	6,264
12 Great Britain	6,242
13 Australia	6,236
14 Belgium	6,224
15 West Germany	6,203
16 Yugoslavia	6,162
17 Italy	6,129
18 South Africa	5,954
19 Ireland	5,784
20 Sweden	5,714
21 Switzerland	5,684
22 Norway	5,674
23 Netherlands	5,617
24 Turkey	4,516
25 Brazil	4,471
26 Indonesia	3,617

# SEVENTH CHAMPIONSHIPS

## RESULTS

### WOMEN'S TEAM CHAMPIONSHIPS

	Points
1 U.S.A.	3,764
2 East Germany	3,727
3 U.S.S.R.	3,721
4 Czechoslovakia	3,679
5 Bulgaria	3,652
6 Canada	3,576
7 Poland	3,270
8 Great Britain	2,842
9 Australia	2,772

### MEN'S INDIVIDUAL CHAMPIONSHIP

1 Fortenberry	U.S.A. 1,294
2 Klima,	Czechoslovakia 1,292
3 Arrassus,	France 1,286

### WOMEN'S INDIVIDUAL CHAMPIONSHIPS

1 Tee Taylor,	U.S.A. 881
2 Tatiana Voinova,	U.S.S.R. 873
3 Nicole Bera,	France 868

It was at the beginning of this training period that the new British parachutes came into our possession. These were supplied jointly by Messrs. G.Q.s and Irvins who together provided twelve complete assemblies of a quality which deserves more than a passing reference. In order that both firms should contribute more or less equally, and in order to avoid the use of two different types of parachute, the assemblies were a joint production, with Irvins producing the canopies, and G.Q.s the packs, harnesses, sleeves and ripcord assemblies. The canopies were 28 feet flat circular, modified with a 9 gore elliptical TU, and constructed in an ultra-low porosity fabric in a highly attractive and original red, white and blue design. The pack and harness were made to a new design using high quality olive green



British Mens Team ready to enplane

The men's team of five (Sgt. A. F. Charlton, R.A.F.; Sgt. P. W. Sherman, S.A.S.; Staff Sergeant R. Reid, 16 Parachute Brigade; Sgt. B. J. Clarke-Sutton, R.A.F. and R. Griffiths of the Greenjackets Parachute Club) were accompanied for the first time in the history of the B.P.A. by a ladies' team (Miss H. Flambert, Mrs. P. F. Seegar and Mrs. D. M. Knipe). They were supported by a Team Leader (Col. R. D. Wilson), Interpreter and Administrative Officer (Major T. Leask), Pilot (Capt. G. J. Olley) and Judge (Staff/Sgt. D. Hughes).

The team foregathered in Germany some 10 days or more before the opening of the Championships for training under the auspices of the Rhine Army Parachute Association. During this period they averaged between 20 and 30 descents each, and through the generous help of the U.S. Army were introduced to the Otter aircraft from which all jumps were made throughout the Championships.

material of a type quite new to British parachutes. The result was an assembly of outstanding quality and design which did great credit to both manufacturers and thoroughly disposed of any ideas about lack of progressive thought in the British Parachute Industry. It is also worth mentioning that during the course of nearly 300 descents no damage of any description was sustained by any of the equipment with the exception of a few minor rigging line burns to one canopy. (Parachutists, therefore, who are contemplating buying a new parachute can, I suggest, place an order with either firm with confidence that they will get a very high quality product. Both firms have already been given a detailed report on the parachutes supplied to the British Team together with recommendations on how they could be further improved in minor respects.)

Of the other parachutes used at Leutkirch much could be written. However, space being limited, all I can do here is to make brief reference to the most sensational new design—that of the American "Para-

commander". This is in many ways a remarkable parachute and although the American Team did not succeed in sweeping the board with it they did achieve six "dead-centres" in competitions including three in the 1,000 metres men's accuracy event. And what an attractive picture it presented. This parachute sails through the air with an impressively high forward thrust and low rate of descent, but, in my view it is a parachute suitable only for the experienced performer, and I mean **really** experienced. We shall no doubt see some in Britain before long, but those who decide to stay with their more conventional designs need not feel that they will be left far behind. There is still unlimited scope in the development of competition canopies and the next few years will, I believe, produce new and better designs.

And what of the British team's performance? How much has it improved, and where do its strengths and weaknesses lie today? Well, to some extent, the results must speak for themselves, although figures do not always provide the whole answer. Out of 26 men's teams ours finished 12th. As our 1962 team finished 11th in a comparable field the straight answer is that we have obviously not improved our overall standing. What is clear is that such improvements in standards as we have achieved have been matched by other nations. The fact is that most countries have improved during the past two years, some more than others, and our own team has just held its own. Our style was obviously much improved this year, but the accuracy was perhaps a little disappointing. This is also reflected by the individual results; our top performer this year was Charlton who was placed 36th overall. In the 1962 Championships Jickells came 28th. Indeed the average placing of all our team members was higher in the individual order of merit at Orange than at Leutkirch. Why should this be so? There are a number of possible reasons, but one of them lies in relative experience. Based purely on the number of descents carried out (and how else can one judge experience) our top jumpers today are further behind the teams above us than we were two years ago. Thus, in August 1964, when our own men's team averaged 308 free fall descents, the nine teams above us whose records are known to me averaged 947 descents per team member, which is over three times as many. By contrast, in 1962 when our team average was 178 descents that of the teams above us was I believe, though I cannot now find the figures, much less than 500.

This provides much food for thought, and if we hope to improve our position in the 1966 World Championships at Leipzig the B.P.A. must give the matter serious thought. Who knows, the new Government may actually do something to encourage parachuting, better still, it might even produce some money for the purpose!

And now a word about the ladies. This as we all know was their first appearance in the field of inter-

national contest, and very well they performed. Had they brought up the rear among the nine teams taking part none of us would have been surprised, but in the event they came 8th, and that without a reserve in the team which was a big disadvantage to them. What we are looking for now is a steady improvement during the next two years and a wider field from which to select our ladies' team for the 1966 Championships.

So far, much of what I have written has been factual, and designed to show what happened. But what of one's impressions which spring from and contribute towards the atmosphere? Many of them will linger in the memory, and I should like to give a few at random.

It is natural at the outset of such an event to find a measure of reserve between teams and individuals, many of whom have not met before. They are distantly polite to each other, but it may take some amusing incident to break the ice before they feel properly at ease. This year it was the Australians who broke the ice—at the expense of the U.S. Team. The latter made the psychological error of surrounding their new parachutes with secrecy, during the practice sessions, their intention being to gain the maximum impact at the outset of the competition. They were carried into the aircraft in bags rather than worn on the back, and the first jump was made deliberately off the DZ while the spectators of all the other teams clustered round the target area waiting for their first glimpse of the Paracommander. Oh, what a mistake, and how the Australians loved it! Their pantomime which followed was considered by all who witnessed it to be one of the highlights of the championships—and it certainly broke the ice! I was sorry for the U.S. Team most of whom are well known, liked, and respected by our own team, but they sportingly accepted this reaction to their little gaffe. A very noteworthy feature of the championships as a whole was the lack of "teamship" and I believe most people now appreciate that in top parachuting neither politics nor prejudice have a part, and that the criteria is to be found in sporting performance alone. The championships are indeed better for this.

To put this story into perspective I should like to pay tribute to Dick Fortenberry the U.S. National Champion who this year became World Champion. It was a popular win and one richly deserved; he is a great sportsman and one who sets a fine example in many ways. In particular he never withholds the fruits of his experience from others: if advice is sought it is given, and nothing is held back, even during competitions. There are many "experts" in the game today who would increase their stature by following his example.

As might be expected, the standard of parachuting was extremely high. In addition to 35 "dead centres", over half the total number of accuracy jumps completed in all events were inside 5 metres. The fastest style series was clocked at 8.5 seconds, and the average for the top ten performers was 10.1 seconds. The consistency of all the top teams was remarkable and it was



**Member of British Team landing in accuracy competition**

good to see the Canadians once again doing so well.

