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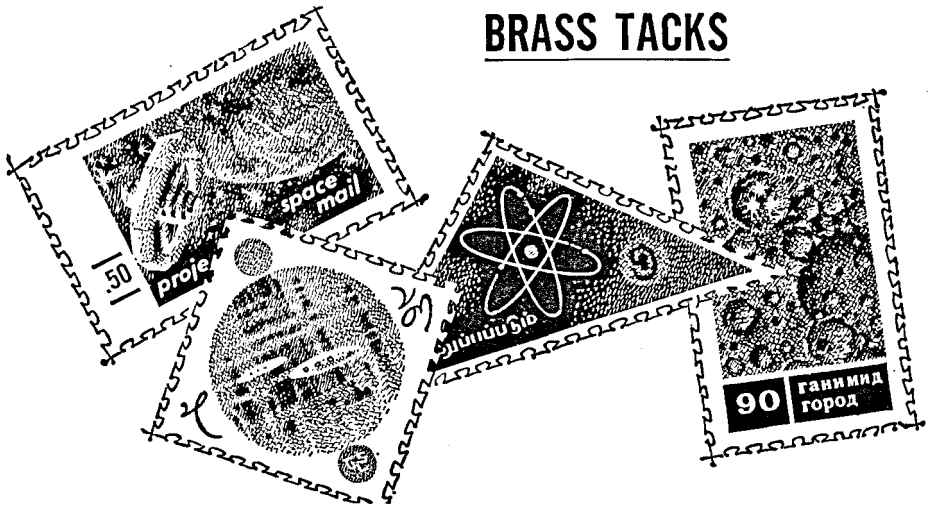
BRASS TACKS



Dear Mr. Campbell:

Thanks to Frank Herbert for presenting one of the most mature and highly readable science fiction stories of the past few years.

I praise not the technical and scientific merits of Mr. Herbert's story—though there are undoubtedly many—but the literary qualities. Even a science-fiction writer must find praise for other than his technical knowledge refreshing now and then.

Most letters to your omnipotence the editor of Analog, seem usually to dwell over the pros and cons of some technical or scientific bric brac, or point in the story. Not that this is wrong. Quite the reverse as your letter column would otherwise turn into the "how wonderful we all are" stagnation so prevalent in many publications.

But praise where praise is due, and my praise is for the literary qualities of Mr. Herbert's story "Dune World"—though I'm also thankful for the intricate construction of social systems he portrays so vividly in the clash of cultures on the desert world Arrakis.

His story contained some of the best characterization in the genre in much too long a time. The only fault I find, is that Mr. Herbert ended his novel a little too abruptly. (Or was it the editor who didn't want to extend it another month?) Paul's realization of who or what he was and the extent of his abilities was a little too abrupt a *deux ex machina*, in wrapping up the story.

Perhaps when Mr. Herbert presents the final draft of the novel for book publication—and I have no doubt it will be published in book form—he will develop his ending more fully. Hawat, Gurney Halleck, etcetera, are much too fully developed characters for the reader not to want to know what happened to them in greater detail. I for one will be among the first to buy the full novel if this is done. Once again my thanks to Frank Herbert for one of the most enjoyable stories in a long while.

R. C. MUNN

185 Theresa Street,
Port Arthur, Ontario, Canada

The ending is being developed more fully—120,000 words full. It'll be ready late in 1964, and will appear here!

Dear John:

Although I enjoyed Mr. McLaughlin's story and solution, I believe that the effects pictured are about an order of magnitude too severe.

What is pictured is a congruency of two regions of space: our atmosphere and some low-pressure region. Flow has been established from the high-pressure system to the low-pressure system. To a good approximation the flow in both regions will be of the source or sink type. That is, in our atmosphere the flow streamlines converge as they approach the congruency and diverge after the congruency. Thus, the flow field is similar to a converging-diverging nozzle, except

that in this case it's three-dimensional. The main point here is that the congruency corresponds to the "throat" of a converging-diverging nozzle. Therefore, the Mach number at the congruency is one provided the pressure on the other side is sufficiently low.

On the basis of this reasoning the pressure, temperature, et cetera, at the congruency will be the "cortical conditions" so that the pressure will be approximately 7.8 psia and the temperature approximately 20 degrees below zero—our men are wearing tee-shirts? Since the flow field in our atmosphere is, to an approximation, a sink flow; the flow area will vary as the square of the radius. My calculations indicate that at a distance of only thirty-three feet from the congruency —assuming the diameter of the congruency is ten feet—the Mach number is down to 0.01—the air speed is a mild breeze of eight miles per hour—and the pressure and temperature are essentially the normal values. Moreover, my calculations indicate that for a ten-foot diameter congruence it would take somewhere on the order of 2×10^9 hours—a reasonably long time—to reduce the atmosphere pressure by 0.1 per cent.

As a final comment let us hope that all future congruences are limited to low-pressure regions. A congruency with a stellar interior would be much more difficult to handle!

ROBERT L. GLICK
2342 Pansy Street S. W.
Huntsville, Alabama

You know—that type of congruency would be rugged! Or even a congruency with the lower layers of Jupiter's ammonia-hydrogen atmosphere.

