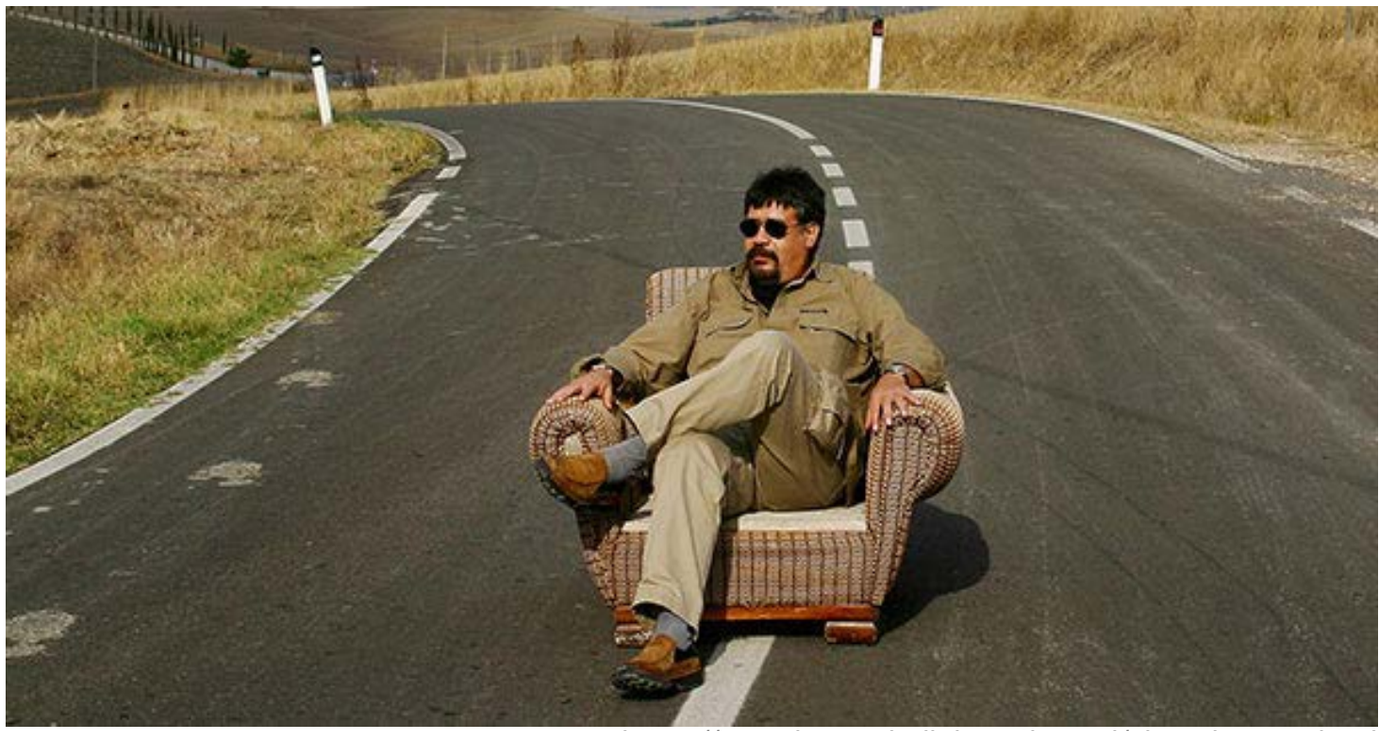
Astronomical Farces

Henri M. J. Boffin (Ed.)



https://www.lemondediplomatique.cl/el-oasis-seco.html

“Sólo vuela el
que se atreve a hacerlo”

— Luis Sepúlveda

This book is dedicated to the memory of this wonderful writer and great man.

"Libraries always remind me that
there are good things in this world."

— Lauren Ward

Cover image: Arp 194. Credit: NASA, ESA, and the Hubble Heritage Team (STScI/AURA)

Preface

This book is an excuse. An excuse for browsing items in connection with astronomy and see how this fascinating science – perhaps the oldest of all – has permeated through culture, from history to painting, poetry and even jokes! This is also an excuse to ponder and wonder, without necessarily the need to excogitate, about some amazing or astonishing astronomical images (with an unabashed bias towards ESO ones) and see how *Dame Nature* takes ineffable pleasure in shaping herself in the most glorious or surprising ways.

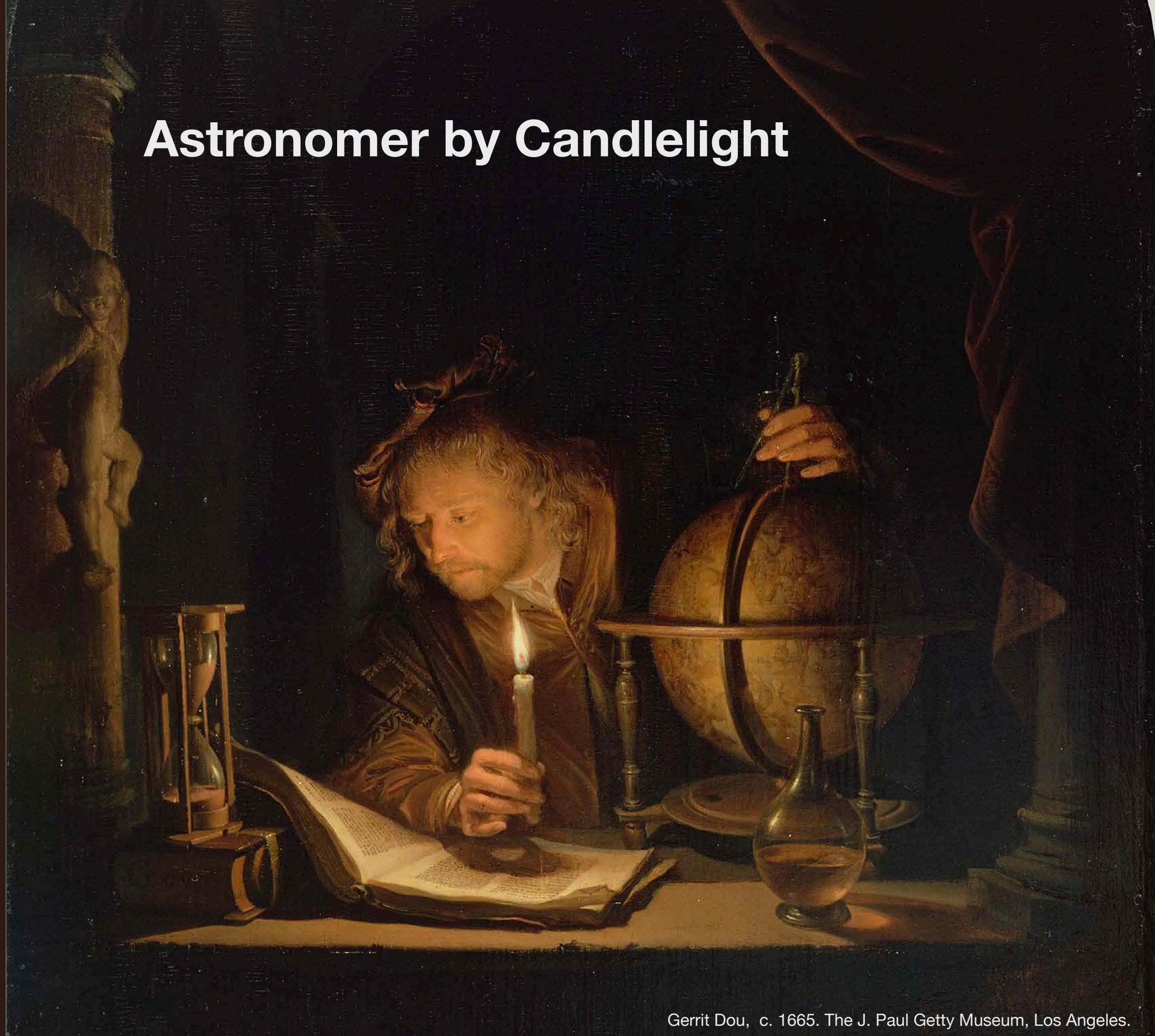
This is thus a book to browse leisurely. I have scouted ESO press releases (from the time I was in charge of them), the ESO Messenger (from early times), but also the internet as a whole to find images and stories, drawings and poems, paintings and jokes (a few of which I wrote myself), in the hope to lighten your day, but hopefully also stir your curiosity about an artist, a place or an astronomical object.

I hope you will have as much joy to leaf through this book as I had to make it.

Henri M.J. Boffin

Astronomer by Candlelight

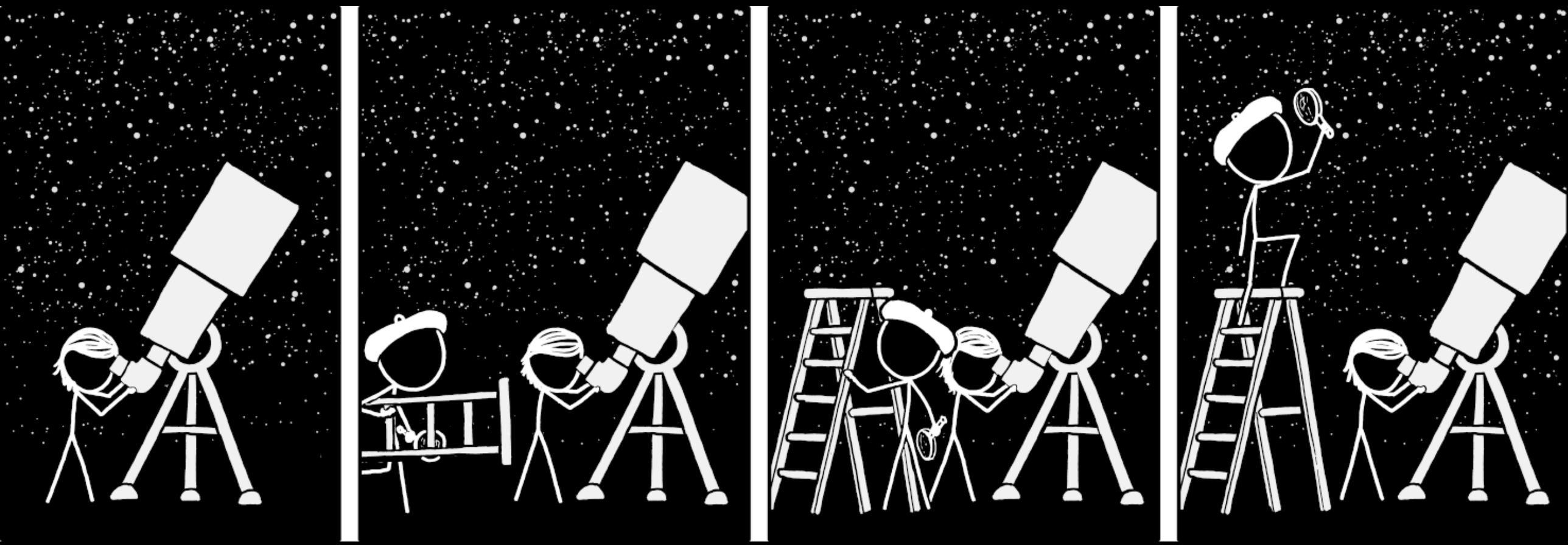
Yes, even in 1665, one recognised the assiduousness of the astronomer, who is hard at work late into the night, even when not looking at the stars.



Gerrit Dou, c. 1665. The J. Paul Getty Museum, Los Angeles.

“The Universe is made of stories, not of atoms.”

Muriel Rukeyser



https://xkcd.com/1522/

"Of course, astronomers have had pictures of colliding galaxies for quite some time now, but with the vastly improved resolution provided by the Hubble Space Telescope, you can actually see lawyers rushing to the scene..." *(anonymous)*

NASA, ESA, the Hubble Heritage (STScI/AURA)-ESA/Hubble Collaboration, and A. Evans (University of Virginia, Charlottesville/NRAO/Stony Brook University)

Scolding an astronomer

Perhaps the only case of a professional astronomer being banned in the most elegant way from publication in a main journal... and it was a long time ago*.

Astronomical Journal, vol. 20, iss. 464, p. 56-59 (1899)

* If you know of any other, please refer them to me.

Note.—The remainder of Dr. SEE's communication is omitted, partly because it has no pertinent bearing on Mr. MOULTON's paper. To abbreviate most effectively unfruitful discussion, Dr. SEE's remarks were transmitted to Mr. MOULTON to afford him opportunity, if he desired, to reply ; but he declines, on perfectly correct and dignified grounds, to do so ; his essential and sufficient reason being that the statements are not in accordance with the facts.

Here the matter might be dropped were it not desirable to direct the attention of those who care to consider the matter further, to the remainder of Dr. SEE's paragraph in A.J. 363, of which he here quotes only four lines ; and also to the fact that his book of computations of orbits of double stars merely reproduces, without addition or subtraction of a word or line, his article in A.J. 363. It therefore affords no evidence of change of view or modification of hypothesis.

The present is as fitting an opportunity as any to observe that heretofore Dr. SEE has been permitted, in the presentation of his views in this journal, the widest latitude that even a forced interpretation of the rules of catholicity would allow ; but that hereafter he must not be surprised if these rules, whether as to soundness, pertinency, discreetness or propriety, are construed within what may appear to him unduly restricted limits.

ED.

Caught in the Cobweb

The Tarantula Nebula is one of the most impressive views in the Southern sky and is located in the Large Magellanic Cloud.

Astronomy, Hydrodynamics and Stamps

What have these to do with each other? Well, according to Mr. Dumoulin of the ESO Sky Atlas Laboratory in Geneva, very much indeed. In order to ensure a very uniform background density on the glass copies of ESO Schmidt plates, he uses a special machine, a so-called tray-rocker, to develop these plates. As the name implies, it is really a tray that rocks and rotates so that the developer floats across the plate, from one side to another. In the hope of improving the process, advice was sought from the Ecole Polytechnique de Lausanne where Messrs. Bruchat, Boillat and Giraud undertook a detailed study of the movements of the developer as a function of tray geometry, rocking and rotating rate, etc.