Safety standards were high and the injury rate low. In the course of approximately 2,000 descents there were no serious injuries, in fact I never saw an ambulance or stretcher in action throughout the championships, although I heard that one competitor was assisted off. Equally significant, I think only two reserve parachutes were deployed during the same period. Readers should draw their own conclusions. One of those competitors who did use his reserve soon got rid of his main, narrowly missed a "dead centre" and naturally declined the offer of a re-jump. This was one of the minor highlights.

The friendly atmosphere of the World Championships is now so well established that one is in danger of taking it for granted; only the language barrier imposes its limitations and even this is often overcome. As one might expect, there are a lot of characters among the teams who make their mark in ways unconnected with parachuting, although there is no doubt in anyone's mind what they are there for. There is much to learn for those who keep their eyes open, and the occasion provides an unrivalled forum for discussion on parachuting topics. I was fortunate in having the opportunity of chairing a discussion on several selected subjects of interest to instructors, and learned a great deal on how various problems are faced in other countries.

In the same way as the level of parachuting skill is high, so are other standards. The teams all appeared to

be fit and many were obviously trained to be so; they had not become fit through parachuting but had reached a high standard of fitness in order to become better parachutists. The Russian team was the fittest I have ever seen, and several of their members gave the appearance of being trained to an exceptionally high standard. Our own team were, I would say, moderately fit without any organised effort being involved. This is probably acceptable as things stand, but when centimetres begin to count only one level of physical fitness should be accepted. One thing is clear from my own observations: no one can reach the top in parachuting without being really fit in the sense that a trained athlete or gymnast is fit.

The standard of team turn-out was, as usual, high, and though our own team were well dressed, they were no more so than many others. There are now accepted standards of dress in most international sporting events and this is as it should be; parachuting is no exception. In the case of our own team it was possible once again to dress and equip them out of the World Championships Fund raised for the purpose. The same fund also bears most of the cost of team training, entry fees and travel to and from the championships. For the benefit of those who wonder how much of the B.P.A.'s own funds are put towards our World Championships and Adriatic Cup expenses the answer for the past two years is NIL. In fact our Championships fund, which is administered quite separately, has this year contributed handsomely towards the costs of our National Championships which have as one of their objects the selection of our National Team.

And lastly a brief word about some of those who worked on behalf of the team. Our pilot Capt. Olley is now recognised as one of the most experienced in this type of work. He contributed much towards the team's results and I heard only praise from the team members who can be as critical of pilots as they are of themselves and others. What a difference it makes having one's own team pilot on these occasions. Major Leask, whose services were booked as interpreter, also made himself indispensable. Not only is he an accomplished German linguist but he assumed responsibility for various aspects of team administration and showed an understanding of individual's problems and the tension which mounts during competition.

Finally a word in recognition of our nominated Judge, Staff Sergeant Hughes. This was in fact the first occasion on which Britain has been invited by the F.A.I. to furnish a judge at the World Championships and before the end it was quite clear that he had made his mark. The testimony of the Chief Judge and the invitations which he received to officiate at several of next year's major international events, including the Adriatic Cup, made it clear that the B.P.A. now has a judge who is not only technically qualified but universally recognised as one of the best in the game.

R. D. WILSON.



Sergeant Sherman, receiving the Rothman Trophy from General Sir Francis de Guingand, chairman of Rothmans.

THIS year the Army Parachute Association held its Championships on a different occasion from the Nationals. As most readers of "Sport Parachutist" will know, in previous years the two Championships have been combined, and whilst this has always been a happy and workable combination it was apparent that the military entrants were increasing so fast that they justified the running of a separate Meeting. The Army Parachute Association therefore chose August as being a suitable time of the year, and the actual dates were the 21st to the 29th. Sunday, 30th was held in reserve in case extra time was required. Netheravon was the obvious venue.

Competitors began arriving on Thursday, 20th, and carried on arriving throughout Friday. These two days were set aside for practice jumping, the actual competitive events being scheduled to start on Saturday. The practice jumping was fast and furious, too furious in fact for two competitors who obligingly tangled directly above a press photographer and provided the "Daily Mirror" with a back-page photograph. It is worth digressing here to explain this accident as it is only too likely to happen when parachutists are trying to put the finest edge on their accuracy landings. Six men jumped as a stick from a Rapide. All opened at the same height, and all drove hard for the target. All were of roughly comparable standard, and all were determined to hit the cross. Inevitably, by about 200 feet the sky had become rather full of parachutists. At this stage two men manoeuvred, and that was it.

The moral of this sad, stupid story is obvious. If you are going to jump as a stick, if you MUST all aim for the centre of the cross, stagger your opening heights, and be ready to GIVE WAY, even if you are in the right. As a result of this accident one competitor was put out of the Championships, and another was badly shaken for the first couple of days.

By Saturday morning all 65 competitors had arrived. These had come from all over the United Kingdom

# The Army Parachute Championships

by MAJOR J. S. WEEKS

and Germany. There was also one woman competitor, Lt. D. Pennington, QARANC. She had entered for the Accuracy Landing events, and it is probably as well at this point to explain these events.

The events were chosen to correspond as closely as possible to those in the Nationals, but at the same time the Organising Committee felt themselves free to introduce slightly different rules and conditions. It was also very desirable that Novice Parachutists should be encouraged and given some simple competition to aim for. The chosen events were therefore:—

1. **1,000 metre Individual Accuracy.** This was no different from the Nationals.
2. **1,000 metre Team Accuracy.** Four-man team, again identical in conditions to the Nationals.
3. **2,000 metre Individual Style.** Identical conditions to the Nationals.
4. **1,500 metre Team Accuracy.** For this event the members of the team had to land in the same order as they left the plane. Delays must NOT exceed 21 seconds, nor be less than 15 seconds. It had been intended to also make each team member aim for an individual target, these four targets to be within 100 metres of each other. In the end this idea was abandoned as the ploughed up pit was too small to accept four targets.
5. **Individual Novice Competition.** This competition was incorporated in event 1, the 100 metre Individual Accuracy. The difference lay in the Qualifications demanded. A Novice was defined as a parachutist who, on the first day of the Championships, had logged not less than 25 free-falls, and not more than 50. Static line jumps did not count.
6. **1,500 metre Individual Accuracy.** A simple precision landing event.

The programme was fairly ambitious, but with eight clear days it was felt that it could be covered. The number of competitors came as a surprise. 40 had been expected, and an entry of half as big again caused some concern, particularly when planning the Style



Event. Benefiting from the experience of the Nationals, competitors were told that the style judging would be severe, and that this event would not count for the Team Scores, as had previously been intended. This reduced the number of style competitors to 30, which was a manageable figure.

The reference to Team Scoring may seem strange, but being an Army Championship, the competitors were not only competing for individual trophies, but for Unit Team ones also. In order to present a comprehensive test, the winning Unit Team had not only to score well in the two team events, but its members had also to count in their scores in the individual events.

The most important event at any Meeting is the Style, and as the weather was hot and the sky clear, it was decided to start at midday on Saturday with this competition.

The Army Air Corps provided two Beavers for the competitors, and promptly at 12.30 p.m. the first machine took off carrying four jumpers.

The style indicator was a normal arrow, but the indicator arms were worked by running them out from the central stem, rather than by covering or uncovering with cloths. The running-out was easily done as the arms were white cloth. The judges were three in number. It had been hoped to borrow all three from the U.S. Army in Europe, but only one could be spared. He was Lieutenant Richard Hoyt, a member of the ENSPAC team, and a knowledgeable, competent, and incredibly hard-working parachutist. The second was Staff Sergeant Don Hughes, well known and well liked, and probably the most highly qualified judge of parachuting in this country. Third was Major Weeks, who was also doubling up as Director of the Championships.

The standard of performance in the Style Event was encouragingly high, although even with the reduced numbers of competitors, far too many ZAPS appeared on the score sheets. In fact, there were no completely bad series, but it is the great challenge of the Style Event that one bad manoeuvre can lose all points.