Dear Mr. Campbell:

I fear you missed your forte. Since *Mad* was not in business when you started editing, you had to settle for SF. Your mention of rifles in the Kennedy assassination editorial almost roused me to mirth.

A modern rifle *can* kill a man at a mile, if it hits him in a vital spot, and

continued on page 90

BRASS TACKS

continued from page 5

he is unlucky enough to stop one that far off. But as for deliberately picking out someone that far off, and clobbering him, one would need very good fire-control, stable platform, and either a light-beam weapon, or a projectile weapon with a heavy, stable slug.

The weapons designed for this sort of performance exist, but most are mounted on wheeled carriages or tanks. Take the US/UK 105 mm tank gun, the Russian 85 and 100mm ditto, and the fearsome Flak 88 of twenty years back, and it isn't hard, though you may get some of the victim's neighbors also, even with a HVAP shot.

There is an outside chance a few portable weapons of the day could do it, but Oswald would have looked very odd trying to carry a 20mm Solothurn AT rifle up six floors, elevator or no, and he had been in poor shape for anything for a while.

The practical limit of even the best target rifles these days is not much beyond 1,000 yards, and after trying like hell to run over 90x100 on 36" bulls at that range with an Army match type Winchester 70, I can vouch that the average shooter will not get them all under that washtub sized disk so far away.

When we come closer, the performance increases, to the point where below 200 yards, a good marksman with scope-sighted rifle very rarely misses, given a chance to rest his support arm, and clear vision.

As a matter of fact, the old 6.5 Carcano has never rated highly as a target arm, since the army using it relied on machine guns, mortars and artillery much more than we do. Some humorous Italian soldiers called it the "Humanitarian Rifle" since they claimed it couldn't hurt anyone on purpose. I once conversed with a Communist reporter who had served with a partisan movement, and he felt the Italian carabini was the world's worst shoulder weapon, for reasons he gave many of.

But with a scope properly mounted, and zero for short range established, we found that such a weapon could perform with lamentable accuracy.

This has resulted in various moves to ban private purchase of arms except through local purchase, and some clamor for a ban on private ownership of arms. Will this have any effect on crime, or the tenure of office of 1980's President?

JOHN P. CONLON
52 Columbia Street
Newark, Ohio 43055

Hm-m-m . . . that's standard military and target-type guns. How about some of these hand-made specials the gun-nuts play with—the kind a really determined organization could get and use?

Dear John:

Forgive me for not typing, but this is written on a plane to Washington—I couldn't wait to get home, which is some time off.

When I started "The Permanent Implosion" in the February, 1964, issue of Analog I thought, after all these years how nice it is to have a story with some checkable facts and figures. But when I checked them, I was surprised to find that the author obviously hadn't.

I don't know how big the sphere of congruence was—let's say it was three feet in diameter. If the air density was the same near to it as remote from it—it would probably be lower near by—then roughly, one hundred fifty feet away the velocity of the air toward the sphere would be $(1.5/150)^2 = 1/10{,}000$ that into the sphere. One thousand five hundred feet away it would be 1/1,000,000 that into the sphere.

But, what would be the velocity into the sphere? Surely, not more than the speed of air molecules, which is the speed of sound, which is about seven hundred seventy miles per hour. Thus we have as a generous estimate of the wind at various distances:

Distance, feet	Wind velocity, m.p.h.
1.5 (at the sphere)	770
150 feet	.077
1,500 feet	.00077

Before further comment, what about the depletion of the earth's atmosphere? The area of a three-foot sphere is about twenty-eight square feet or 1/1,000,000 square miles. Thus, at seven hundred seventy miles per hour the drain on the atmosphere would be .00077 cubic miles per hour.

The area of the earth is about 200,000,000 square miles. I don't know what the effective depth of the atmosphere is, but if it is three miles, then the volume is about 600,000,000 cubic miles. At a drain of .00077 cubic miles per hour the atmosphere would vanish in about 1,000,000,000,000 hours or about 100,000,000 years.

From this last figure, I infer that as far as the depletion of the atmosphere goes, there would be plenty of time to look for a solution, hence, why the haste?

Because, I suppose, of the winds and storms, which the author depicts so vividly, clearly, these must have had a supernatural origin—the above calculations show they couldn't have been caused by the flow of air through the sphere of congruency. The storms being so plainly supernatural would make them all the more terrifying.

I can see in the story a powerful myth depicting the overcoming of the powers of darkness by an adept with a degree in business administration—I always *knew* that that was black magic.

But John! What is a tale of supernatural terror doing in Analog?

J. J. COUPLING

P.S. I'm dubious about putting the tanks in the pressure chamber. Why didn't he just put a valve on the intake of the supercharger and close it part way to give the desired reduction of pressure in the intake? But then, I'm just an engineer, not a practical man.

Hm-m-m . . . I guess I got too busy enjoying a good yarn to do any careful computing! It took No. 1 in the reader pool, so I guess most of the readers reacted that way, too!