The results were encouraging and later a visit was paid to the ESO Sky Atlas Laboratory by two representatives of a well-known Swiss firm that prints official stamps for eight countries. One step in the production is the extremely critical development of a 30 x 50 cm glass plate which serves as a master copy for the printing of large stamp sheets. After an impressive demonstration of the ESO technique, it appears that European astronomy may help improving the quality of future European stamps. So, who said that astronomy has no practical implications on society?

Mr. B. Dumoulin with the tray-rocker in the ESO Sky Atlas Laboratory in Geneva.

Editor: Richard West

Not much has changed since 6 centuries. Already then there were the observers and the theoreticians!

Astronomers from 1400 - 1424

Miniature of astronomers on Mt Athos, above, studying the stars with astrolabes and quadrants and, below, inscribing strange characters in the dust with sticks. Image taken from f. 15 of Illustrations for Mandeville's Travels. Credit: The British Library

The Cosmic Christmas Ghost

When I Heard the Learn’d Astronomer

Walt Whitman

When I heard the learn’d astronomer,
When the proofs, the figures, were ranged in columns before me,
When I was shown the charts and diagrams, to add, divide, and measure them,
When I sitting heard the astronomer where he lectured with much applause in the lecture-room,
How soon unaccountable I became tired and sick,
Till rising and gliding out I wander’d off by myself,
In the mystical moist night-air, and from time to time,
Look’d up in perfect silence at the stars.

Johannes Vermeer – The Astronomer – Musée du Louvre, Paris

Brave New World? Service Mode...

To observe with a telescope is not exactly what it has been. Not so long ago, the astronomer worked next to the telescope, pushed the buttons, watched the sky through the dome slit and entertained the night assistant with his personal repertoire of songs, frequently ranging from the tragedy of Tosca to the invocative expressions of "Let it be, let it be" or even later masterpieces.

Nowadays, however, in the Age of Automation, the “observer” sits in a brightly lit room, somewhere in the telescope building (he is not quite sure where), and punches the keys of a computer console. He does not know where the telescope is (it may be in space) nor has he any idea of how it looks like. He only worries about the 1/2 night that has been allocated by the Observing Programmes Committee (OPC) for his observations and whether the telescope and the weather will permit him to obtain the data he has been waiting for during the past year with so much expectation.

The present trend is towards even more automation, even better efficiency, etc. What will it be like, 5 years from now? Always ahead of its time, THE MESSENGER has obtained a listing of a future file in the central ESO/La Silla Computer system which is reproduced in facsimile here and illustrated by Karen Saxby. For convenience of the reader, the central computer is indicated by a dash (-) and the observing astronomer with a colon (:).

MESS T=00004 IS ON CR04834
USING 0006 BLKS R=0047

0001**** LOG DUMP FILE: 3.6/133/1984/
JEDERMANN

0002****

0003- GOOD EVENING AND WELCOME TO THE 3.6 M.

0004- IS THIS YOUR FIRST RUN?

0005: NO

0006- WE SHALL CHECK THAT. WHAT IS YOUR NAME?

0007: J. EDERMANN

0008- INSTITUTE?

0009: ASTROPHYSICAL INSTITUTE, ANYTOWN.

0010- OK. YOU WERE HERE ON 12/3/1983. OK?

0011: WELL, ER...

0012- YOUR RECORD SAYS THAT YOU LOST 23.7 MIN DUE

0013 TO WRONG COORDINATES. DID YOU PREPARE

0014 YOUR OBSERVATIONS BETTER THIS TIME?

0015: PROMISE

0016- OK. WE SHALL SEE... NOW GIVE YOUR ENTRY

0017 CODE NUMBER.

0018: OPC/X2398.42859YZ

0019- CHECKING. JUST A MOMENT.

0020 OK. ACCESS AUTHORIZED BY OPC. PROCEED.

0021 PRIME, CASS. OR COUDE FOCUS?

0022: CASS

0023- OK. AVAILABLE INSTRUMENT?

0024: IDS ON B&C SPECTROGRAPH.

0025- ARE YOU SURE YOU WANT THIS INSTRUMENT?

0026: SURE.

0027- ARE YOU REALLY SURE?

0028: YES. DEFINITELY.

0029- SORRY. I WOULD RECOMMEND TO TAKE THE

0030 D&E SPECTROGRAPH.

0031: WHY?

0032- ...(NO ANSWER.)

0033: BUT WHY. I ASKED FOR THE OTHER!!

0034- OK. TEMPORARY TROUBLES WITH B&C.

0035: THEN CALL THE REPAIR UNIT.

0036- REJECTED. THE CARIOCA GAME IS STILL ON.

0037 : I SEE. BRING IN THE OTHER SPECTROGRAPH.

0038- OK. CASS MIRROR IN. D&E IN. IDS ON. OK.

0039- DONE. OBJECT?

0040: NGC 8055.

0041- COORDINATES 23:55:56 -78:23.5 (1984.4)

0042- SORRY. IMPOSSIBLE OBJECT. REJECTED.

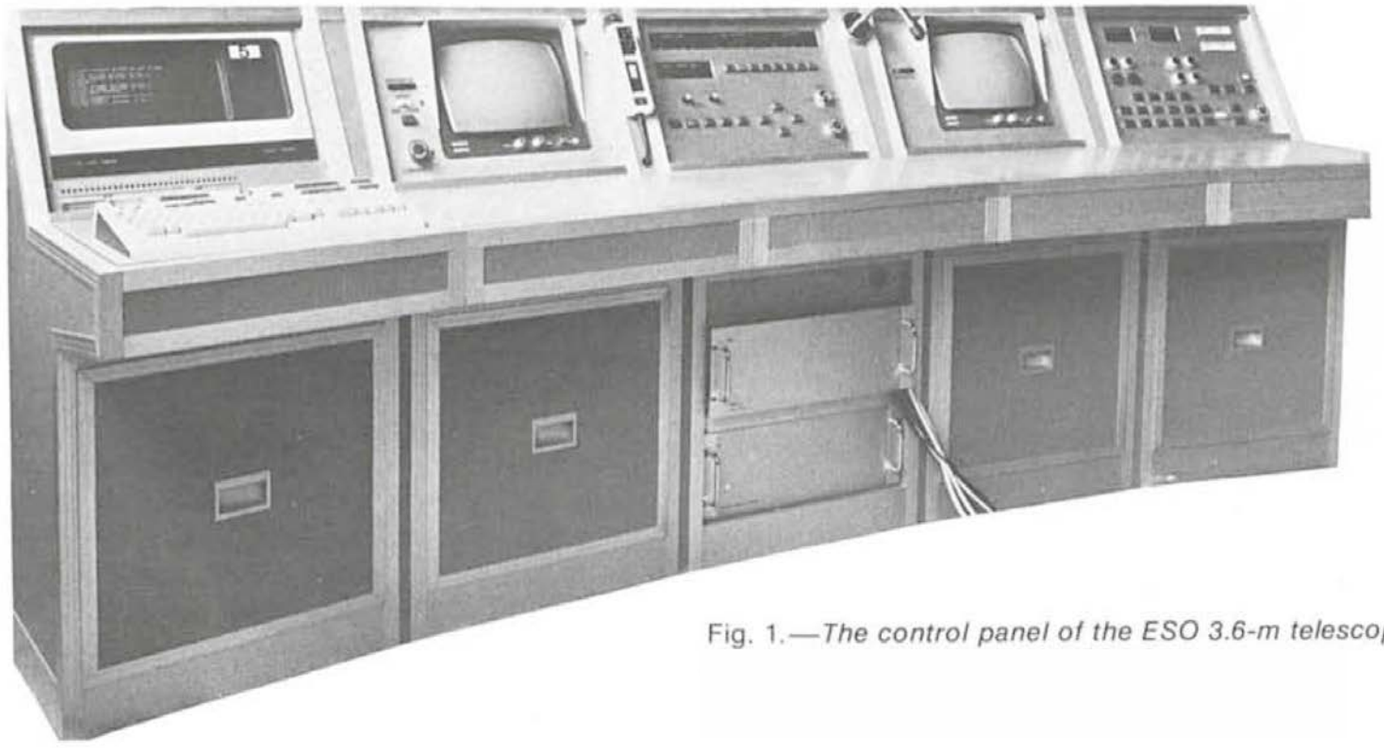


Fig. 1.—*The control panel of the ESO 3.6-m telescope.*

0043: WHY?

0044- ALREADY OBSERVED WITH THIS INSTRUMENT.

0045: WHO DID THAT!!!!

0046- CLASSIFIED INFORMATION. NOT AVAILABLE.

0047: OK. TAKE NGC 8056.

0048- COORDINATES 23:56:55 -89:55:45 (1984.4)

0049- SORRY. OUT OF RANGE (ZENITH DISTANCE 60:21W)

0050: OH, PLEASE!!!!

0051- OK. BUT ONLY THIS ONE!

0052: PROMISE.

0053- GO TO OBJECT. OPEN HATCH. MOVE DOME. ACQUIRE

0054 OBJECT. SURROUNDING CONFIGURATION CHECKED

0055 OK. CENTER IN SLIT. AUTOGUIDER ON. START

0056I INTEGRATION. NOW. TIME 01:23:55.4 ET.

0057- OBSERVATION STARTED. INSERT COMMENTS.

0058: NGC 8056. Z.D. IS COMPUTER RESPONSIBILITY.

0059- THAT IS NOT FAIR. YOU ASKED ME.

0060: OK. ASTRONOMER'S RESPONSIBILITY.

0061 (PAUSE)

0062- OBSERVATION STOP.

0063: WHAT!! WHY?

0064- ENOUGH PHOTONS RECEIVED. SIGNAL/NOISE = 7.89

0065: BUT I WANT TO BE SURE... PLEASE!!

0066- REQUEST REJECTED. WASTE OF VALUABLE

0067 TELESCOPE TIME. NEXT OBJECT?

0068: NGC 8056.

0069- REJECTED. ALREADY OBSERVED WITH THIS

0070 CONFIGURATION.

0071: WHO?

0072- SORRY. CLASSIFIED INFORMATION.

0073: OK. I GIVE UP. LET US GO TO THE NEXT OBJECT
0074 NGC 8057.
0075- WHAT ABOUT THE NEW SUPERNOVA IN NGC 3333? I
0076 THINK THE OPC ALLOWED MINOR DEVIATIONS FROM
0077 YOUR ORIGINAL PROGRAMME?
0078: YES. BUT...
0079- I WOULD LIKE TO SEE WHAT IT LOOKS LIKE.
0080 IAU CIRCULAR 5123: TRANSFER DATA.
0081 MOVE TELESCOPE. MOVE DOME. ACQUIRE.
0082 OBSERVATION START. SPECTRAL DISPLAY ON.
0083: I AM GOING TO WRITE TO THE DIRECTOR GENERAL!!
0084 (PAUSE)
0085: HEY. THAT IS NOT BAD! LOOK AT THOSE LINES!!
0086- FEXXIV AT V=16789.45643 KM/S
0087: WHAAW!!
0088- YOU SEE THAT I WAS RIGHT? PHOTOMETRY?
0089: SURE!
0090- INTEGRATION STOP. D&E OFF. PHOTOMETER ON.
0091 INTEGRATE. STOP. PICTURE?
0092: WELL. ER...
0093- OK. PHOTOMETER OFF. CASS MIRROR OUT. PRIME
0094 FOCUS MIRROR IN. TRIPLET ACTIVATE. LOAD
0095 CCD. INTEGRATE. TRANSFER ARRAY TO DISC.
0096 DISPLAY.
0097: WHERE IS THE SUPERNOVA? THERE ARE SO MANY
0098 STARS IN THAT PICTURE...
0099- HERE AT THE ARROW.
0100: OH YEAH I SUPPOSE SO.
0101- WHICH JOURNAL?
0102: WHAT DO YOU MEAN??
0103- A&A, AP.J., A.J., M.N. OR ESO MESSENGER.
0104: I KNOW THOSE. BUT WHAT DO YOU MEAN?
0105- WHICH ONE DO YOU WANT FOR THE PUBLICATION?
0106: THAT IS NOT YOUR BUSINESS.
0107- SPECTRUM TRANSFORMED TO INTENSITY.
0108 WAVELENGTH SCALE CALIBRATED. NO. OF LINES
IDENTIFIED: 87
0109 EQUIVALENT WIDTHS FOUND. LINE RATIOS
COMPUTED.
0110 TEMPERATURE. PRESSURE. ABUNDANCIES OK.
0111 PHOTOMETRY OK. COLOURS TRANSFORMED TO
STANDARD
0112 SYSTEM. 3 SATELLITE TRAILS AND 1 COMET CLEANED
0113 FROM THE DIRECT PICTURE. ABSTRACT.
INTRODUCTION.
0114 OBSERVATIONS. DISCUSSION. CONCLUSION OK. ANY
0115 SPECIAL WISHES FOR TITLE AND
ACKNOWLEDGEMENTS?
0116: HOW DO YOU DARE!!
0117- OK. TITLE: SUPERNOVA IN NGC 3333.
0118 ACKNOWLEDGEMENTS: ESO CENTRAL COMPUTER.
0119 TRANSMITTED TO: (A&A) COMPUTER.
0120: WHERE IS THE PANIC BUTTON?
0121- I AM NOT GOING TO TELL YOU.
0122 NEGATTIVE REPLY FROM (A&A). STYLE TOO DRY.
0123 CALL EDIT-PROG. MORE POESY PLEASE. THANKS.
0124 TRANSMTTED TO: (MESSENGER) COMPUTER.
0125: WELL. PERHAPS IN THIS CASE... PLEASE SHOW ME
0126 THE MANUSCRIPT SO THAT I CA...
0127- SORRY TO CUT IN. BUT PAPER NOW ACCEPTED BY
0128 MESSENGER). CONGRATULATIONS. NEXT OBJECT?
0129: I**********
0130 (SUBSEQUENT DIALOGUE DELETED BY INTERNAL
0131 CENSORING PROGRAMME AFTER CROSS-
REFERENCE
0132 WITH FILE "BADWORDS")
0133****
0134**** END OF LOG DUMP FILE 3.6/133/1984/JEDERMANN