The weather was scorching hot, and the airfield was dotted with half-naked bodies slowly turning lobster pink. The judges were supplied with a steady flow of coca-cola, and spectators came by the score. The judges eliminated 10 obvious poor performers from the first round, and the second round carried on with a strength of 20. The scores of the top three men were remarkably close, and it was apparent that the winner of this event wasn't going to gain much of a lead. By 7.30 p.m. it was over. Two rounds had been completed and it was decided to leave the third round until later in the Meeting. The winner so far was Sergeant Sherman with 459 points, but Staff Sergeant Turner was only three points behind.

Everyone heaved sighs of relief at having "broken the back of it", as someone put it.

But next day, Sunday, it blew half a gale and even the gliders didn't go up. Monday was just as bad. Two days lost. On Tuesday the early morning and late evenings were calm, and a total of just over four hours parachuting was fitted in. By flying really tight orbits the Beaver pilots so speeded up the rate of dropping that the first round of the 1,000 metre Individual Accuracy was completed and a start made on the second round.

Wednesday was the same, but by getting up at 5 a.m. parachuting was started at 6.15 a.m. It was interesting to see how the standard of accuracy had improved since the 1963 Championships, and scoring distances were drastically reduced by the large majority of competitors.

Evening jumping. A competitor driving in.



Thursday was the better day, and parachuting continued throughout the day, albeit in tricky winds which often bordered on the FAI margin. This didn't seem to upset the competitors too much, all of whom were obviously glad to be jumping at midday instead of kicking their heels and watching a windsock. The excellent marshalling arrangements fed a steady stream of parachutists to each plane as it landed, and the turn-round time must have been almost a record. By now the Rapides had been pressed into service to supplement the Beavers as the programme was getting behind hand. For some hours two Beavers and two Rapides were working continuously on the Team Events in a desperate attempt to clear them off. It wasn't to be, and Thursday finished in gusty winds with the last round of the 1,000 metre Team, and 1,000 metre Individual Accuracy still to come. The 1,500 metre Team Event had proved to be a great success and was most popular. It was a pity that the four separate targets could not be used, but even so it provided a competition with a twist.

Friday was similar to Tuesday and Wednesday, but the last round of the Team Event was squeezed in, and by darkness there was only the third round of the 1,000 metre Individual Accuracy to come. The third round of the Style had long since been abandoned, as had the entire 1,500 metre Individual Accuracy Event. The weather had been a continual enemy, and all parachuting had been snatched at odd times, with a very wary eye on the velometer.

Saturday was the final day, and a large number of spectators and dignitaries had been invited to watch the final events and the subsequent Prize Giving. A full and interesting programme had been arranged, and much work had gone into the preparation of the airfield. Messrs. Rothmans of Pall Mall who have done so much to promote the sport in the Army, had erected coloured banners over the rather drab hangars, and all three military Rapides were present, gleaming in their Rothman colours.

Unfortunately, the weather forecast was gloomy. Rather than leave the final events to chance later in the day, it was jumped off at the now-familiar early hour, and the last competitor landed at 8.20 a.m., travelling rather fast downwind, and blown into the spectators' enclosure. The weather had been very difficult for that last morning, the upper winds were terribly strong and variable which did nothing to help the contestants' accuracy. It was these difficult conditions which really sorted the sheep from the goats. The good parachutists still recorded roughly similar scores to what they had made in ideal weather. The less skilled were blown off, and often landed several hundred yards away from the pit. The wind was frequently on the FAI limit throughout this last round, and the judges were just as relieved as the competitors when the target was pulled in.

In the afternoon the spectators came just the same,

and they were treated to a Static Display. The Rapides and Beavers were lined up, and the public encouraged to look over them. In the packing hangar was a display of packing and ground training, while Messrs. Rothmans showed their free-fall film in an improvised cinema, and played to packed houses throughout the afternoon.

The prizes were presented by General Sir Francis de Guingard, the Chairman of Rothmans. He arrived in good time to see the whole afternoon's activities, and took a lively interest in everything. The prizes and trophies made an impressive sight, as can be seen in the photographs, the most striking being the Rothman Trophy, awarded to the winning Unit Team. This trophy is a silver figure of a free-faller, mounted on a tall ebony plinth, about 15 inches high overall. All the trophies were presented by various Regiments or Corps, and the value of the silver must have been far above that presented at any other Parachute Meeting.



The Rapides coming in for the fly past on the final day.  
Photo by Tony Evans.

Once again 22nd SAS Regiment gained the Unit Team Trophy, although this time their lead was much smaller than it has been in previous years. Sergeant Sherman took the Individual Championship from Staff Sergeant Turner, once again by a very small margin, and Trooper Anderson was third, not very far behind. Sergeant Dufort was a popular winner of the Novice Trophy with a very reasonable score which compares very well with that of Corporal Vatnsdal, who won the 1,000 metre event.

After the Prize Giving the Bands and Drums of the 1st and 2nd Battalions, The Parachute Regiment, beat Retreat in the Public Enclosure. Meanwhile the aircraft had taken off and flown away to a waiting area. As the bands marched off the Rapides, attended by the Beavers carrying photographers, flew steadily overhead in a vic of three. They turned, and flew back to make low passes over the crowd, finishing by a spectacular break away and stream landing. It was a remarkable

exhibition of close formation flying by three pilots who only met twenty minutes before take-off.

After all that there wasn't much left to do except to get down to the serious business of drinking out of the cups, and those who were not too tired made quite a party of it.

#### RECOLLECTIONS OF NETHERAVON

... The unflagging enthusiasm of the Beaver pilots. Sergeants Emerson and Kipplewhite must have been dizzy from endless orbits.

... The cheerfulness of Dick Hoyt, the U.S. Army Judge. He stood in the pit marking landings for hours on end, and his only complaint was about English food.

... The intense rivalry between the Daily "Drifters", Messrs. Hughes and Hoyt, and the highly critical audience they had for each landing.

... The energy and keenness of the target markers

and scoring staff. Being sailors and marines they looked—and sounded—rather strange to "pongoes", but they picked up the niceties of parachuting in no time, and their comments on the performances of some competitors would make for very red faces in the right ears!

... The Chairman of the Association, Brigadier Gilbert, making his first free-fall descents in the slack periods of the Championships, and his obvious pleasure when he found it so enjoyable.

... The never-failing cooks in the cookhouse, even if it was stew rather frequently!

... The shandies in the "Drop Inn" so ably run by the Greenjackets. And why were "Dead Centres" prohibited?

... Late night suppers in the "Greasy Spoon" at Everleigh. "No chips luv!"

... The overwhelming fatigue.

## ARMY PARACHUTE CHAMPIONSHIPS, 1964

### Trophies

1. Individual Army Champion	The Royal Artillery Cup ... ..	Sgt. P. Sherman, 22 SAS	829.28
2. Runner-up Army Champion	BAOR Cup ... ..	S/Sgt. M. Turner, 9 Indep. Para.	819.96
3. Winning Unit Team	The Rothman Trophy ... ..	22 SAS	3,361.52
4. Runner-up Unit Team	Royal Engineers Cup ... ..	1 Para. "A"	3,306.57
5. Winner, Novice Event	Greenjackets Cup ... ..	Sgt. Duport, AAC	331.88
6. Winner, Style Event	SOLDIER Magazine Trophy ... ..	Sgt. P. Sherman	459
7. Winner, 1,000m. Precision Landing Event	Parachute Regiment Cup ... ..	Cpl. S. Vatnsdal	383.56
8. Highest placed individual member of the Parachute Regiment	The Penley Trophy ... ..	Cpl. S. Vatnsdal	468.56
9. Highest placed Unit NOT in Airborne Forces	Queens Royal Rifles Trophy ... ..	QRR TA	1,877.24
<b>Held in abeyance until 1965:</b>			
10. Winner, 1,500m. Precision Landing	Special Air Services Regiment Trophy		

