

A FINAL TALE

or

YOU CAN PROVE ANYTHING WITH FIGURES

by

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The summer term was nearly over and within the Faculty of Transdisciplinary Studies the School of Alchemy, Astrology and Aircraft Structures was to consider its degree award. This year twelve students had taken this option, affectionately known as the 3A'S course (though not on account of the quality of its entrants), and each had sat the eight papers that made up the final assessment on the course.

The staff were agreed that it was a fairly typical group of students this year. The marks had been much as usual. The total marks would give a ranking for the students and the natural breaks would guide them in the classification procedure. Just what constituted a natural break had never been precisely defined but they all felt that they recognised one when they saw it. So it was that after a fairly brief discussion the following results emerged from the informal meeting.

RAW MARKS

Subject

| Name | A | B | C | D | E | F | G | H | Total | Class |
|-----------------|----|----|----|----|----|----|----|----|-------|--------|
| Condon, B.W. | 74 | 68 | 43 | 99 | 48 | 45 | 39 | 32 | 448 | I |
| Kennett, A. | 62 | 58 | 66 | 89 | 44 | 63 | 19 | 40 | 441 | I |
| Franks, B.F. | 47 | 52 | 76 | 60 | 41 | 77 | 40 | 38 | 431 | II(i) |
| Goldsworthy, M. | 92 | 67 | 31 | 62 | 52 | 62 | 29 | 34 | 429 | II(i) |
| Hill, P.J.C. | 84 | 37 | 37 | 55 | 42 | 64 | 44 | 57 | 420 | II(ii) |
| Burgess, V.C. | 66 | 42 | 16 | 79 | 50 | 53 | 64 | 47 | 417 | IJ(ii) |
| Ing, O.L. | 57 | 77 | 56 | 22 | 46 | 47 | 59 | 49 | 413 | II(ii) |
| Listerdale, N. | 72 | 17 | 61 | 37 | 53 | 75 | 55 | 37 | 407 | II(ii) |
| Eggar, K.C. | 42 | 48 | 26 | 84 | 61 | 70 | 28 | 42 | 401 | II(ii) |
| Arnold, B.D. | 12 | 32 | 71 | 71 | 51 | 81 | 25 | 56 | 399 | II(ii) |
| Dursley, L.J. | 40 | 57 | 6 | 47 | 56 | 51 | 69 | 59 | 385 | III |
| Jolley, D. | 26 | 27 | 54 | 9 | 60 | 85 | 34 | 62 | 357 | III |

Professor Heever noted with satisfaction the position of Condon who had written a particularly good paper in his subject. Professor Zangwell, the School Chairman, was not so happy about his star pupil Jolley but there was nothing to be done or so it seemed. At this point Dr. Caird, the latest recruit to the School, spoke up. He had just been on a teaching techniques course and was full of bright ideas; "All the subjects are given the same weight but there are wide differences in the ranges of marks between the different subjects. Surely we should make the marks more comparable before we

total them". Well it seemed a reasonable point and it was agreed that the marks should be scaled so that the range for each paper should cover the complete scale of marks from 0 to 100[†]. The School did not boast a mathematician among its staff but Mr. Maxwell taught some statistics and it was agreed that he and Dr. Caird should produce a set of scaled marks in time for the formal meeting with the External Examiner present.

When the formal meeting convened both sets of marks were circulated. It was perhaps unfortunate that Caird and Maxwell had photocopied the sheet on which they had "pencilled in" their own ideas of the classifications, although most of those present would have felt compelled to agree that they did accord with the usual practice of the School. The External Examiner took one look, realised that all his arguments would need to be stood on their heads, quietly pocketed his notes and waited for the pandemonium to subside. And pandemonium there was.