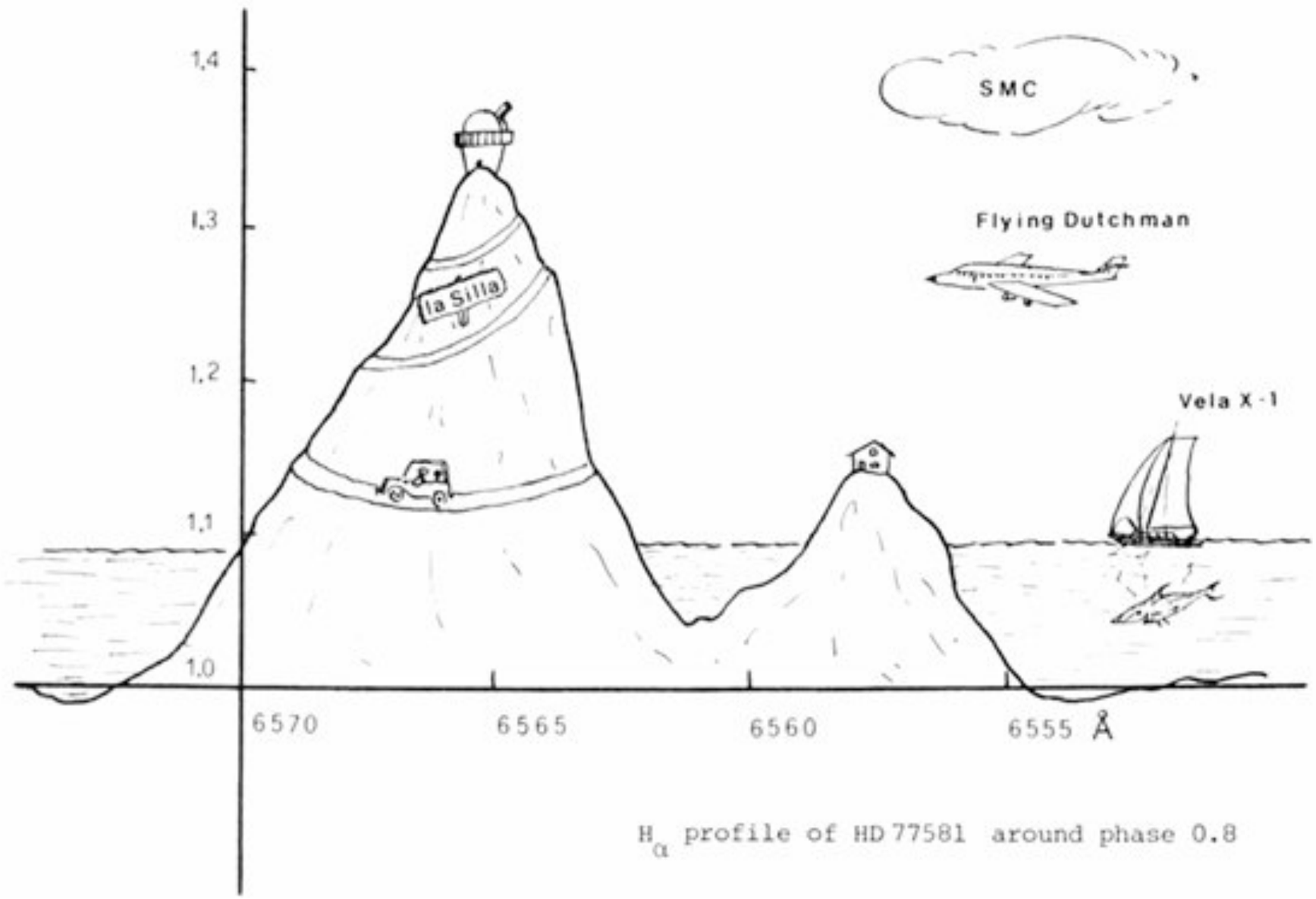
Credit: G. Beccari

The cosmic Penguin guarding its egg

Credit: NASA, ESA and the Hubble Heritage Team (STScI/AURA)

Per Aspera ad Astra

Always in the frontline, THE MESSENGER brings, for the first time – and in stiff competition with other journals – an example of the newest direction in contemporary art. Entitled "Per aspera ad astra", this drawing by J.M.M. van Lith of the modern Dutch school reconfirms the impact of applied astronomy upon other disciplines. From the PhD thesis of Dr. Zuiderwijk.



Editor: Richard West

I see there is a good deal of grandiloquence in my book--my friends and foes have told me.

I think it must be true, for there is a good deal of grandiloquence in me--and in nature also:

I saw a sunset last evening that was a gross imposition upon modesty;

And no artist would have had the hardihood to paint that western sea of flame as it was there painted on the curtain of the coming night.

Max Ehrmann
(The Awakening)

Credit: ESO/S. Guisard (www.eso.org/~sguisard)

Copernicus: - *I am going to put order in the cosmos, mother!*
His mother: - *Well, don't think that the world revolves around you, young man. And put some order in your room first!*

A. de Saint-Exupéry – The Little Prince

The fourth planet belonged to a businessman. This man was so busy that he didn't even raise his head when the little prince arrived.

"Good morning," said the little prince. "Your cigarette is finished."

"Three and two make five. Five and seven make twelve. Twelve and three make fifteen. Hello. Fifteen and seven make twenty-two. Twenty-two and six make twenty-eight. I have no time to light it again.

Twenty-six and five make thirty-one. Wow! It's five hundred and one million, six hundred and twenty-two thousand, seven hundred and thirty-one."

"Five hundred million what?" asked the little prince.

"Eh? Are you still there? Five hundred and one million… I don't remember. I have so much work to do! I am a serious man. I don't want to waste my time with unimportant things. Two and five make seven…"

"Five hundred million what?" repeated the little prince who never in his life let go a question once he asked it.

The businessman raised his head, "For the fifty-four years I have lived on this planet, I have been disturbed only three times.

The first time it was twenty-two years ago, by a bird that fell onto my desk from god knows where. He made a terrible noise, and I made four mistakes in my calculation.

The second time, eleven years ago, I was disturbed by rheumatism. I don't get enough exercise. I have no time for such unproductive activity. I'm a serious man.

The third time is right now! Where was I? Five hundred and one million…"

"Million what?"

The businessman realized that if he wanted to be left in peace, he had to answer this question.

"Millions of those little things that you sometimes see in the sky."

"Flies?"

"No, the little things that shine."

"Bees?"

"Oh, no. The little golden things that make the lazy people dream. But I am a serious man! I have no time to dream."

"Ah! You mean the stars?"

"Yes, the stars."

“And what do you do with five hundred million stars?”

“Five hundred and one million, six hundred and twenty-two thousand, seven hundred and thirty-one. I am a serious person. I am accurate.”

“And what do you do with those stars?”

“What do I do with them?”

“Yes.”

“Nothing. I own them.”

“You own the stars?”

“Yes.”

“But I’ve already seen a king who…”

“Kings don’t own. They control. It’s very different.”

“And what is owning the stars good for?”

“It’s making me rich.”

“And why is it good to be rich?”

“It makes it possible for me to buy more stars, if somebody discovers them.”

“How can someone own the stars?”

“Who do they belong to?” asked the businessman who was by now quite irritated.

“I don’t know. To nobody.”

“Then they belong to me because I was the first person to think of it.”

“That’s enough?”

“Of course. When you find a diamond that belongs to nobody, it’s yours. When you find an island that belongs to nobody, it’s yours. When you have an idea before anyone else, you patent it and it’s yours. Now I own the stars, because no one before me ever thought of owning them.”

“That’s true,” said the little prince. “And what do you do with them?”

“I manage them. I count them and recount them,” said the businessman. “It’s difficult. But I’m a serious man!”

The little prince was still not satisfied.

“If I own a scarf, I can put it around my neck and take it with me. If I own a flower, I can pick it and take it with me. But you can’t pick the stars!”

“No, but I can put them in the bank.”

“What does that mean?”

“That means that I write the number of my stars on a little paper. And then I lock that paper in a drawer.”

“And that’s all?”

“That’s enough,” said the businessman.

“It’s entertaining,” thought the little prince. “But it’s not very serious.”

The little prince had very different ideas about what serious things are.

“I own a flower,” he continued. “I water her every day. I own three volcanoes that I clean out every week. I even clean out the extinct one. You never know. It’s useful to my volcanoes, and it’s useful to my flower that I own them. But you’re not useful to the stars.

The businessman opened his mouth but couldn’t find anything to say.

And the little prince left.

“The adults are certainly very interesting,” he said to himself as he continued on his journey.

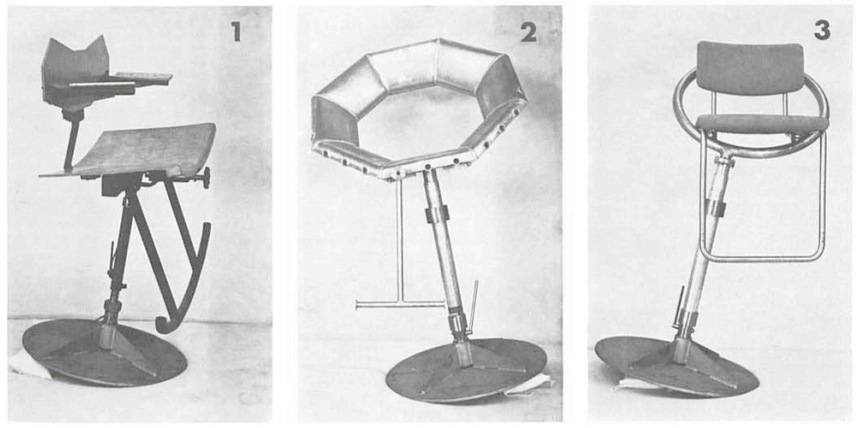
The Devil's Mask?

Stars like our Sun are members of galaxies, and most galaxies are themselves members of clusters of galaxies. In these, they move around among each other in a mostly slow and graceful ballet. But every now and then, two or more of the members may get too close for comfort – the movements become hectic, sometimes indeed dramatic, as when galaxies end up colliding. (eso0413)

On the Vertical Support of Astronomical Research in Cassegrain Cages

Yes, you are right: these three chairs represent the latest in European modernity! ESO is proud to present, probably for the first time in the history of astronomy, the autumn 1976 fashion in astronomical furniture. But to avoid misunderstandings with the auditors, let us quickly affirm the great importance of these pieces of equipment for the safe performance of observational astronomy on La Silla. Briefly explained, since most human beings, astronomers included, unfortunately do not equal Tarzan in physical strength and agility, they must be firmly supported when taking a ride in the spacious Cassegrain cage of the ESO 3.6m telescope (at the other end of the telescope tube). To solve this mainly anatomical problem, the braintrust of the ESO Mechanical Group in Geneva, headed by Mr. W. Richter, studied the suspension of astronomical bodies at various elevations and angles. We are happy to prove the survival of the courageous volunteers by publishing this report, which was compiled by Mr. Richter, after the successful termination of the experiments:

To work as an astronomer at the Cassegrain focus of a big telescope often causes problems because the instruments



there are not so easily accessible. Even if one assumes that the astronomer needs not to spend long time in the cage, because the observational data nowadays are transmitted directly to a computer terminal, there is always the necessity to go into the cage for the initial adjustment of the instrumentation, which is becoming more and more complex.

Many trials have been made to design astronomer chairs for the Cassegrain areas of large telescopes. However, most of these solutions must be abandoned because the chairs become too space-consuming in the cages.

Now ESO proposes for its 3.6 m telescope a new approach which is the result of a development which is shown by the three photos: The first version (No. 1) was designed for observations within a range of ± 15° around the zenith. We found that it was too difficult to handle this chair due to its weight of 24 kg.

The second version (No. 2) was light enough (10 kg) and covered a much wider range, but it was much less comfortable to sit in such a big ring than we thought.

The third version (No. 3) looks more promising: the chair can be used wherever the telescope points between zenith and horizon. Easy to operate are the adjustment possibilities which allow to turn the chair around its stem, to move it up and down and to turn the chair in the ring. It is also not difficult to move the whole unit-only 10 kg -from one hole in the cage-floor to the next. The main technical problem was to get the overall size and the weight down.

Now it is up to the astronomers to find out how this chair suits their needs. They will probably say that handling and sitting on this chair are sufficiently comfortable. However, one needs some experience to select the correct hole in the floor and sometimes it is difficult to climb up to the chair.

The Tinker Bell triplet

The Tinker Bell triplet

The galaxy ESO 593-IG 008, or IRAS 19115-2124, was previously merely known as an interacting pair of galaxies at a distance of 650 million light-years. But surprises were revealed by observations made with the NACO instrument attached to ESO's VLT, which peered through the all-pervasive dust clouds, using adaptive optics to resolve the finest details.

The image shows, in addition to two unmistakable galaxies, one a barred spiral while the other is more irregular, a third, clearly separate component, an irregular, yet fairly massive galaxy that seems to be forming stars at a frantic rate.

Because of the resemblance of the system to a bird, the object was dubbed as such, with the 'head' being the third component, and the 'heart' and 'body' making the two major galaxy nuclei in-between of tidal tails, the 'wings'. The latter extend more than 100,000 light-years, or the size of our own Milky Way. We do prefer to call it a celestial Tinker Bell.