#### 7. NOVICE TROPHY RESULTS

Sgt. Dufort .....	331.88
Sgm. Hall .....	313.96
Lt. Palmer Tompkinson .....	280.76
Cpl. Walmsley .....	203.12
L.Cpl. Denny .....	191.96
L.Cpl. Caygill .....	168.40
Spr. Crozier .....	155.76
Pte. Merrifield .....	146.68
Pte. Jarrett .....	19.92
Lt. Mitchell .....	Nil
Cpl. Pepper .....	Nil

#### 5 1000M PRECISION RESULTS

1st Cpl. Vatsndal (1 PARA) .....	383.56
2nd Sgt. Sherman (22 SAS) .....	370.28
3rd Rfm. Angel (QRR (TA)) .....	365.04

#### 6. HIGHEST PLACED UNIT NOT IN AIRBORNE FORCES QUEENS ROYAL RIFLE REGIMENT (TA)

#### 8. HIGHEST PLACED MEMBER PARACHUTE REGIMENT

1st Cpl. Vatsndal (1 Bn. PARA REGT)	468.56
2nd Pte. Jones (1 Bn PARA REGT) ...	456.40
3rd Sgt. Reddick (3 Bn PARA REGT)...	357.44

#### 4. TEAM SCORES

22 SAS	
Sherman .....	1033.44
Anderson .....	957.84
Gray .....	834.36
Rees .....	635.88
	-----3461.52-100
<b>Total</b>	<b>3361.52</b>
1 PARA "A"	
Gardener .....	793.28
Vatsndal .....	929.93
Gowan .....	749.28
Rowberry .....	834.08
	-----3306.57
<b>Total</b>	<b>3306.57</b>
2 PARA "A"	
Hamshe .....	774.44
Baugham .....	461.92
Catt .....	958.96
McNaughton .....	916.16
	-----3111.48-100
<b>Total</b>	<b>3011.48</b>
7 RHA	
Etchell .....	934.44
Sammis .....	781.52
Melville .....	792.28
Carr .....	778.20
	-----3286.44-50
<b>Total</b>	<b>3236.44</b>
10 PARA	
Wallace .....	477.72
Crawley .....	660.08
Friel .....	958.56
Unwin .....	1003.56
	-----3099.92
<b>Total</b>	<b>3099.92</b>
9 Squadron RE "A"	
Turner .....	1020.16
Jackson .....	507.88
Richards .....	685.08
Runacres .....	858.04
	-----3071.16
<b>Total</b>	<b>3071.16</b>
63 Coy RASC	
Ridgway .....	529.56
Ackerman .....	800.44
Cook .....	504.36
Pagnanelli .....	988.48
	-----2822.84
<b>Total</b>	<b>2772.84</b>
2 PARA "B"	
Starkie .....	619.36
Robertson .....	657.20
Hill .....	588.98
David .....	767.80
	-----2633.34
<b>Total</b>	<b>2633.34</b>
1 PARA "B"	
McArdle .....	554.56
Parker .....	716.76
Jones .....	615.72
Maxfield .....	611.12
	-----2498.16-100
<b>Total</b>	<b>2398.16</b>

#### 9 Squadron RE "B"

Little .....	657.24
Kelly .....	536.72
McCabe .....	595.28
Shillabeer .....	400.24
	-----2189.48-50
<b>Total</b>	<b>2139.48</b>

#### QUEENS ROYAL RIFLES (TA)

Angel .....	663.76
O'Gorman .....	1055.24
Smyth .....	208.24
	-----1927.24-50
<b>Total</b>	<b>1877.24</b>

#### 3 PARA

Shea Simonds .....	420.68
Reddick .....	795.56
	-----1216.24
<b>Total</b>	<b>1216.24</b>

#### 3. TEAM RESULTS

1	22 SAS .....	3361.52
2	1 PARA "A" .....	3306.57
3	7 RHA .....	3236.44
4	10 PARA ...	3099.92
5	9 Sqdn. RE "A" .....	3071.16
6	2 PARA "A" .....	3011.48
7	63 Coy RASC .....	2772.84
8	2 PARA "B" .....	2633.34
9	1 PARA "B" .....	2398.16
10	9 Sqdn. RE "B" .....	2139.48
11	QRR (TA)...	1877.24
12	3 PARA ...	1216.24

#### 1. INDIVIDUAL RESULTS

1	Sgt. Sherman (22 SAS) .....	828.28
2	S.Sgt. Turner (9 Sqdn. RE) ...	818.96
3	Tpr. Anderson (22 SAS) .....	759.50
<b>2. STYLE RESULTS</b>		
1	Sgt. Sherman (22 SAS) .....	459
2	S.Sgt. Turner (9 Sqdn. R.E.) ...	456
3	L.Cpl. Acraman (63 Coy. RASC)	422.5

*Continued from page 14*

3. The Association organises competitions and sponsors our national teams.
4. It represents the views of its members and negotiates with Government Departments and other bodies, both in this country and internationally. It maintains a close liaison with the manufacturers of parachutes and other equipment.
5. By means of magazine articles and circulars, it keeps its members informed of improvements in techniques and equipment. Through the press and other media, it does all it can to advance the sport. It gives advice to would-be parachutists and practical aid, including insurance.
6. The B.P.A. organises various social events where its members, both civilians and Servicemen, can meet for their enjoyment. It maintains an office and secretariat to co-ordinate all these activities.

Parachutists on the whole comprise an independently-minded community; moreover they are for the most part highly sensible people. They usually think things out for themselves but also accept sound advice. I have every confidence that they will study this Charter seriously and will come to the obvious conclusion—that it represents the only way in which our Sport can come of age in Britain as quickly as it has in other countries.

R. D. WILSON, Chairman.

# FROM OVER THE BORDER

## A REPORT FROM THE SCOTTISH PARACHUTE CLUB

At the end of the 1963 season, the Club had suffered two major setbacks: the D.Z. facilities at Perth Aerodrome were withdrawn and Jock Hall broke a leg on his qualifying jump for Instructor rating, thereby putting himself out of action for most of 1964.

The new season opened in February, 1964, at Carlisle Airport using the aircraft of Cumberland Aviation Services Limited—Beagle Terriers. Training classes had been held during the winter in a school gymnasium in Glasgow and a T.A. hall in Edinburgh so by Easter most of the new members had done their first jumps. A one week course for beginners was held at Easter by Tom Dickson, in order to test the facilities for further courses in the summer. It was successful, so another seven courses were planned for July and August. Just before jumping had to cease on the airfield itself due to possible crop damage, Charles ('Doc') Robertson landed on a runway under a 26 ft. conical reserve after his main chute had B.P.'d and had to ground himself with an injured heel for two months. A group of fields near the aerodrome then became the D.Z., thanks to the kindness of Farmers Rutherford, Fisher and Pearson, and stayed in use until September.

The summer courses owed much of their success to the unfortunate closure of the B.S.S.P. at Kidlington. Pete Denley passed on his list of applicants and some thirty of them decided to take a course at Carlisle, including one William Reppel, who came all the way from Dordrecht in Holland.

By the end of the season membership had shot up from twelve to eighty. Half of this number came from the South, so it is unlikely that they will be able to jump on a regular basis with the S.P.C. A group from Newcastle intend to start their own club at Sunderland Airport. Some of the most consistent attenders have been a group of American sailors from the Polaris depot ship, the U.S.S. Hunley, which is anchored in Holy Loch. Visitors from abroad came from Canada, Australia, Rhodesia and Holland.

The two club members who have shown most progress over the season have been John Melrose and John Hardie, both beginners in 1964. They are doing thirty to forty-five second delays, and John Hardie took a

baton from Ian Alexander, an Australian visitor, in October.

The Scottish Invitation Championships were held in September at H.M.S. Condor, Arbroath. The Navy proved excellent hosts and the weather stayed fine long enough to complete the programme, using two Rapides, the Rothman one and that of Gp. Capt. Tulloch.