SCALED MARKS

Subject

| Name | A | B | C | D | E | F | G | H | Total | Class |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-------|----------------|
| Jolley, D. | 18 | 17 | 69 | 0 | 95 | 100 | 30 | 100 | 429 | <u>I</u> |
| Dursley, L.J. | 35 | 67 | 0 | 42 | 75 | 15 | 100 | 90 | 424 | <u>I</u> |
| Arnold, B.D. | 0 | 25 | 93 | 69 | 50 | 90 | 12 | 80 | 419 | <u>II (i)</u> |
| Eggar, K.C. | 38 | 52 | 29 | 83 | 100 | 63 | 18 | 33 | 416 | <u>II (i)</u> |
| Listerdale, N. | 75 | 0 | 79 | 31 | 60 | 75 | 72 | 17 | 409 | <u>II (i)</u> |
| Ing, O.L. | 56 | 100 | 71 | 14 | 25 | 5 | 80 | 57 | 408 | <u>II (i)</u> |
| Burgess, V.C. | 68 | 42 | 14 | 78 | 45 | 20 | 90 | 50 | 407 | <u>II (ii)</u> |
| Hill, P.J.C. | 90 | 33 | 44 | 51 | 5 | 48 | 50 | 83 | 404 | <u>II (ii)</u> |
| Goldsworthy, M. | 100 | 83 | 36 | 59 | 55 | 43 | 20 | 7 | 403 | <u>II (ii)</u> |
| Franks, B.F. | 44 | 58 | 100 | 57 | 0 | 80 | 42 | 20 | 401 | <u>II (ii)</u> |
| Kennett, A. | 63 | 68 | 86 | 89 | 15 | 45 | 0 | 27 | 393 | <u>III</u> |
| Condon, B.W. | 78 | 85 | 53 | 100 | 35 | 0 | 40 | 0 | 391 | <u>III</u> |

The first reaction was one of sheer disbelief but a careful check revealed that all the arithmetic was in order. Then like true academics they warmed to the situation and argued vehemently and vociferously. "I shall never again attach any importance to a mark. This completely reverses the previous order and does virtually the same thing to the classes" said Dr. Borer. "My whole life's work has been undermined" said Dr. Blogg who was due to retire that year. "I shall be haunted to my grave by the injustices I have been party to in the past". Professor Zangwell had lost all control of the meeting although he was happy that

† Thus if m is the minimum mark and M the maximum mark in a particular paper,

any mark x on that paper would become $y = 100 \left(\frac{x - m}{M - m} \right)$; i.e. linear scaling.

the miracle rescue of Jolley had come to pass. Professor Heever was at his wits' end. He had only agreed to the scaling to preserve his image as a progressive and liberal academic. The effect on his potential research student was nothing short of catastrophic. Even the Registrar's representative who normally confined himself to legal matters felt moved to comment. His words were ignored.

"I think I speak for everyone" said Dr. Joiner "when I say that we all want to be fair to our students". They all agreed with that. "Since the marks seem to lead us into confusion perhaps we should consider the rankings in each paper. After all these are common to both sets of marks, so if we total the rankings, the student with the lowest total will go to the top and so on." It seemed a good idea to get over the impasse and their agreement to it was hastened by the arrival of coffee, the best natural break so far.

During the break Joiner and Maxwell beavered away, and a third sheet showing the ranks and total of the ranks was copied and distributed. It was greeted in stunned silence followed by groans of despair.

RANKS

Subject

| Name | A | B | C | D | E | F | G | H | Total | Class |
|-----------------|----|----|----|----|----|----|----|----|-------|-------|
| Arnold, B.D. | 12 | 10 | 2 | 5 | 6 | 2 | 11 | 4 | 52 | |
| Burgess, V.C. | 5 | 8 | 11 | 4 | 7 | 9 | 2 | 6 | 52 | |
| Condon, B.W. | 3 | 2 | 7 | 1 | 8 | 12 | 7 | 12 | 52 | |
| Dursley, L.J. | 10 | 5 | 12 | 9 | 3 | 10 | 1 | 2 | 52 | |
| Eggar, K.C. | 9 | 7 | 10 | 3 | 1 | 5 | 10 | 7 | 52 | |
| Franks, B.F. | 8 | 6 | 1 | 7 | 12 | 3 | 6 | 9 | 52 | |
| Goldsworthy, M. | 1 | 3 | 9 | 6 | 5 | 8 | 9 | 11 | 52 | |
| Hill, P.J.C. | 2 | 9 | 8 | 8 | 11 | 6 | 5 | 3 | 52 | |
| Ing, O.L. | 7 | 1 | 5 | 11 | 9 | 11 | 3 | 5 | 52 | |
| Jolley, D. | 11 | 11 | 6 | 12 | 2 | 1 | 8 | 1 | 52 | |
| Kennett, A. | 6 | 4 | 3 | 2 | 10 | 7 | 12 | 8 | 52 | |
| Listerdale, N. | 4 | 12 | 4 | 10 | 4 | 4 | 4 | 10 | 52 | |

At this point my contact felt he had said enough. It would in any case have been quite improper for him to reveal the miscellany of medical evidence that had been offered to explain the failure (or might it have been the success) of the students. Thus how the award was finally made must remain confidential to the meeting. Whether the pipe cleaners of varying lengths found in the waste paper basket after the meeting were of any significance will never be known. The results were in any case much the same as usual and passed through Senate almost without comment.