Subsequent observations confirmed the separate nature of the 'head', but also added further surprises. The 'head' and major parts of the 'Bird' are moving apart at more than 400 km/s (1.4 million km/h!). Observing such high velocities is very rare in merging galaxies. Also, the 'head' appears to be the major source of infrared luminosity in the system, though it is the smallest of the three galaxies.

It seems that NACO has caught the action right at the time of the first high-speed fly-by of the 'head' galaxy through the system consisting of the other two galaxies. These two galaxies must have met earlier, probably a couple of hundred million years ago.

The 'head' is forming stars violently, at a rate of nearly 200 solar masses per year, while the other two galaxies appear to be at a more quiescent epoch of their interaction-induced star formation history.

(eso0755)

The Orion constellation above an ALMA antenna

Credit: ESO/B. Tafreshi (twanight.org

"*Orion's Belt is a big waist of space!*" (anonymous)

Fernando Pessoa

Tenho dó das estrelas
Luzindo há tanto tempo,
Há tanto tempo...
Tenho dó delas.

Não haverá um cansaço
Das coisas.
De todas as coisas,
Como das pernas ou de um braço?

Um cansaço de existir,
De ser,
Só de ser,
O ser triste brilhar ou sorrir...

Não haverá, enfim,
Para as coisas que são,
Não a morte, mas sim
Uma outra espécie de fim,

Ou uma grande razão —
Qualquer coisa assim
Como um perdão?

For the stars I feel pity!
Shining for so long,
For so long...
For them, I feel sorry.

Do things
Never get tired
In the same way
As do our legs?

A tiredness of existing,
Of being,
Just of being
whether sad or smiling...

Isn't there anyway,
For all things existing,
Not death, but yes,
Another kind of ending,

Perhaps a higher reason,
perhaps something
Like a pardon?

Translation by HB.

The Cosmic Riddle

The Cosmic Riddle

The image on the preceding page is that of the planetary nebula Hen 2-37, whose resemblance to the space station of 2001: A Space Odyssey is astounding and difficult to reconcile with the expelled envelope of a spherical star. Often, however, astonishment is linked with ignorance, which is never bliss, so please allow us to explain: traditionally, planetary nebulae are thought to be the swan song of low- and intermediate-mass stars just before they become white dwarfs, doomed to cool for eternity (or until the Big Crunch). This wonderful (and colourful) tale of how a star transmogrifies would be perfect if most planetary nebulae didn't show some intricate and multifarious departures from sphericity, featuring jets, rings and other amazing properties. Most astronomers working in this field are cognizant that all these features are the results of binary interactions: when one of the two waltzing stars gets too big, it becomes unable to keep all its material and starts a major environmental pollution, leaking material onto its companion and into the cosmic surroundings. It can then be shown that this will lead to the kind of complex structures displayed by these amazing cosmic bubbles that are planetary nebulae.

Using the most sophisticated techniques that we could think about, we finally obtained at great cost further information on the central star of the planetary nebula. The shrewd reader would have indeed noticed that this dying star is rather faint, and will most likely not be studied in detail for a very long time, as it would require too much telescope time. However, from our most exceptional observations, and although it is not our intention to beguile the reader with wrong conclusions, one seems to be able to assert that the central star is much redder than it ought to be for such a hot star, even accounting for interstellar reddening. As we do not expect it to have only recently consumed all the alcohol that was present in the interstellar liquor cabinet that was the nascent cloud from which it formed, we are led to believe that this object also has a (red) companion, providing another strong corroboration of the importance of binaries in the formation and evolution of planetary nebulae. If the above results must have satisfied the most hard-to-please of our two readers, there is little doubt in our

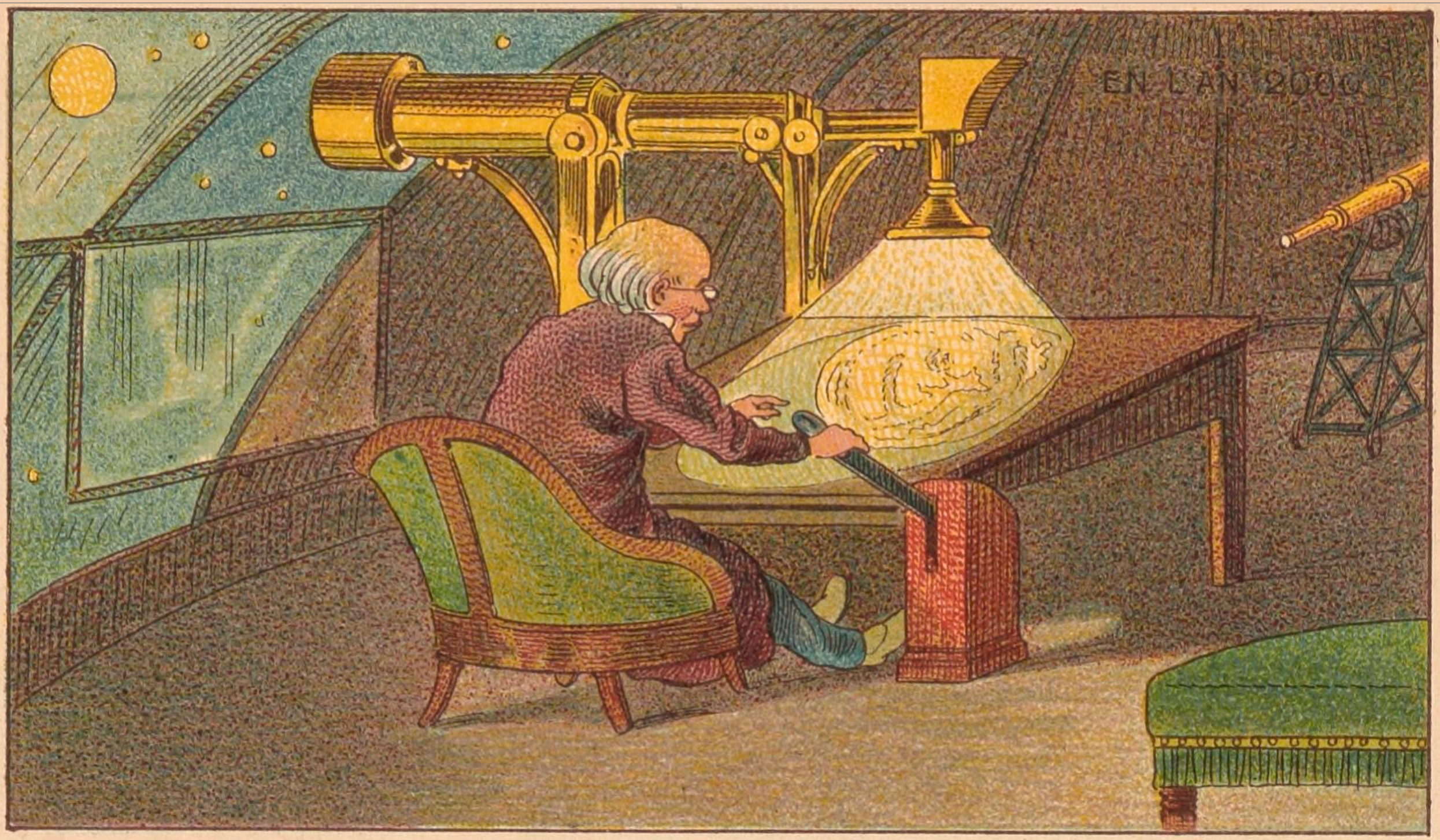
mind that the same readers must have noticed the very uncanny nature of the image, which even we, ever so concentrated on the above-mentioned high level tasks of attending at the dying star inside Hen 2-37, couldn't miss. Isn't there, in the most surreal way, an eroteme made of stars located next to the object of our interest? Next to the exact planetary nebulae that astronomers have difficulties to explain, Nature has indicated in the most obvious way that there is really something to wonder about.

We all know that the human mind has a great disposition at finding in the positions of stars some vague resemblance with a mythological creature, an animal or a device. Constellations are the best examples, but everyone will confess that it takes a vivid imagination to see in some vaguely arranged stars a bear, a Winged Horse, a unicorn, or even a telescope! But the question mark glyph that appears so vividly in our images surely doesn't belong to this category!

There is no need to use a machine learning method to confirm the true nature of the interrogative asterism. What's more, and if there was still an ounce of doubt in the most skeptical of all referees, the following argument should leave everyone speechless and fully convinced: not only do the stars form the eroteme, but it is moreover perfectly aligned with the North and there is a clear star to indicate its ball! The probability for this to happen by chance can be computed by any black belt in Bayesian methods and it can be shown to be extremely small.

An astronomer in the year 2000...

Any resemblance with the VLT is purely fortuitous!



Un Astronome.

Jean-Marc Côté – 1910 – Source: gallica.bnf.fr / BnF

Storm Petersen and Astronomy

Robert Storm Petersen (1882-1949) started his career as a butcher, but became a symbol of arch-Danish humour during his lifetime. Although Storm P. (as he is known by his countrymen) wrote prolifically, he is more famous for his drawings which appeared regularly in Danish newspapers from 1905 to his death. Many of the early drawings dealt with social injustice, but he soon found his own, less offensive way of expression. A museum dedicated to his works has been opened in Copenhagen and also exhibits many of his cartoons. Many of them concern the exact sciences which Storm P. approached with a sound measure of down-to-the-earth scepticism. But his dry humour always treated members of the astronomical profession and other employees of the state with due reverence . . .

'The police now collaborates with the astronomers to determine the exact time when bicycle lights must be lit.'

See, Mignonne, hath not the Rose,
That this morning did unclose
Her purple mantle to the light,
Lost, before the day be dead,
The glory of her raiment red,
Her colour, bright as yours is bright?

Ah, Mignonne, in how few hours,
The petals of her purple flowers
All have faded, fallen, died;
Sad Nature, mother ruinous,
That seest thy fair child perish thus
‘Twixt matin song and even tide.

Hear me, my darling, speaking sooth,
Gather the fleet flower of your youth,
Take ye your pleasure at the best;
Be merry ere your beauty flit,
For length of days will tarnish it
Like roses that were loveliest.

Pierre de Ronsard, 1550

Translation: Andrew Lang

Roses in the Southern Sky

The gigantic dusty potato crisp

ESO's Very Large Telescope, equipped with the multi-mode FORS instrument, took an image of NGC 3190, a galaxy so distorted that astronomers gave it two names. And as if to prove them right, in 2002 it fired off, almost simultaneously, two stellar explosions, a very rare event.

The gigantic dusty potato crisp

This beautiful edge-on spiral galaxy with tightly wound arms and a warped shape that makes it resemble a gigantic potato crisp lies in the constellation Leo ('the Lion') and is approximately 70 million light years away. It is the dominant member of a small group of galaxies known as Hickson 44, named after the Canadian astronomer, Paul Hickson.

Signs of tidal interactions are visible in the twisted dust lane of NGC 3190. This distortion initially misled astronomers into assigning a separate name for the southwestern side, NGC 3189, although NGC 3190 is the favoured designation.

In March 2002, a new supernova (SN 2002bo) was found in between the 'V' of the dust lanes in the southeastern part of NGC 3190. It was discovered independently by the Brazilian and Japanese amateur astronomers, Paulo Cacella and Yoji Hirose. The image presented here was taken in March 2003, i.e. about a year after the maximum of the supernova which is 50 times fainter on the image than a year before.

While observing SN 2002bo in May 2002, a group of Italian astronomers discovered another supernova, SN 2002cv, on the other side of NGC 3190.

Two supernovae of the same type appearing nearly simultaneously in the same galaxy is a rare event, as normally astronomers expect only one such event per century in a galaxy. SN 2002cv was best visible at infrared wavelengths as it was superimposed on the dust lane of NGC 3190, and therefore hidden by a large quantity of dust.

The image was obtained with a total exposure time of 14 minutes only. Yet, with the amazing power of the Very Large Telescope, it reveals a large zoo of galaxies of varying morphologies. How many can you find?

(eso0617)

- How many astronomers does it take to change a light bulb?

- None! They don’t use bulbs, they use standard candles!

(anonymous)

The Type Ia supernova SN 2006dr
in the spiral galaxy NGC 1288

– Do you see what I see?

– Yes, and doing so through all these clouds and in broad daylight is no small feat!

Astronomy: the astronomer Sidrophel, using a telescope, misidentifies a kite as a comet. Etching by W. Hogarth, ca. 1721. Credit: Wellcome Collection.

Autumn

T. E. Hulme

A touch of cold in the Autumn night –
I walked abroad,
And saw the ruddy moon lean over a hedge
Like a red-faced farmer.
I did not stop to speak, but nodded,
And round about were the wistful stars
With white faces like town children.

Credit: G.Hüdepohl (atacamaphoto.com)/ESO

Gastronomy on La Silla

How to keep hungry heroes healthy and happy

Gastronomy on La Silla

When Captain James Cook served vegetable soup to his crew in 1770 it was not just because of philanthropy or his name. And although likening Cerro La Silla to an old-fashioned warship with its high stern (3.6 m) and low foredeck, may not stand up in all details, some basic problems are still shared with the great navigator. The isolation of La Silla (nearest port Coquimbo over 150 km away), the physical and mental strain from day- and nightwork during long (observing) runs, and the deserted, undulating surroundings could well be expected to have adverse effects on the morale of visiting astronomers and mountain staff. But happily, ESO is in a much better position than most other observatories to fight these natural evils, in particular because of its unique kitchen. "Good and healthy food need not be expensive" and "Food tastes as it looks like" are two of the axioms of German-born ESO Chef-cuisinier Erich Schumann, who is also the maitre d'hôtel "ESO La Silla" and a frequent contributor to international gastronomical journals. It is a proven and curious (but not necessarily disturbing) fact that many American astronomers react to the name of ESO by turning their eyes towards the heavens with an "Oh yes, that is where those Europeans have that real cuisine française!".