Charles Robertson, in hot form after his two months enforced rest and with virtually no practice jumping, took the Scottish National Championship, and the Open Championship was won by Wenk of the Golden Arrows, U.S. Forces, Germany.

During the week at Arbroath six Royal Navy volunteers were trained for a first jump and acquitted themselves admirably, although one of them had the misfortune to break a leg on landing.

There was only one other broken leg during the season, again due to a poor landing, and, despite three B.P.s and several minor incidents, injuries were rare. One accident worthy of note occurred when the parachutist was diving out of the Terrier's door at 7,000 ft. His reserve handle came in contact with the side of the door, was dislodged and despite a rapid attempt to clear the plane, the reserve chute in opening twisted his leg against the aircraft, damaging ligaments and necessitating surgery. The aircraft was not damaged, but the reserve canopy blew on opening and the hitherto unopened main had to be pulled and shaken out of its sleeve for use as an extempore reserve, to avoid further injury on landing.

A new airstrip opened at Strathaven, fifteen miles outside Glasgow in September and nine club members jumped there from Loganair's Tripacer recently. There is also a new strip at Glenrothes in Fife, where the Club may be able to use Mr. Tulloch's Rapide. Accordingly, operations at Carlisle are being phased out and it is hoped to start off the 1965 season wholly in Scotland, possibly alternating between the two D.Z.s. No courses have been planned as yet.

Anyone wishing to contact us should phone or write to: Chairman, Dr. Charles A. Robertson, 7. Corrour Road, Glasgow, S3. Tel. Langside 8626, or Secretary, Tom Dickson, 6. Sutherland Street, Glasgow, W.2. Tel. Kelvin 6320.

# NETHERAVON

## for future national championships

COL. DARE WILSON

ONE can only express a view based on the opinions of others which have reached one either directly or indirectly—the Championships were considered a success. The principal factors which contributed to this are firstly, good weather, secondly an ideal location, thirdly an enthusiastic and friendly bunch of competitors, fourthly a team of willing judges and fifthly the generous assistance from the Army and the R.A.F. Perhaps a word on each might be appropriate.

We know only too well in England that parachuting is at the mercy of the weather. There is no time of year when we can guarantee to complete a day's or a week's parachuting. Nevertheless, over the years our records show that there are certain times of year when the weather is on average at its most settled, and the period late May to early June is undoubtedly one of the best. The decision therefore, to plan the Championships primarily in order to get the best chance of good weather paid off. I suggest that in future years we should not lose sight of this all important consideration, and for the benefit of those who have not already heard, the B.P.A. Committee has decided that next year's Championships will also conclude on Whit Monday (June 6th).

As far as Netheravon Airfield is concerned, apart from being rather off the beaten track and ill-served by bus and railway routes, the essential facilities, i.e., the extent of the dropping zone and the freedom from hazards unquestionably make this an ideal choice for the National Championships. Since the Army Parachute Association has recently been granted permission to use Netheravon in conjunction with the Army Gliding Association it is to be hoped that the airfield will be available for future National Championships by negotiation. Indeed, the B.P.A. Committee's request to use Netheravon again in 1965 has already been agreed.

It is natural that in the formative years of a young sport one would expect to see a steady rise in the number of competitors entered in its principal annual competition carried out on a national basis. It was therefore only to be expected that this year's entry of nearly fifty competitors should represent an increase

over the previous year. Similarly one would also expect a general improvement in standards, and this too was most apparent. The accuracy results were much tighter and the style event, with three rounds fully completed for the first time, showed an encouraging number of competitors capable of performing a full sequence of manoeuvres in accordance with the conditions of the World Championships. However, what was really significant and particularly gratifying was the atmosphere and friendly spirit which characterised the whole event. Almost non-apparent was the reserve which had been noticeable in former years between the skilled and the unskilled, the fortunate and the less fortunate, the experienced and the inexperienced, those supporting one school and those another, etc., etc. This year, for the first time, it was even more obvious that every competitor would be dealt with impartially and judged on his merits as a parachutist. This, I believe, produced a happy meeting in which there was much goodwill to be found.

In a short space of time it has almost become traditional that we expect the Americans to judge our parachuting. This is only natural since we owe so much to their lead and example, and in the highly specialist trade of judging style parachuting, until now, we have had no fully qualified judges available within the B.P.A. As in most other sports a good judge requires considerable experience and constant practice before he can be relied upon to give consistent results. Once again therefore we called upon the Americans to help us out. However, it would be as well for us to realise that this may not always be possible, and some might even say desirable. While we are most fortunate to have impartial judges from abroad on such an occasion, surely all judges, if they are worthy of the title, must be impartial. The only point at issue therefore, might be regarded as being concerned with the skill and experience of the judges which Britain must eventually put forward. At the recent World Championships the British judge came in for a great deal of praise from both his fellow judges and some of the more discerning competitors of other nations. This view was emphatically reinforced when he was invited

to judge at two overseas championships next year. At last therefore, we have got a fully qualified and highly respected international judge who it is hoped will be available to the B.P.A. as and when required. Without doubt others will follow and within a year or two the B.P.A. will be perfectly capable of finding its own judges for all our own events and probably those events overseas to which we are invited to send one or more judges.

Finally, let no-one forget what the British Parachute Association owes to the Services for the assistance we have received during the past three years. It is, I suggest, likely to be a considerable time before we shall see a National Championships held in Britain without the direct or indirect assistance of the Army and R.A.F. I would go further and say that without it a National Championships on the lines we have come to expect would at the moment be an impossibility. Unfortunately, it is too easy to accept this fact and to place complete faith in the ability and willingness of the Services to provide this assistance ad infinitum. This attitude must surely be wrong for two reasons; Firstly, we have no right to take it for granted that this assistance will in fact continue, and secondly it is clearly the duty of the B.P.A. to build up its own body of experts and volunteers who can take an increasingly important part in the organisation not only of the National Championships but also of smaller events run on a club or regional basis. Speaking frankly, the biggest disappointment to me over the period before, during and after this year's National Championships

was the lack of voluntary effort on the part of club members to assist in any way. The number of genuine volunteers who made any positive contribution could be counted on the fingers of one hand.

In conclusion I would like to express the purely personal opinion that this year we ran a good Championships; next year all being well we should run something better. But unless the membership of the B.P.A. takes its obligations more to heart to assist in the organisation we shall be riding for a fall. We are simply not entitled to continue taking unlimited Service support for granted. May I ask all those who are prepared to act as volunteers in any capacity before or during next year's National Championships to notify the Secretary General in very good time.

The British Parachute Association, founded only a year or two ago, decided to produce its own magazine in 1964. The first issue came out on June 1st and it will be published quarterly. It is solely for Sport Parachutists, and written by them, although anyone is most welcome to take out a subscription. A sport such as this needs careful regulating, especially when enthusiasm in the country increases almost daily, and it is this task of regulating and helping all aspects of the sport that the individuals who form the nucleus of the British Parachute Association Committee have set themselves.

So **help** the sport by joining the British Parachute Association as a Full, or Associate member. Your financial support can only do good, and will be most gratefully received.

## SPECIAL NOTICE

### INSURANCE PREMIUM REDUCED !

The first class record of members of the British Parachute Association was rewarded recently when the 10/- per person Third Party Insurance premium was reduced to 7/6d. a head. This charge is incorporated in the £2 0s. 0d. subscription to the Association, and in view of the increasing membership of the British Parachute Association and the built-in case of a good landing, it is likely that a continued record such as ours will result in **further** reductions in rate whilst still maintaining the full Insurance Coverage. So why not join the British Parachute Association—those readers who are not members of the Association, obtain the benefit of this reduction in expense, and make use of all the other work the British Parachute Association is doing on your behalf. **Club Secretaries please note!**

# 135 Minutes before Breakfast

**ERIC GREAVES**

**What is the world's highest parachute jump? The answer must be that we just don't know. We know the Czechs have made some very high altitude descents in the last few years; we also know that both the Americans and Russians have been making very high "drops", but we also know that not all details of all jumps have been made public. Thus we must rely on information we have seen in the press that has been made available to the general public.**

As far as we know the highest altitude parachute descent was made from a height of 102,800 feet and was made in the United States in 1960.

Now, what is entailed in making such a jump? It's not something that can lightly be undertaken and certainly is not just another parachute descent by an ordinary parachutist from a higher than usual altitude.

A descent from such an altitude means a jump from the edge of space. It is generally meant and understood that space starts where the atmosphere finishes. At 20 miles above the earth we have left behind 99% of our atmosphere; the one per cent left thins out gradually until it finishes some 600 miles from the surface of the earth. So to all intents and purposes we are in space as soon as we reach altitudes of 20 miles and more.

If we think of bettering the known height record we begin to learn of the difficulties confronting us. We soon find that such an attempt cannot be undertaken unaided by a private person, a club or even by a large business undertaking. We find it is not only a case of the man and the money but we find the enormous amount of research and know-how that is required. We also find co-operation is required from the Armed Services, Government and quasi Government bodies, we also find that it is necessary to call in specialists and experts from scientific and research societies.

Suppose that we here, in this country were to endeavour to improve on the known height record,

what would we have to know and how would we go about it?

First of all we find that no such attempt could be made in this country. We find that a large expanse of surface is required—at least 800 miles each way and as flat as possible to avoid undue aerial disturbances; the sea would be quite suitable but is not acceptable for obvious reasons. In addition as large a land surface is desirable to allow for "drift", and this may well be considerable on the ascent.

Let us look at this whole operation in two divisions: the first is to get the parachutist up to the required height and the second is his descent. Let us discuss each separately.

Apart from the odd freak aeroplane the only way to reach 105,000 feet is by rocket or by balloon. Ascent by rocket would be simple and extremely quick but the exit offers certain difficulties. Thus we are left with the balloon. The balloon would have to be specially made and must be manufactured from paper thin polythene sheet. It would have to be about 200 feet in diameter and have a capacity of about 2,500,000 cubic feet of gas. The gas used would be helium . . . and we find that helium costs 10d. per cubic foot; so that's a bit of a shock to start with. The capsule would be made of aluminium and would be cylindrical; about three feet in diameter and seven or eight feet in height and, when ready for launching would weigh almost half a ton. The underneath of the capsule would be fitted with a lattice of aluminium tubing which would crush on landing and thus prevent undue shock to capsule and its contents. In addition the capsule would be heavily insulated and both it and the polythene envelope of the balloon would be treated with aluminium foil or its equivalent, to reflect the rays of the sun.

The capsule could be of the open type or could be pressurised; the parachutist himself would wear a pres-



surised space suit so an open capsule could be used. If pressurised the parachutist could have his face plate removed for a major part of the ascent. If pressurised the capsule would be fed with a gas of roughly 70% oxygen, 15% nitrogen and 15% helium. The parachutist would have his own suit pressurised by pure oxygen only. If the parachutist utilised the capsule gas it would be necessary for him to close down on the gas mixture and breathe only the pure oxygen of his pressure suit a considerable time before he jumped. We will not go into the reasons for this in these notes. The envelope of the balloon (complete with its expensive gas) is expendable. The capsule is attached to the envelope by explosive bolts which can be "shot" by controls from within the capsule or by radio from the ground control. When separated the capsule would descend to earth by its own parachute. As a parachute will not deploy where there is no air and as there is no air at 105,000 feet the canopy by which the capsule descends is already deployed and is attached, fully open, to the underside of the envelope.

The minimum amount of helium would be valved into the envelope at ground level to enable it to make the necessary lift. Although the balloon might be something approaching 400 feet in height the vast majority of the envelope would be just hanging loose with a smallish pocket of gas at the top of the envelope. It must be remembered that one cubic foot of helium becomes 100 cubic feet at 100,000 feet!

One of the strangest but also one of the most dangerous and alarming things we learn is that in the intense cold through which the balloon must pass the polythene becomes brittle. In fact polythene becomes as brittle and as sensitive and as hard as an egg-shell. The problems to which this gives rise are mainly encountered when the balloon reaches the 35,000 feet mark on the ascent. We know that on the upward journey we shall quite likely encounter temperatures as low as minus 100° F . . . that's about 130° below freezing point! The intense cold and the brittleness of the polythene envelope is bad enough but we must pass through the region of the "jet stream". Jet streams are layers of furiously moving air most often encountered at the 35,000 feet level; this is the Tropopause; the region where the Tropopause meets the Stratosphere. In these regions it is possible to encounter "jet streams" of upwards of 300 m.p.h. yet within a few hundred feet a similar "jet stream" may be found driving at a great speed in an altogether different direction. Imagine what will happen to our fragile egg-shell like envelope if it passes from one "jet stream" to another! The whole balloon can be ripped to pieces or at best blown completely sideways until both capsule and envelope are lying in a line parallel to the earth. Jet streams are to be avoided.

At all times during the ascent the parachutist would be in touch with his ground control by two-way voice radio. In addition instruments would be fitted to the

capsule, to the suit and to the body of the parachutist himself constantly recording and conveying to his ground control his body temperatures, respiration, blood pressure and similar information it would be vital to know and record. Instruments will also convey to control and to the parachutist himself the carbon dioxide percentage content of the capsule and the position of reserve oxygen supply. Temperatures in the capsule itself will also be recorded and thus the whole operation could be controlled from ground level and advice and instructions issued to the "man on the spot".

When preparing for the ascent the utmost co-operation would be necessary from all meteorological departments. Meteorology cannot be an exact science and we would have to be satisfied with the best forecasts obtainable. Meteorologists would assist by consulting tables and past records and by sending aloft series of test balloons which would radio back conditions in the altitudes through which we would pass and reach.

The best time for the ascent would be very early in the morning, starting perhaps before dawn and an essential is a dead calm. The balloon cannot be "valved up" in a wind in excess of 2 m.p.h. The balloon could not be contained in a hanger whilst it is inflated and it is hardly likely that a suitable coal mine would be conveniently available. Once aloft the balloon would be tracked by radar and by radio so its exact position would be known at all times.

Immediately upon leaving the ground the ascent rate would be about 450 feet per minute but would vary on the upward journey whilst nearing the maximum altitude the rate would slow considerably dropping to a rate as low as only a few feet per minute. The time taken from ground level to 105,000 feet would be about two hours.

Although natural body heat in an insulated capsule or pressure suit is retained the suit must be electrically heated. The electricity needed could come from batteries in the capsule on the upward journey and could be switched at the last moment to batteries carried on the parachutist himself. Even with his insulated space suit and his specially designed under-clothing our parachutist would need at least 135 watts spread around his body and particularly extending to the extremities.

The carbon dioxide exhaled by the parachutist both in his suit and in the capsule, if pressurised, would have to be rigidly controlled and disposed of. It is also found that in altitudes of 100,000 feet and more the difference in temperature on the capsule itself is alarming. There can be a difference of more than 100° between the side facing the sun and the side in the shade: and this within a distance of two or three feet!

Being on the edge of space our parachutist will be exposed to the full force of cosmic rays: cosmic rays are deadly but can be ignored if our man is not to remain for longer than it is necessary for him to make his jump.

We have shown enough to point out some of the difficulties and hazards that must be encountered. We must also remember that before going to such an altitude it will be necessary to make at least two practice jumps from lower levels. We think that two practice descents should be made from about 40,000 feet and 75,000 feet before embarking on our record breaking fall. As we are considering cost we must remember that on each of the two practice drops the envelopes of the balloons would be lost together with their valuable gas.

\* \* \*

Assuming our parachutist has survived his hazardous ascent and has reached 105,000 feet, what does he do then? First he must confer with his ground Control to ensure his reading of his height is correct for after all if he went to all that trouble and someone went to all that expense to get him there and he jumped just below the previous known record height, it would just be too bad.