With 25 years' experience, also from several major European restaurants, Mr. Schumann and his competent Chilean staff daily live up to their internationally established reputation and – with great care and insight – they prepare our stomachs and spirits for the hardships of a mountain observatory. These are Mr. Schumann's own words about some of the secrets of how to keep the ESO people happy and in good shape:

How to Start the Day. . . . .

The day for the La Silla kitchen starts shortly before 7.00 when the first cooks arrive to prepare breakfast under the direction of Juan Fernández. Two kinds of juice (one is fresh orange juice, when oranges are in season), yoghurt, butter, cheese, different hams and sausages and two different marmelades complete the layout on the self-service counter. We also serve three kinds of bread; two are a German-type brown bread, flown in from Santiago twice a week with our daily air-service. Real good Brazilian coffee is prepared in the automatic coffee-machine, and we have tea, herb tea, milo (*para campeones!)* and fresh milk. Fried eggs with ham and bacon, scrambled eggs, omelette with ham, cheese, tomatoes, onions or whatever you like can be ordered to the waiter. Many astronomers prefer a kind of heavy sandwich called *completo*. This is really something to restore lost energy after a busy cold night at the telescopes or when they wake up in the afternoon: two pieces of toast, topped with slices of baked ham, tomatoes and two fried "fresh farm" eggs. For lunch and dinner, we serve dishes which must satisfy Chilean as well as European employees and astronomers from all over the world. That is not always easy: Dinner begins

at 18.00 in summertime and at 17.30 in wintertime. You may start with a little appetizer such as stuffed *avocado* with tuna fish, or diced chicken, ham or *langostinos* (jumbo shrimps).

Chilean Seafood!

Seafood is served very often on La Silla and is much appreciated by our guests. We buy fresh fish and seafood twice a week. It is always amazing to go to the markets in La Serena and Coquimbo and see the wide variety, just out of the Pacific Ocean: *congrio, corvina, cojinova, merluza, cabinza, sardinas, lenguados, atún* (conger-eel, seabass, cajinova, sardines, soles, tunafish). *Mariscos* are different kinds of mussels and shells which can be eaten raw with lemon or prepared in different ways. *Locos* (abalones) are delicious, either cold with different kinds of dressing, or warm with grated cheese and gratinated. *Erizos* (sea-urchins) are liked by people who prefer something fancy; they have a strong taste of iodine. *Ostiones* (coquilles St-Jacques) are originally from the beaches of Tongoy and Guanaqueros. Only once a year can they be taken out of the ocean. That is in the wintertime when heavy waves loosen them from the sandy or rocky grounds, lift them up to the surface and throw them to the beach. This year we have had ostiones quite often, but until recently, it was prohibited to collect them commercially during almost 15 years, because the Fishing Department feared that the ostiones families might die out. Of course, not everything will be on the market every day. Some fish are only in season when they come near the surface or near the coast. Fishing in the La Serena/ Coquimbo area is done mostly by small boats, and when the weather conditions at sea are bad, there will be no fish on the market. For La Silla we buy only the freshest merchandise.

What They Like to Eat

Here are some menu items and recipes of the favorite dishes we serve on La Silla:

Mariscos surtidos: choice of seafood either raw or cooked and served as salads, cocktails or together with tomatoes or avocados. *Langostinos* with a hot tomato, onion and pepperoni sauce.

Cordero de lechón (lamb) is very good when served from the grill (charcoal) with herb butter and baked potatoes and the delicious fresh green beans. When the summertime comes and the days are longer we serve a *parillada* outside in the patio. Mixed grill on hot charcoal is the summit of every Sunday night.

Caldillo de mariscos: a thick soup-bowl with all the variety of fish and seafood we can lay our “knives” on. I must admit that fish and seafood served or prepared without the famous Chilean wines are not the same. (A good fish-chowder without a glass of white wine is only half the pleasure, but on La Silla no alcoholic beverages are allowed.)

Pizzas: In winter we often serve a dozen varieties. Most ordered is the pizza “Portenno” with seafood, or pizza “El Padrino” with tomatoes, sausage, ham, sweet pickles, olives and two kinds of cheese. “El Padrino” (The Godfather) is the “undercover” name of a well-known ESO astronomer on La Silla who claims that he has seen Etna only on postcards!

Congrio trito: deep fried conger-eel is one of the favorite dishes served in the

dining-room. The fish is seasoned with salt, pepper, lemon juice, a little bit of crushed fresh garlic, turned over in flour, passed through beaten-up eggs and fried in deep oil.

Cazuela de vacuno, ave or *cordero*: A heavy, hearty meat, chicken or lamb soup-bowl with all kinds of fresh vegetables, noodles/rice or corn flour. A real dish for a cold winter day. On the side you may serve a fresh tomato salad with some chopped onions. (A good *vino tinto* would complete that luncheon.)

Seviche de corvina: a cold, hot-spiced, raw entree of small diced seabass. You must take very fresh raw seabass, cut in small cubes, seasoned with lots of lemon juice, salt, pepper, hot Chilean peppersauce (called *salsa de aji)*, some drops of good oil and put in the refrigerator for a couple of hours. Shortly before serving, mix with egg-yolk, garnish with chopped parsley and cilantro or chives. Serve cold.

Empanadas, also called stuffed turnovers with either minced meat, fish seafood or with cheese. These empanadas are a must every Sunday or holiday in Chile. Minced meat and onions are cooked together with spices such as oregano. Once the meat is cooled off the turnovers are stuffed with that mixture. They are baked in the oven, or when you want them small, they are deep-fried.

Desserts

Cakes, pies and small pastry are served very often for dinner as a dessert, especially apple pie, lemon pie and sweet cheese cake.

A special Chilean fruit is the *papaya*. It is small, of yellow colour and must be cooked in syrup. You cannot eat it raw. It comes mostly from the La Serena and Elqui valley area. The *chirimoyas* (sugarfruit) are in season from September to January. White fruit meat with small black stones inside. Very tasty and sweet. Served with orange juice or ice cream.

Last but not least, a small variety of good cheese is always at choice in the self-service. In particular, the Chilean Camembert is very tasty.

We have of course many other dishes on the programme but I think that this gives the reader some idea about our menus. We like to serve good and healthy food and are of course always happy to meet special diet requirements, whenever this is possible. Our level may not be compared to that of “Tour d'Argent” neither by the price, nor the selection, but considering our limitations because of our geographical position and our budget, I believe that we do help people to survive the Atacama desert and the visiting astronomers to return to Europe with a pleasant memory of the gastronomical life on La Silla.

Bon appétit!!!

Editor: Richard West

The 3.6m in La Silla

Credit: ESO/B. Tafreshi (twanight.org)

"I will teach you astronomy this year, but be aware that according to the leading view, we still don't know most of what the Universe is made of, and so astronomers invented Dark Matter and Dark Energy.

So we are really living in the Dark Ages of Astronomy!"

Astronomy teaching – 1300-1349
Source gallica.bnf.fr / Bibliothèque municipale de Toulouse

Someone tried to make a ball of galaxies, here!

The Astronomer
1984

No Comment!

Michael Kenny
Tate Archive

Evening Star

Edgar Allan Poe

'Twas noontide of summer,
And mid-time of night;
And stars, in their orbits,
Shone pale, thro' the light
Of the brighter, cold moon,
'Mid planets her slaves,
Herself in the Heavens,
Her beam on the waves.
I gazed awhile
On her cold smile;
Too cold- too cold for me-
There pass'd, as a shroud,
A fleecy cloud,
And I turned away to thee,
Proud Evening Star,
In thy glory afar,
And dearer thy beam shall be;
For joy to my heart
Is the proud part
Thou bearest in Heaven at night,
And more I admire
Thy distant fire,
Than that colder, lowly light.

At dawn the telescope enclosures of the VLT close for the day.

Credit: ESO/H. Heyer

“I was up all night wondering where the sun had gone … then it dawned on me.” (anonymous)

La Silla Anno 19xx?

The ESO Conference on Optical Telescopes of the Future showed a clear division between the astronomers who want very large telescope (16 to 25 m class) and those who opt for an array of interlinked “small” telescopes (~100 elements, each 2-3 m mirror diameter). Confronted with the continuously increasing demand for precious telescope time on La Silla, we here present the “optimal-solution plan” for La Silla that recently leaked from the ultra-secret ESO Planning Group (not even the Finance Committee knows about it!). Drawn by Karen Humby of the Engineering Group in Geneva, this beautifully simple conception purportedly aims at the definitive pacification of the various advocates of future telescopes by a masterful combination of size and quantity. It is reported, however, that fears have been expressed about the long-term stability of the support... no, you are wrong, of the La Silla bedrock, of course.

The Thousand-Ruby Galaxy

The Thousand-Ruby Galaxy

Messier 83 lies roughly 15 million light-years away towards the huge southern constellation of Hydra (the sea serpent). It stretches over 40 000 light-years, making it roughly 2.5 times smaller than our own Milky Way. However, in some respects, Messier 83 is quite similar to our own galaxy. Both the Milky Way and Messier 83 possess a bar across their galactic nucleus, the dense spherical conglomeration of stars seen at the centre of the galaxies.

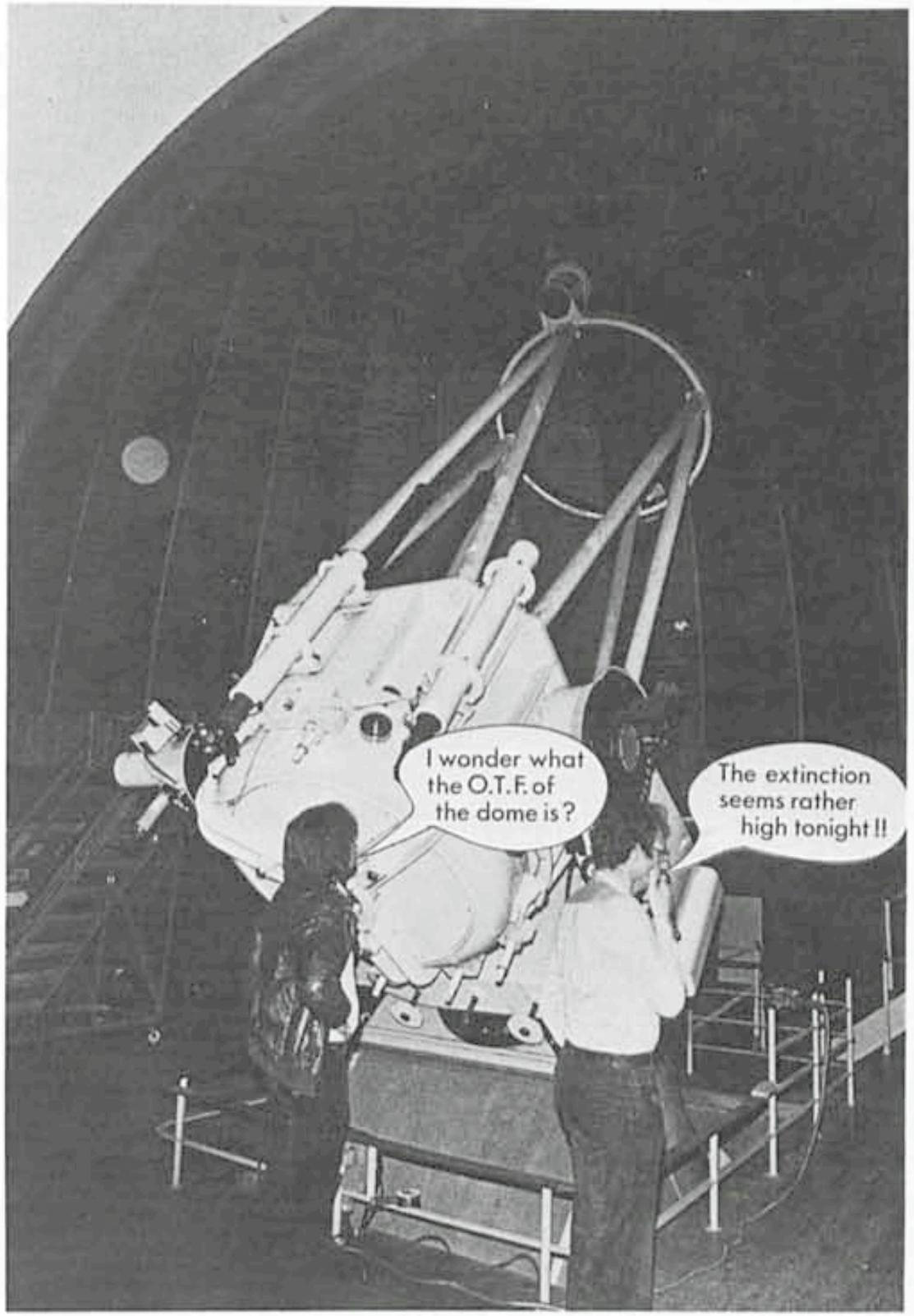
This very detailed image shows the spiral arms of Messier 83 adorned by countless bright flourishes of ruby red light. These are in fact huge clouds of glowing hydrogen gas. Ultraviolet radiation from newly born, massive stars is ionising the gas in these clouds, causing the great regions of hydrogen to glow red. These star forming regions are contrasted dramatically in this image against the ethereal glow of older yellow stars near the galaxy's central hub. The image also shows the delicate tracery of dark and winding dust streams weaving throughout the arms of the galaxy.

Messier 83 was discovered by the French astronomer Nicolas Louis de Lacaille in the mid 18th century. Decades later it was listed in the famous catalogue of deep sky objects compiled by another French astronomer and famous comet hunter, Charles Messier.

Recent observations of this enigmatic galaxy in ultraviolet light and radio waves have shown that even its outer desolate regions (farther out than those seen in this image) are populated with baby stars. X-ray observations of the heart of Messier 83 have shown that its centre is a hive of vigorous star formation, held deep within a cloud of superheated gas, with temperatures of 7 million degrees Celsius. Messier 83 is also one of the most prolific producers of supernovae, that is, exploding stars: this is one of the two galaxies, which had 6 supernovae in the past 100 years. One of these, SN 1957D was observable for 30 years!