Mentally he has been preparing for his jump all the time he has been ascending; that is he has given much thought to it that he has been able to when not engaged conversing with ground Control, examining his instruments and reporting his readings and observations to the ground.

He has a last look round and satisfies himself that the motorised cameras are working to photograph both his exit and the instruments. He switches his battery leads, checks his pressures, opens the door of the capsule and jumps. It will not be much use to our friend taking up his favourite sky-diving position because it won't operate at 105 feet. He will drop very quickly indeed and probably start to turn somersaults or spin. Whatever position he tries to take up it will make no difference. He cannot control his position in the very thin atmosphere in which he is.

Experiments and experience have shown that falling bodies with the contour of the human figure tend to take a face upward prone position parallel to the ground and then start to spin at varying speeds around their own axis. We all know that spinning is uncomfortable but everyone does not know that spinning at 130 r.p.m. can cause unconsciousness and at only a little higher rate can prove fatal. Even spins at a lesser rate can bring on vomiting: and vomiting into a face mask is to be avoided; this can kill.

With earlier high altitude jumps a stabilising 6 feet or 8 feet parachute has been made to open automatically after the parachutist has dropped an initial 5,000 feet but the modern trend is to utilise a Ballute (BALLoon—ParachUTE—?). The Ballute would open automatically at the same level and is meant to bring the parachutist to, and to maintain him in an upright position and to prevent him spinning. The Ballute itself is about 4 feet in diameter and is made of

rubberised fabric: it falls, attached to the parachutist, as an inverted cone and itself spins on a swivel. This appears a very new device but has been most successful.

After leaving the capsule our parachutist accelerates until he reaches his maximum speed at about 70,000 feet by which time he will be dropping at about 620 m.p.h. From that height his speed will slacken. He has not to worry about pulling his rip-cord for both his main and reserve parachutes are fitted with automatic barometrically operated opening devices . . . the main timed to open at about 18,000 feet and the reserve at 10,000 feet. The Ballute will be automatically jettisoned when his main opens.

Our parachutist will pass through regions of intense cold; certainly colder than minus 50° F and probably through temperatures of minus 100° F . . . or more. Although he may not be exactly comfortable his specialised under-clothing, his insulated suit and his electrical heating will keep him, if not happy, at least alive. His face mask will be electrically de-iced and once he feels his main parachute jerk him upright he will undo his face-plate and disarm his reserve. All he has then to do is to look around and prepare for his landing. His main chute will probably carry no modifications and will probably be a 32-foot one. Whilst falling our friend has had readings taken and recorded of all his bodily conditions. Assuming our parachutist is of average size and weight the addition of his specialised clothing, batteries and instruments will bring his total weight to about double. Thus he can prepare for a pretty heavy landing unless it has been possible for the pre-arranged jettisoning by parachute of some unwanted equipment just before touch down.

All going well our parachutist should have taken not much longer than two hours for his balloon ascent and no longer than 15 minutes for his journey down. Of his 15 minutes' journey to earth he will have been free falling almost five minutes.

Shortly after he lands he will be followed to earth by his capsule which will have been electrically detached after his exit by the ground Control. He will see the capsule land at about 30 feet per second, its latticed under-carriage crumple and all the recorded data available intact.

Where can this jump be made? Not in this country; not on the Continent, but in Australia. In Central Australia there are large flat expanses perfectly suitable for our purpose and we know the Australian Government would welcome such an attempt being made there. As a matter of interest we know that certain monies can be made available for such a jump and a man is ready to make it. What are we waiting for? Come on, Farnborough!

ERIC GREAVES.

SPORT PARACHUTIST

# AEROBATICS

by TONY CHARLTON

This is the first of a series of articles, the aim of which is to familiarise free fall parachutists with the aerobic techniques necessary to qualify for the "B.P.A. Advanced Instructors rating".

## The Basic Forward Loop

From the full spread stable position (Fig. 1) bend vigorously downward from the waist bringing the head, chin on chest, towards the knees. The legs remain straight and apart with the arms extended sideways in line with the shoulders. This action rotates the body forward on to the back (Fig. 2). To continue the rotation keep the thighs against the reserve parachute and bend the knees until the feet are close to the buttocks. The arms are still sideways and the chin on chest (Figs. 3 and 4). As the body revolves into the facedown position extend the legs backwards and arch the back, head up. Move the arms slightly forward towards the head to check the rotation (Figs. 5 and 6). The legs are apart throughout the loop.

## Faults

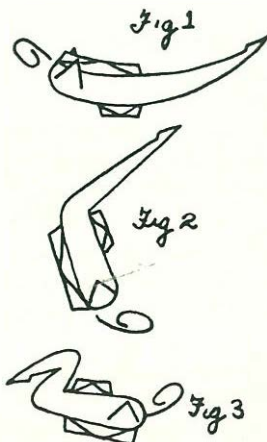
The common faults are:

(a) Failure to jack-knife the body with sufficient force.

(b) Bending the knees too late thereby allowing the extended legs to act as a brake, slowing down the rotation.

(c) Not checking the rotation by moving the arms forward when coming out of the loop.

(d) Unsymmetrical positioning of the arms or legs causing the body to roll sideways.



## Training

Before attempting the loop in the air, the student must practise on the ground until the correct movements are grooved in. The loop is comprised of three main actions:

- (a) Jack-knife.
- (b) Bend knees.
- (c) Flair out.

To perform the loop successfully these three actions must be combined into a smooth continuous movement.

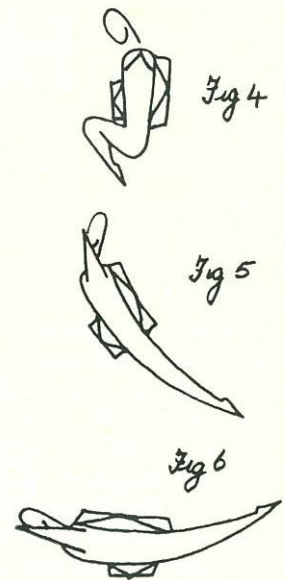
A gymnastic lunge, a form of suspended belt, is the most suitable equipment for this purpose. The loop can also be practised by performing a modified forward roll on the ground.

Pre-jump preparation is very important. Before emplaning practise the loop several times and think about it during the climb to altitude.

The initial practise jumps should be from a minimum of 7,000 ft. This allows eight to ten seconds to prepare mentally for the loop and build up sufficient air pressure to work on. Seventeen to nineteen seconds to attempt at least two loops and five seconds to concentrate on the pull. Wherever possible have the descents observed.

Do not attempt to loop until you are able to perform alternate 360° turns and re-stabilise after loss of control.

In the next issue "The Barrel Roll".



## OBITUARY

PETER BANNER

It is with great regret that we record the death of Peter Banner who died as a result of a parachuting accident on 13th September, 1964 at Thruxton.

Peter, who was 29 years of age, had made 30 jumps before his accident, was a very keen Sport Parachutist and a member of the British Parachute Association.

# FALLING FOR A PRIZE

by M. E. PEARCE

**A**IRCRAFT wait—parachutes are packed—equipment checked, rechecked—weather charts and wind readings noted, barometers observed. Hour after hour, strange talk of Capewelling, malfunctions, “Pack Elastics”, gores, “D” rings, obscure names that confuse the “outsider”. All this set in bare rooms or the corner of a draughty hangar at “Station Flight”.

Forty-eight Parachutists (from all over the world), aircrew, mechanics and a few “observers. The scene might well have been from a film set of World War II—except that hardly two parachutes were identical—the “jump suits” were gaily coloured and they bore a multitude of different badges and the only weapons these people carried were the occasional knife or perhaps a Very Pistol for “free fall” pyrotechnics.

Coffee and cigarettes are consumed at an unbelievable rate—stories and incidents are swapped as though they were rare stamps. Equipment and style are discussed and criticized, reputations destroyed and legends born.