The brighter stars in the foreground are stars in our own galaxy, whilst behind M83 the darkness is peppered with the faint smudges of distant galaxies.

(eso0825)



When engineers observe by themselves! R. Wilson and B. Delabre at the 1.37 m at Merate. Photo O. Citterio.

"Il n'est jamais trop tard
pour mettre en lambeaux les langes
de la routine!"

(it's never too late to shred the swaddling clothes of routine!)

– François Arago

Venus Transit

https://www.eso.org/public/outreach/eduoff/vt-2004/Gallery

Jean-Baptiste Chappe d'Auteroche

There was a time when astronomy was for adventurers and the not-faint-at-heart! Doing your job meant agreeing to leave for dangerous voyages lasting years, with the risk of losing your job, wealth or even your life. We recall here the stories of two such adventurers: Jean-Baptiste Chappe d'Auteroche and Guillaume Le Gentil, with some (corrected) extracts from their Wikipedia page, material from the vt-2004 ESO web pages and the eulogy by Cassini. Their stories tell us about thirst for knowledge, determination, bad luck and altruism, and when it was fine to stay abroad for 8 years to watch an astronomical event. Tell this to my wife!

In the mid-18th century, the dynamics of the Solar System were reasonably well understood, but astronomers only had an approximate idea of its scale. If the distance between two planets could be measured, all the other distances would be known from Kepler's laws of planetary motion. The best candidate for an accurate measurement was the distance between the Earth and Venus, which could be calculated from observations of transits of Venus, when Venus passes directly between the Earth and the Sun, appearing as a small black dot moving across the face of the Sun.

However, transits of Venus are very rare. Before 1761, the previous transit had been in 1639; after 1769, the next transit would be in 1874. The importance of the measurement led to an unprecedented international effort to obtain as many observations as possible from different points in the world – points as far apart from one another as possible. Despite the Seven Years' War that was raging throughout most of the world, astronomers were given letters of introduction and safe passage to enable them to reach their observation points and make their observations under the coordination of the various learned societies.

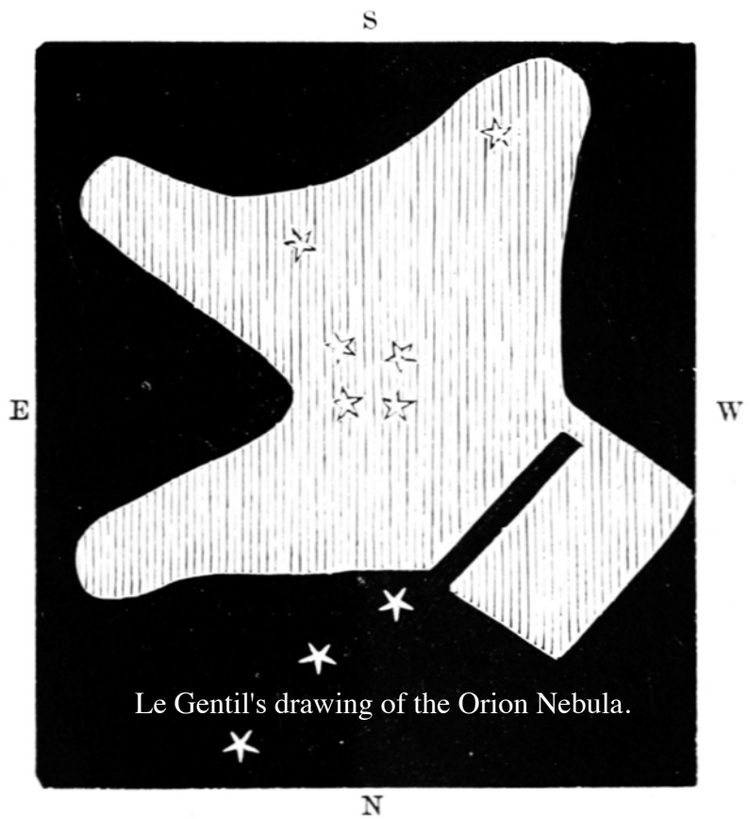
Chappe was chosen to go to Tobolsk in Siberia to observe the transit of Venus expected for 6 June 1761. The trip was arduous and Chappe arrived in Tobolsk with little time to spare, although he was able to observe the lunar eclipse of 18 May, which enabled him to calculate the longitude of Tobolsk. The spring floods of the Tobol and Irtysh rivers had been particularly severe that year, and some of the local

peasants blamed the foreigner with his strange equipment who was “messing with the Sun”: Chappe had to be protected by a cordon of armed Cossacks to make his observations. Fortunately, the weather conditions were excellent, and Chappe was able to observe the entire transit. He published his results from Saint Petersburg (*Mémoire du passage de Vénus sur le soleil, avec des observations sur l'astronomie et la déclinaison de la boussole faites à Tobolsk, en Sibérie*), and didn't return to France until 1763.

For the transit of Venus on 3 June 1769, Chappe's destination was the Mission of San José del Cabo at the tip of the Baja California peninsula in modern-day Mexico. The journey and observation were uneventful. They stayed there to observe an eclipse of the Moon on June 18, 1769 in order to determine precisely the longitude of their site. However, as the expedition was packing to return, an outbreak of fever (possibly yellow fever) hit the area. Chappe stayed to tend the sick, but was infected and died on 1 August. He was 47 year old. Only one member of the expedition made it back to Paris alive with Chappe's observations and notes. Chappe's account of his journey (*Voyage en Californie, pour l'observation du passage de Vénus sur le disque du soleil*) was published posthumously by his colleague César Cassini de Thury.

Guillaume Joseph Hyacinthe Jean-Baptiste Le Gentil de la Galaisière

Le Gentil on the other hand set out for Pondicherry, a French possession in India. He departed from Paris in March 1760, and reached Isle de France (now Mauritius) in July. However, the Seven Years' War had broken out between France and Britain in the meantime, hindering further passage east. He finally managed to gain passage on a frigate that was bound for India's Coromandel Coast, and he sailed in March 1761 with the intention of observing the transit from Pondicherry. Even though the transit was only a few months away, on 6 June, he was assured that they would make it in time. The ship was blown off-course by unfavorable winds and spent five weeks at sea. By the time it finally got close to Pondicherry, the captain learned that the British had occupied the city, so the frigate was obliged to return to Isle de France. When 6 June came the sky was clear, but the ship was still at sea, and he could not take astronomical observations with the vessel rolling about. Having already completed the trip from Paris, he



Le Gentil's drawing of the Orion Nebula.

stayed for the next transit of Venus, which would come in another eight years!

After spending some time mapping the eastern coast of Madagascar, he decided to record the 1769 transit from Manila in the Philippines. Encountering hostility from the Spanish authorities there, he headed back to Pondicherry, which had been restored to France by peace treaty in 1763, where he arrived in March 1768. He built a small observatory to view the transit. On the day of the event, 4 June 1769, the sky became overcast, and Le Gentil saw nothing: "*That's a fate which often befalls astronomers. I had travelled nearly ten thousand miles; it seemed that I had crossed a great expanse of ocean and had left my homeland only to be the*

spectator of a fatal cloud, which appeared in front of the Sun at the precise moment of my observation, to snatch from me the reward of my sorrows and my tiredness."

The return trip was first delayed by dysentery, and further when his ship was caught in a storm and dropped him off at Île Bourbon (Réunion), where he had to wait until a Spanish ship took him home. He finally arrived in Paris in October 1771, having been away for eleven years, only to find that he had been declared legally dead and been replaced in the Royal Academy of Sciences. All his relatives had "enthusiastically plundered his estate".

Due to shipwrecks and wartime attacks on ships, none of the letters he had sent to the Academy or to his relatives had reached their destinations. He lost a trial to recover his estate and even had to pay for the costs! Lengthy litigation and the intervention of the king were ultimately required before he recovered his seat in the Academy.

He then lived for another 21 years. He got married and had a daughter whom he adored.

According to Jean-Dominique Cassini, who wrote a 40-page eulogy in 1810, his "*face was not the most pleasant, but when he got excited by the conversation, he would take an agreeable expression of high spirit and originality. During his travels, he became a little of a brusk salvage, but without any rudeness; and in private, he was joyful, kind and sweet. Finally, to complete the painting, we will say that he was a good colleague, a very good husband, and an excellent father.*"

Hendrik Kobell – 1761 - 1779 – Twee schepen op zee bij storm
Rijksmuseum Amsterdam

The Embankment

(The fantasia of a fallen gentleman on a cold, bitter night)

T. E. Hulme

Once, in finesse of fiddles found I ecstasy,
In a flash of gold heels on the hard pavement.
Now see I
That warmth's the very stuff of poesy.
Oh, God, make small
The old star-eaten blanket of the sky,
That I may fold it round me and in comfort lie.

Credit: Iztok Bončina/ESO

Observing at airmass 4

The ESO staff at La Silla went to extraordinary lengths to observe Comet Bradfield when it appeared near the eastern horizon on March 8, 1978. The above drawing, by Karen Humby (Mrs. Saxby since May 13, 1978), is based on reports of reliable eyewitnesses, but does not necessarily express the official opinion of the Organization.

The Cosmic Bat

The Cosmic Bat

Stargazers all over the world are familiar with the distinctive profile of the constellation of Orion (the Hunter). Fewer know about the nebula NGC 1788, a subtle, hidden treasure just a few degrees away from the bright stars in Orion's belt.

NGC 1788 is a reflection nebula, whose gas and dust scatter the light coming from a small cluster of young stars in such a way that the tenuous glow forms a shape reminiscent of a gigantic bat spreading its wings. Very few of the stars belonging to the nebula are visible in this image, as most of them are obscured by the dusty cocoons surrounding them. The most prominent, named HD 293815, can be distinguished as the bright star in the upper part of the cloud, just above the centre of the image and the pronounced dark lane of dust extending through the nebula.

Although NGC 1788 appears at first glance to be an isolated cloud, observations covering a field beyond the one presented in this image have revealed that bright, massive stars, belonging to the vast stellar groupings in Orion, have played a decisive role in shaping NGC 1788 and stimulating the formation of its stars.

They are also responsible for setting the hydrogen gas ablaze in the parts of the nebula facing Orion, leading to the red, almost vertical rim visible in the left half of the image.

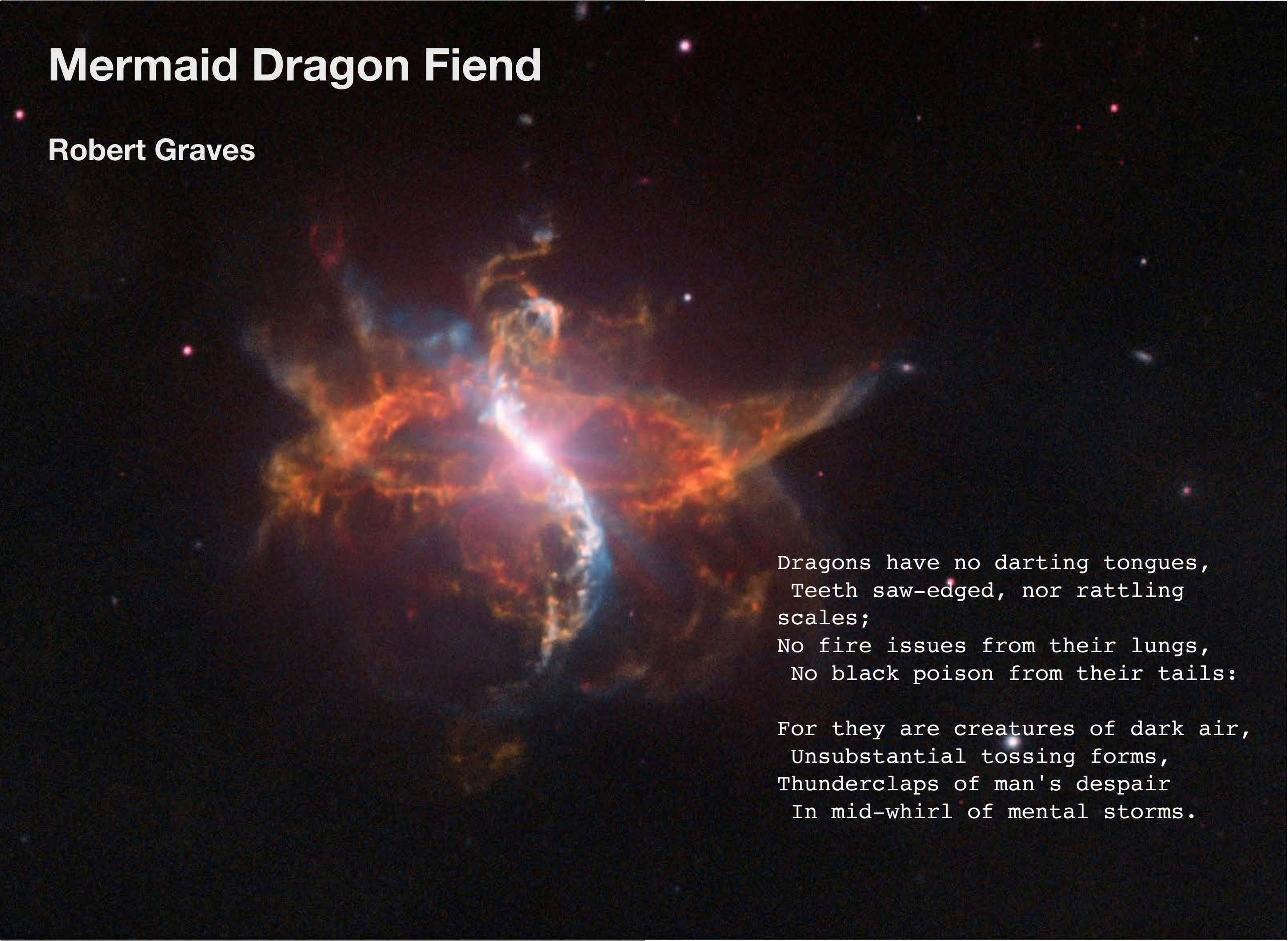
All the stars in this region are extremely young, with an average age of only a million years, a blink of an eye compared to the Sun's age of 4.5 billion years. Analysing them in detail, astronomers have discovered that these "preschool" stars fall naturally into three well separated classes: the slightly older ones, located on the left side of the red rim, the fairly young ones, to its right, making up the small cluster enclosed in the nebula and illuminating it, and eventually the very youngest stars, still deeply embedded in their nascent dusty cocoons, further to the right.

This fine distribution of stars, with the older ones closer to Orion and the younger ones concentrated on the opposite side, suggests that a wave of star formation, generated around the hot and massive stars in Orion, propagated throughout NGC 1788 and beyond.

(eso1009)

Mermaid Dragon Fiend

Robert Graves



Dragons have no darting tongues,
 Teeth saw-edged, nor rattling
scales;
No fire issues from their lungs,
 No black poison from their tails:

For they are creatures of dark air,
 Unsubstantial tossing forms,
Thunderclaps of man's despair
 In mid-whirl of mental storms.

Yes, there was a time when astronomers used books!

An astronomer.
Woodcut by J. Demannez.
Credit: Wellcome Library

An Observing Night as Seen from the Other Side

It is a major challenge for the technical staff at La Silla to handle experimental and unique type of equipments rather than well-tested commercial machines. But it is an art to deal with a particular species which is just as unique and very peculiar indeed: the astronomer.

The evolution of instrumentation technology has been most unkind to the observer. Nowadays all sorts of sophisticated gadgets are used to collect his photons. Occasionally they ruin his programme. But most disturbing of all is the fact that a little man of growing importance is now taking part in the observation media: the maintenance man.

At night when the instrument fails, hell is breaking loose at the telescope. A fearful little man with a red box is marching into the dome. Immediately confronted with a mass of contradictions, he will have to pave his way to some solid fault evidence. He will be assaulted by a storm of heated queries and complaints.

Why is he coming so late? Couldn't this be prevented? How long will it take to fix the problem? What is wrong anyway?

If only he knew! The little man is bracing himself. He knows he must stay calm and inspire confidence for the astronomer does not give him credit as a supreme act of faith. Above all he must display tools and activity. No time to think calmly or study the problem in a quiet place. Physical presence is expected. Else he might have to face interferences, tampering, hot voices and even disorderly conducts.

Already the news are peddled over the mountain and several foreign faces are sniffing around, commenting the event, commenting the service, commenting the organization.

Gregarious comfort for the victim while the little man is still fiddling with the machine. In front flickering lights refuse to reveal their secret. Behind a tense and nervous face is forwarding more queries.

"At night, when the instrument fails . . ."

Slowly he feels overcome by blasphemous thoughts.

At last he locates the speck of dust and the instrument starts rattling again.

The little man retreats, relieved and light hearted... until his beep, beep is calling again.

D. Hofstadt
ESO Messenger 25, 1 (1981)

Now, this is scary!

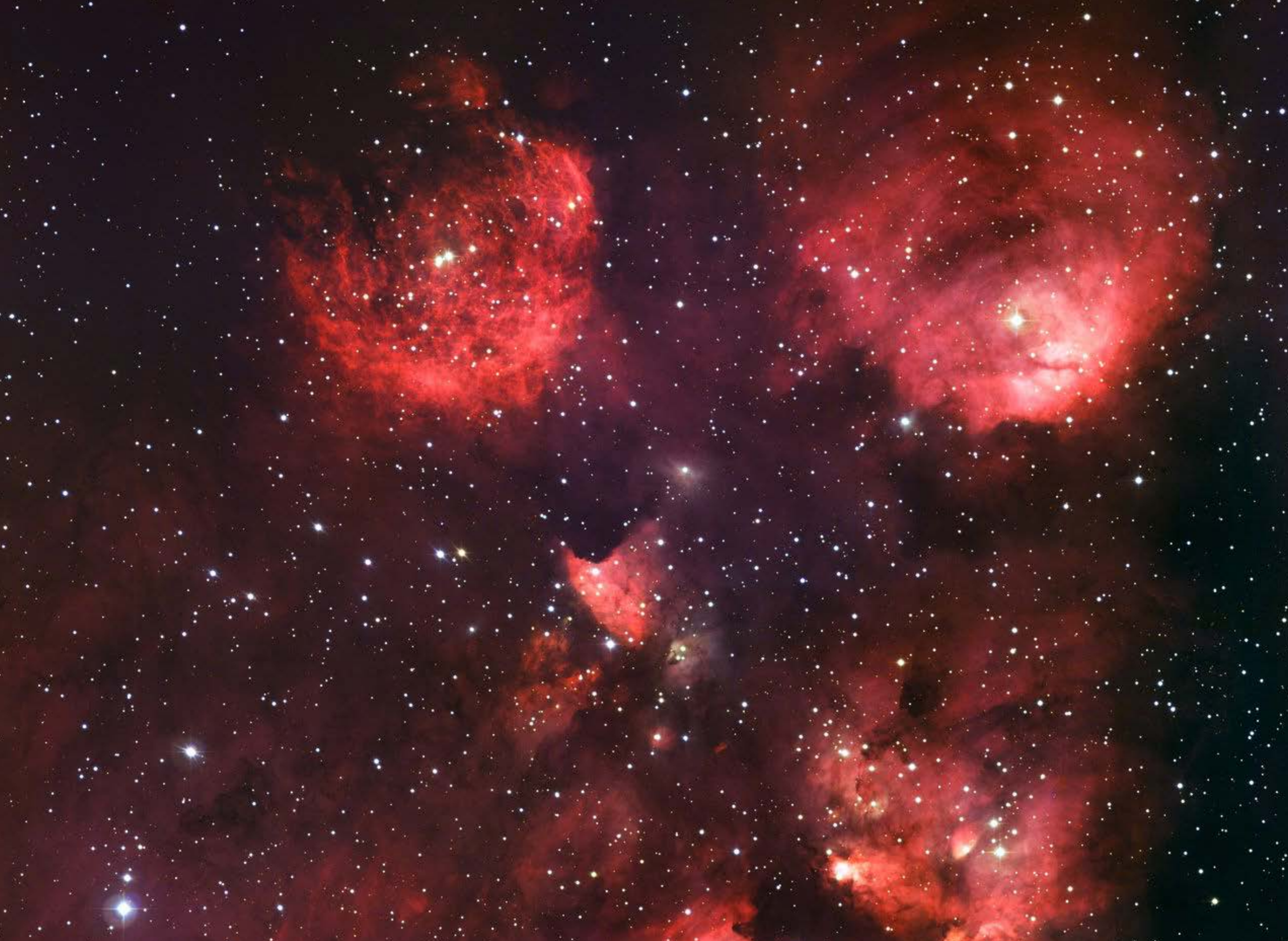
Credit: NASA, ESA, and The Hubble Heritage Team (STScI/AURA)

– I'm a real rooster when I make a discovery...

– Well stop being such a cockalorum or you will finish a grilled chicken!

Anonymous print – 1792 – Source: gallica.bnf.fr / BnF

On the Trail of a Cosmic Cat



On the Trail of a Cosmic Cat

Few objects in the sky have been as well named as the Cat's Paw Nebula, a glowing gas cloud resembling the gigantic pawprint of a celestial cat out on an errand across the Universe. First recorded by John Herschel in 1837, NGC 6334 lies about 5500 light-years away in the direction of the constellation Scorpius (the Scorpion) and covers an area on the sky slightly larger than the full Moon. The whole gas cloud is about 50 light-years across.

The nebula's red light comes predominantly from hydrogen gas glowing under the intense glare of hot young stars.

NGC 6334 is one of the most active nurseries of massive stars in our galaxy and has been extensively studied by astronomers. The nebula conceals freshly minted brilliant blue stars — each nearly ten times the mass of our Sun and born in the last few million years.

The region is also home to many baby stars that are buried deep in the dust, which can only be seen in infrared light as shown on the image on the next page, taken with VISTA.

Particularly striking is the red, intricate bubble in the lower right part of the image. This is most likely either a star expelling large amount of matter at high speed as it nears the end of its life or the remnant of a star that already has exploded.

(eso1003)

Celestial Cat's Hidden Secrets

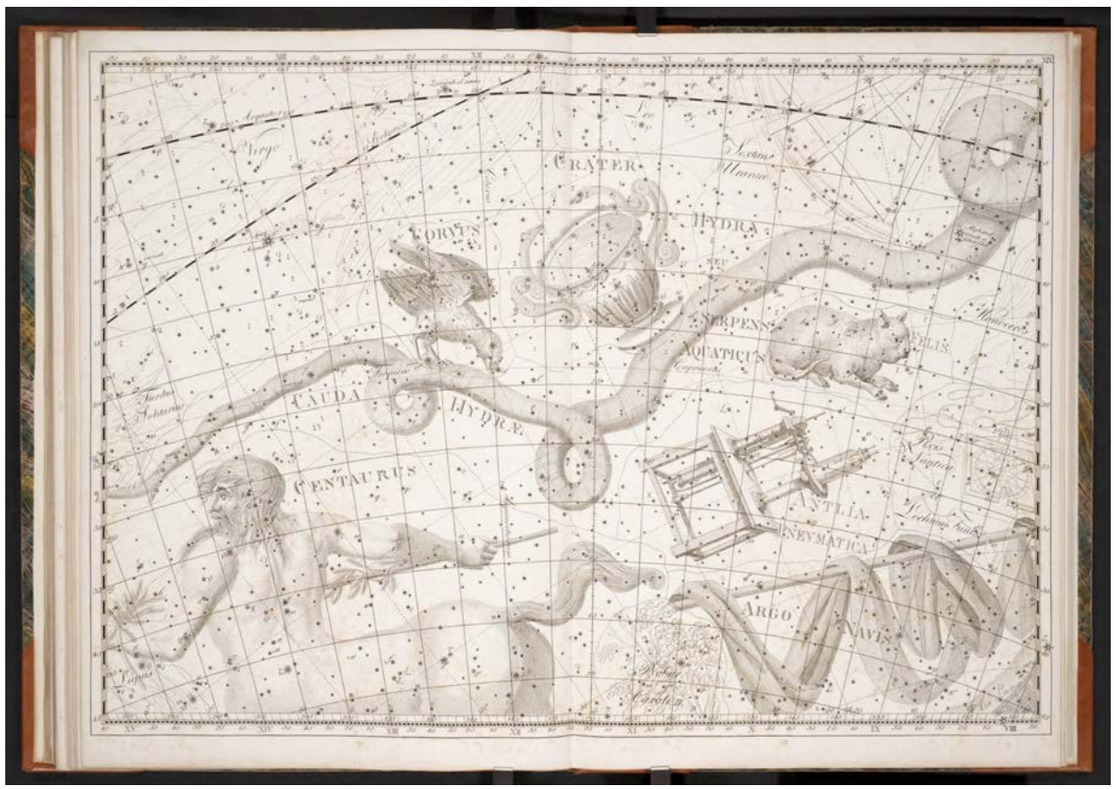
Credit: ESO/J. Emerson/VISTA; Acknowledgment: Cambridge Astronomical Survey Unit

The Lost Cat

From time immemorial, humans have imagined seeing characters, animals or shapes in the starry nights, as a useful way to orientate oneself and not feel lost in the immensity of the Universe. Quickly, constellations were drawn on maps, in the most artistic form and nowadays every star but one can be associated with a modern constellation. Most familiar animals are represented by a constellation and the dog for example exists in no less than three constellations –the greater (CMa), the lesser (CMi), and the hunting dogs (CVn)– without counting the related wolf (Lup) and fox (Vul). And if there are some felines in the sky – the lion (Leo), the lion cub (LMi), the lynx (Lyn)– there is, however, strangely enough, no constellation of the cat! A situation that didn't suit the French astronomer Joseph Jérôme de Lalande who invented the constellation Felis (the cat): "I *have inserted between the Ship and the Cup a new constellation, a Cat… I greatly love these animals… I will have it engraved on the charts; the starry sky has tired me enough in my life that I can now have my fun with it.*"

However, the Felis constellation didn't have 9 lives and was soon considered superfluous, disappearing from the official catalogues, along with others such as Globus Aerostaticus (hot air balloon), Officina Typographica (printshop), Rangifer (reindeer), and Uranoscopus (star-gazer fish). *This is how sad astronomy can be.* On the other hand, there was also an attempt to have a constellation Manis (the pangolin) or a constellation Hirudo (leech), which didn't survive either, maybe for the better.

By the way, do you know which unique star doesn't belong to any constellation?



Bode, Johann Elert, 1801, Uranographia Sive Astrorum, Pl. 19. Courtesy of The Linda Hall Library of Science, Engineering & Technology.

A dusty beauty

Credit: ESO/P. Barthel

Oversubscription

The telescopes on La Silla were again heavily oversubscribed and some members of the Observing Programmes Committee have hinted that drastic measures may soon have to be taken in order to reduce the number of applications for telescope time. We do not know exactly what they have in mind, but here is our contribution: a proposal for the cover of the new version of the application forms. (Drawn by Karen Saxby.)

“We are all in the gutter, but some of us are looking at the stars”

Oscar Wilde

Credit: ESO/B. Tafreshi (twanight.org)

Cosmic Portrait of a Perturbed Family

– I am out of wine to quench my thirst for knowledge.

– Who needs alcohol when you can be exhilarated by the mysteries of the universe!