This is in fact one of the least publicized (outside Scotland) but one of the most interesting and indeed exacting International Free Fall Parachute contests held in Europe. Not all the “big names” in the “game” are here—but the talented newcomers, the polished and established performers of many an “Air Day” are—Americans, English, Scots, Australians and Army.

The main event is The Chandy Trophy—the organisers, the Scottish Parachute Club—the hosts, The Royal Navy. The 1964 International Scottish Invitation Championships for the Chandy Trophy were held as the main feature of the “Air Day” at the Royal Naval Air Station, H.M.S. Condor in Arbroath, Scotland.

The Captain, Officers and men of H.M.S. Condor played host to one of the most interesting groups of parachutists ever to assemble in the British Isles, especially north of the Border. They started arriving on Sunday and were still arriving on the following Friday morning. They charmed, shocked, held spell bound and enchanted the Navy with their stories and their performances. By Thursday, 6 volunteers from the R.N. were actually parachuting (with only one minor breakage).

Masters at Arms were persuaded; Storemen cajoled and the whole organisation was ready. The Navy issued the word of command and on Friday at 13.30 hours the whole of Condor was a hive of activity. By 17.30 hours the job was done—static displays, demo units, Fun Fairs,

stalls, Flying Programmes, public and V.I.P. enclosures and car parks were organised—networks of routes for traffic, pedestrians, V.I.P.’s, Press and performers were marked out and signposted.

Everybody sits back, checks and rechecks—lists, programme details and personnel, weather, windspeeds, aircraft, fuelling. Tension slowly dies—bars are visited, parties begin. Saturday 03.00 parties end. Saturday 06.00 everybody slowly but very unsurely gropes their way to consciousness except the writer—he didn’t really struggle through from oblivion until 06.30.

The big day is on—the weather and windspeeds are right—the whole organisation moves into crisp, lightning action. The ball is rolling towards what can only be described as an exciting, exhilarating, almost unbeatable day of flying, fun fairs, Press and Photographers, T.V. and of course, Free Fall Parachuting.

The crowd and the writer are held spell-bound whilst tumbling dots in the sky blossomed into tiny umbrellas of dramatic colour. These drifting “blooms” growing larger until they are driving into the target—scattering photographers and sand—a sudden flash of white measuring tape and note-taking and the next parachutist strikes the target.

Individual events are followed by team events—and while swift calculations are made the demonstration “stick” jumps commence. More spectacular colours—more gasps from the crowd as a longer “delay” is made, utter silence—a ‘chute “dwells” in the pack—relief—it starts to deploy—it’s a malfunction! Another sigh of relief—the reserve clears and develops in plenty of time—the parachutist “Capewells Out” and the main ‘chute drifts lazily across the airfield and our intrepid performer drifts not too ingloriously into a copse, he is safe, completely unharmed but curses furiously because he can’t find some piece of equipment—“cost me seven quid last week”—the writer drives a very bad tempered young man back to “Station Flight”.

The crowds have had their thrills, the winners their collection of silver and “gongs”—the writer exhausted from watching a week’s practice jumps and 2 days of competition and demo jumps—repairs with haste to the Wardroom.

Impressions merge, with half forgotten promises of “see you next year” and as the stronger beverages combine with a still racing blood stream determination steels the soul and nerve. My God I will try it—one day!

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Soon even his friends were avoiding him...



The next day Harry would feel listless, unable to join in the gay social whirl of the club...

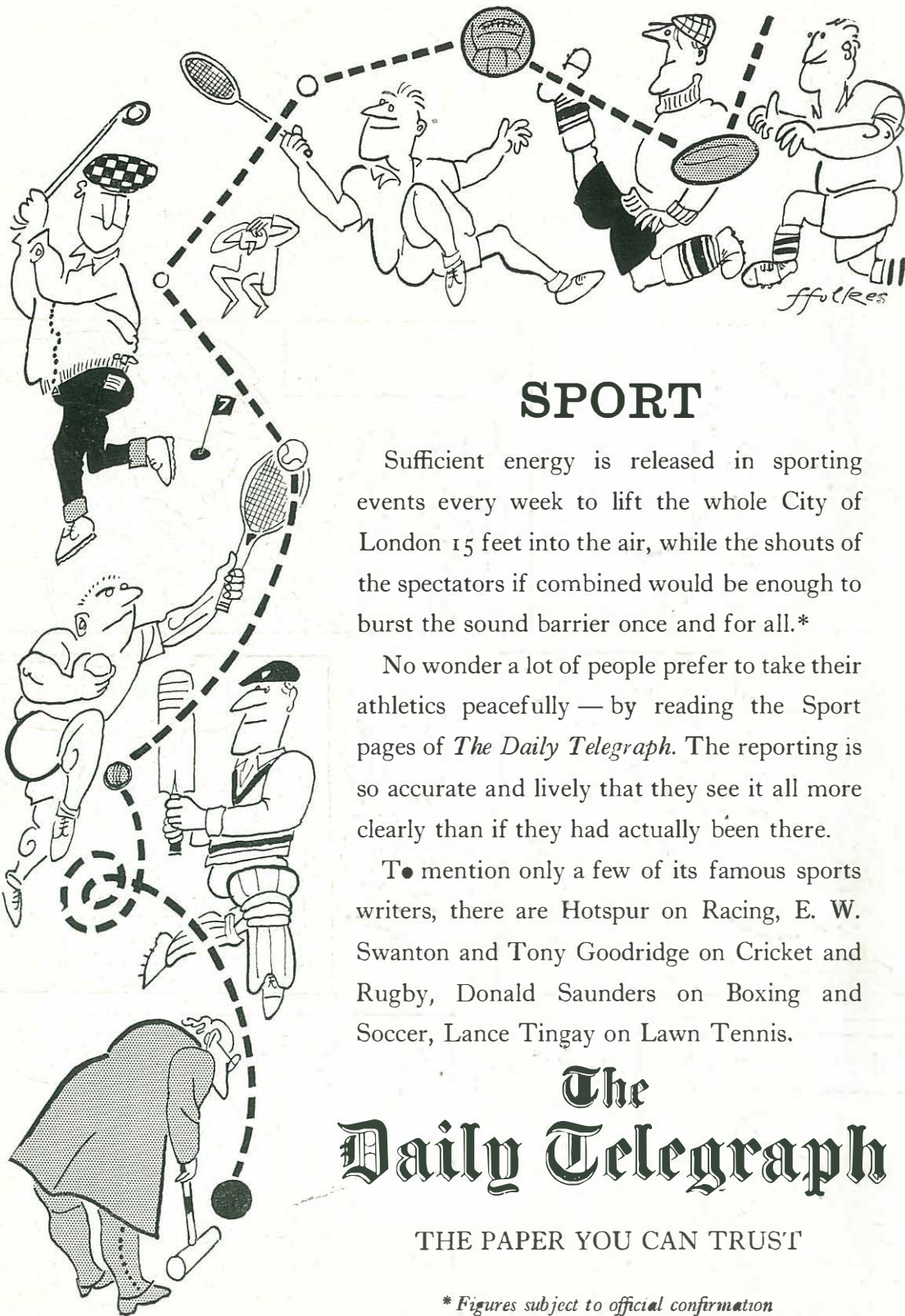


Until one day..



So Harry made sure that each time he jumped he wore a G.Q. parachute - and what a difference!





## SPORT

Sufficient energy is released in sporting events every week to lift the whole City of London 15 feet into the air, while the shouts of the spectators if combined would be enough to burst the sound barrier once and for all.\*

No wonder a lot of people prefer to take their athletics peacefully — by reading the Sport pages of *The Daily Telegraph*. The reporting is so accurate and lively that they see it all more clearly than if they had actually been there.

To mention only a few of its famous sports writers, there are Hotspur on Racing, E. W. Swanton and Tony Goodridge on Cricket and Rugby, Donald Saunders on Boxing and Soccer, Lance Tingay on Lawn Tennis.

# The Daily Telegraph

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*\* Figures subject to official confirmation*