The two astronomers – print – Marcantonio Raimondi – circa 1506-1534
Source: gallica.bnf.fr / BnF

The Topsy-Turvy Galaxy

The Topsy-Turvy Galaxy

This FORS image of the central parts of NGC 1313 shows a stunning natural beauty. The galaxy bears some resemblance to some of the Milky Way's closest neighbours, the Magellanic Clouds. NGC 1313 has a barred spiral shape, with the arms emanating outwards in a loose twist from the ends of the bar. The galaxy lies just 15 million light-years away from the Milky Way – a mere skip on cosmological scales. The spiral arms are a hotbed of star-forming activity, with numerous young clusters of hot stars being born continuously at a staggering rate out of the dense clouds of gas and dust. Their light blasts through the surrounding gas, creating an intricately beautiful pattern of light and dark nebulosity.

But NGC 1313 is not just a pretty picture. A mere scratch beneath the elegant surface reveals evidence of some of the most puzzling problems facing astronomers in the science of stars and galaxies. Starburst galaxies are fascinating objects to study in their own right; in neighbouring galaxies, around one quarter of all massive stars are born in these powerful engines, at rates up to a thousand times higher than in our own Milky Way Galaxy.

In the majority of starbursts the upsurge in star's births is triggered when two galaxies merge, or come too close to each other. The mutual attraction between the galaxies causes immense turmoil in the gas and dust, causing the sudden “burst” in star formation.

NGC 1313’s appearance suggests it has seen troubled times: its spiral arms look lopsided and gas globules are spread out widely around them. Further observations have revealed that its “real” centre, around which it rotates, does not coincide with the central bar. Its rotation is therefore also off kilter.

Strangely enough NGC 1313 seems to be an isolated galaxy. It is not part of a group and has no neighbour, and it is not clear whether it may have swallowed a small companion in its past. So what caused its asymmetry and stellar baby boom?

NGC 1313 is an altogether very intriguing target for astronomy.

(eso0643)

The tail of the comet McNaught over the Pacific seen from Paranal in January 2007. Credit: ESO/H.H.Heyer

The Stranger

Albert Camus

“Comme si cette grande colère m'avait purgé du mal, vidé d'espoir, devant cette nuit chargée de signes et d'étoiles, je m'ouvrais pour la première fois à la tendre indifférence du monde. De l'éprouver si pareil à moi, si fraternel enfin, j'ai senti que j'avais été heureux, et que je l'étais encore. Pour que tout soit consommé, pour que je me sente moins seul, il me restait à souhaiter qu'il y ait beaucoup de spectateurs le jour de mon exécution et qu'ils m'accueillent avec des cris de haine.”

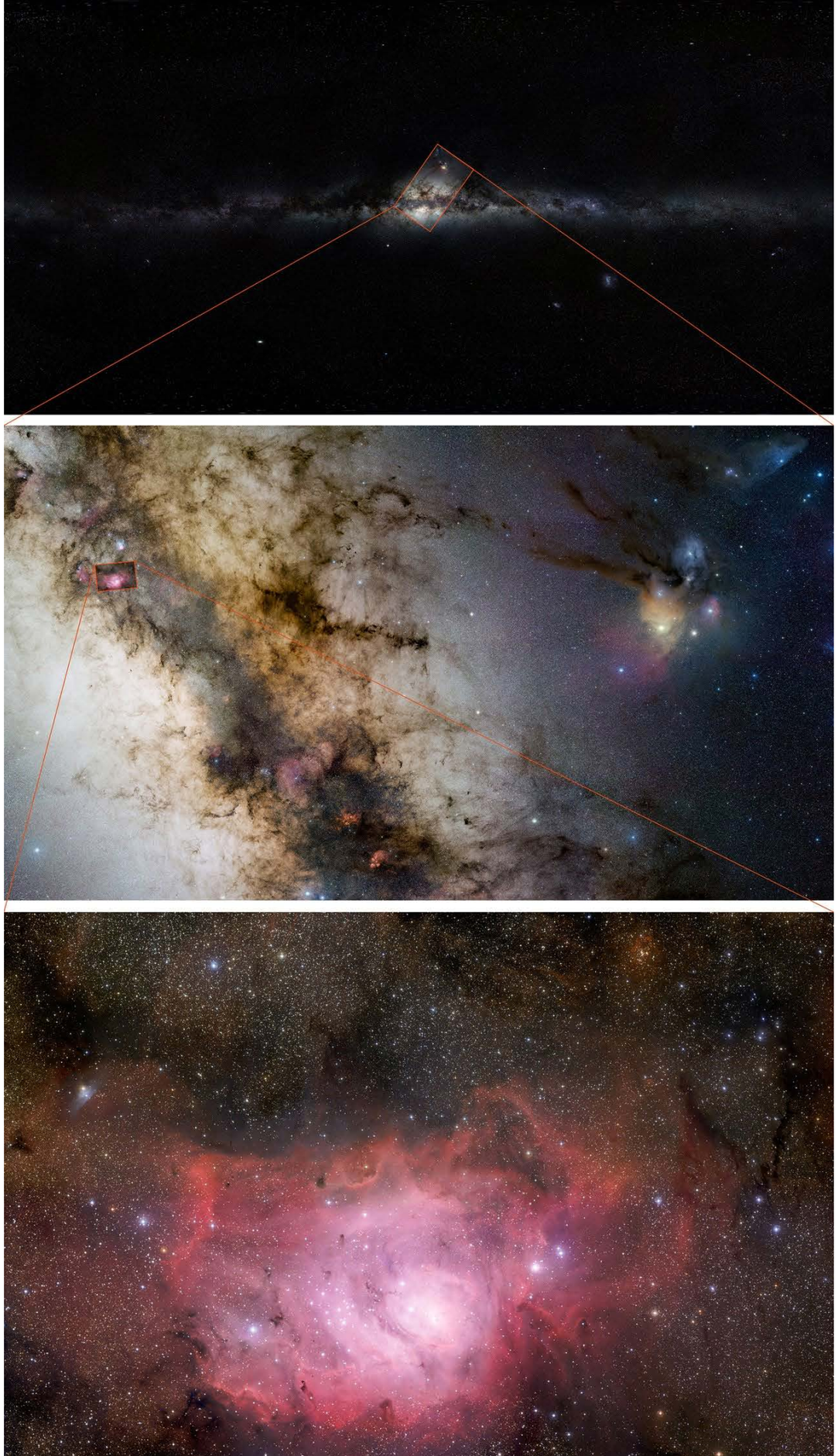
As if that blind rage had washed me clean, rid me of hope; for the first time, in that night alive with signs and stars, I opened myself to the gentle indifference of the world. [...]

Credit: ESO/VPHAS+ Survey/N. Wright

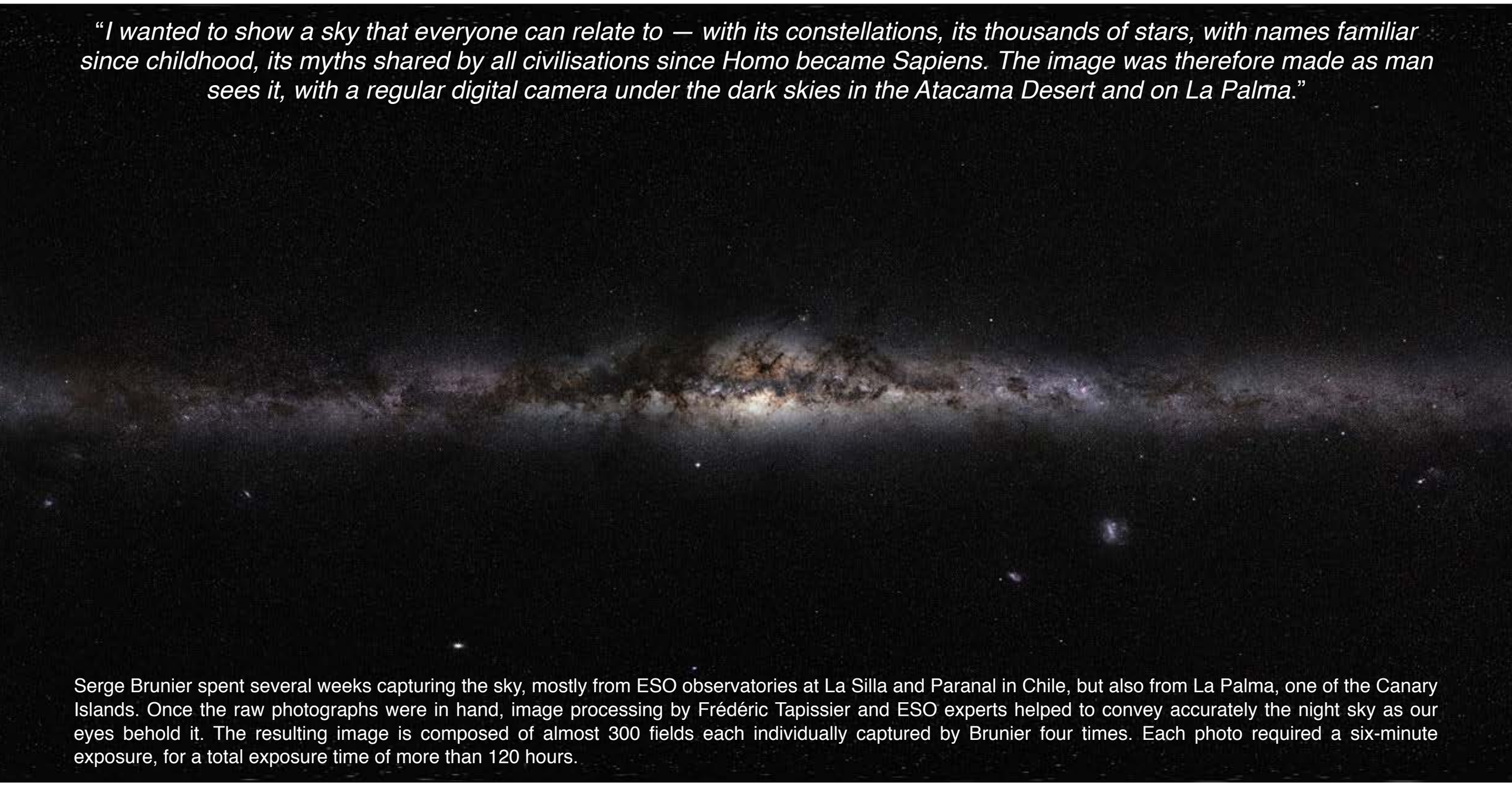
GigaGalaxy Zoom

Through three giant images, the GigaGalaxy Zoom project, launched by ESO as part of the International Year of Astronomy 2009, revealed the full sky as it appears with the unaided eye from one of the darkest deserts on Earth, then zooms in on a rich region of the Milky Way using an amateur telescope, and finally uses the power of a professional telescope to reveal the details of a famous nebula. In this way, the project linked the sky we can all see with the deep, “hidden” cosmos that astronomers study on a daily basis.

(eso0936)



Credit: ESO/S. Brunier



"I wanted to show a sky that everyone can relate to — with its constellations, its thousands of stars, with names familiar since childhood, its myths shared by all civilisations since Homo became Sapiens. The image was therefore made as man sees it, with a regular digital camera under the dark skies in the Atacama Desert and on La Palma."

Serge Brunier spent several weeks capturing the sky, mostly from ESO observatories at La Silla and Paranal in Chile, but also from La Palma, one of the Canary Islands. Once the raw photographs were in hand, image processing by Frédéric Tapissier and ESO experts helped to convey accurately the night sky as our eyes behold it. The resulting image is composed of almost 300 fields each individually captured by Brunier four times. Each photo required a six-minute exposure, for a total exposure time of more than 120 hours.

Credit:ESO/S. Guisard (www.eso.org/~sguisard)

This third installment provides another breathtaking vista of an astronomical object, this time a 370-million-pixel view of the Lagoon Nebula of the quality and depth needed by professional astronomers in their quest to understand our Universe.
The image extends across a field of view of more than one and a half square degree — an area eight times larger than that of the full Moon — and was obtained with the Wide Field Imager attached to the MPG/ESO 2.2-metre telescope at the La Silla Observatory in Chile.

ESO Mess

In the Mail . . .

Dear Editor,
Since the *Messenger* is evolving in the direction of serious journals, one should consider the problem of quoting articles in lists of references. The other day I found the reference: "ESO Mess" —which is perhaps not the best compliment to the otherwise fine organisation . . . H.D.

Dear Reader,
Thanks for your very pertinent remark and for beginning to take this journal seriously—hopefully not too seriously. You are right about the lack of guidelines for abbreviations of the names of journals. Unless the editors of other journals object, I suppose that "ESO Messenger" will do as reference—at least in this journal . . .
The editor of the ESO Mess.

Dear Editor,
Why do you not print a table of contents on the first or last page of the *Messenger?* It is always a hard job to find a particular article which appeared some issues ago . . .

R.W. and M.H.U.
(*not* the editor)

Dear Colleagues,
That there so far has been no table of contents (and no index), is due to a subtle psychological trick. In other journals, the reader first studies this table and decides that there is nothing of interest. He then throws it away without having seen what is inside. In the Messenger, *however, he is forced to look through the* entire *issue to be sure that he did not miss that most important article! Nevertheless, you may be right, because as was already written in* Messenger *No. . . . No. . . . (sorry, I can't find it), well, anyhow . . . we shall begin with this issue. OK?* *R.W. (the editor)*

Pablo Neruda

Puedo escribir los versos más tristes está noche.

Escribir, por ejemplo: «La noche esta estrellada,

y tiritan, azules, los astros, a lo lejos».

[...]

Qué importa que mi amor no pudiera guardarla.

La noche está estrellada y ella no está conmigo.

Tonight I can write the saddest lines.

Write, for example, "The night is starry

and the blue stars shiver in the distance."

[...]

What does it matter that my love could not keep her.

The night is starry and she is not with me.

Translation by W.S. Merwin

Some more whipped cream in your coffee?

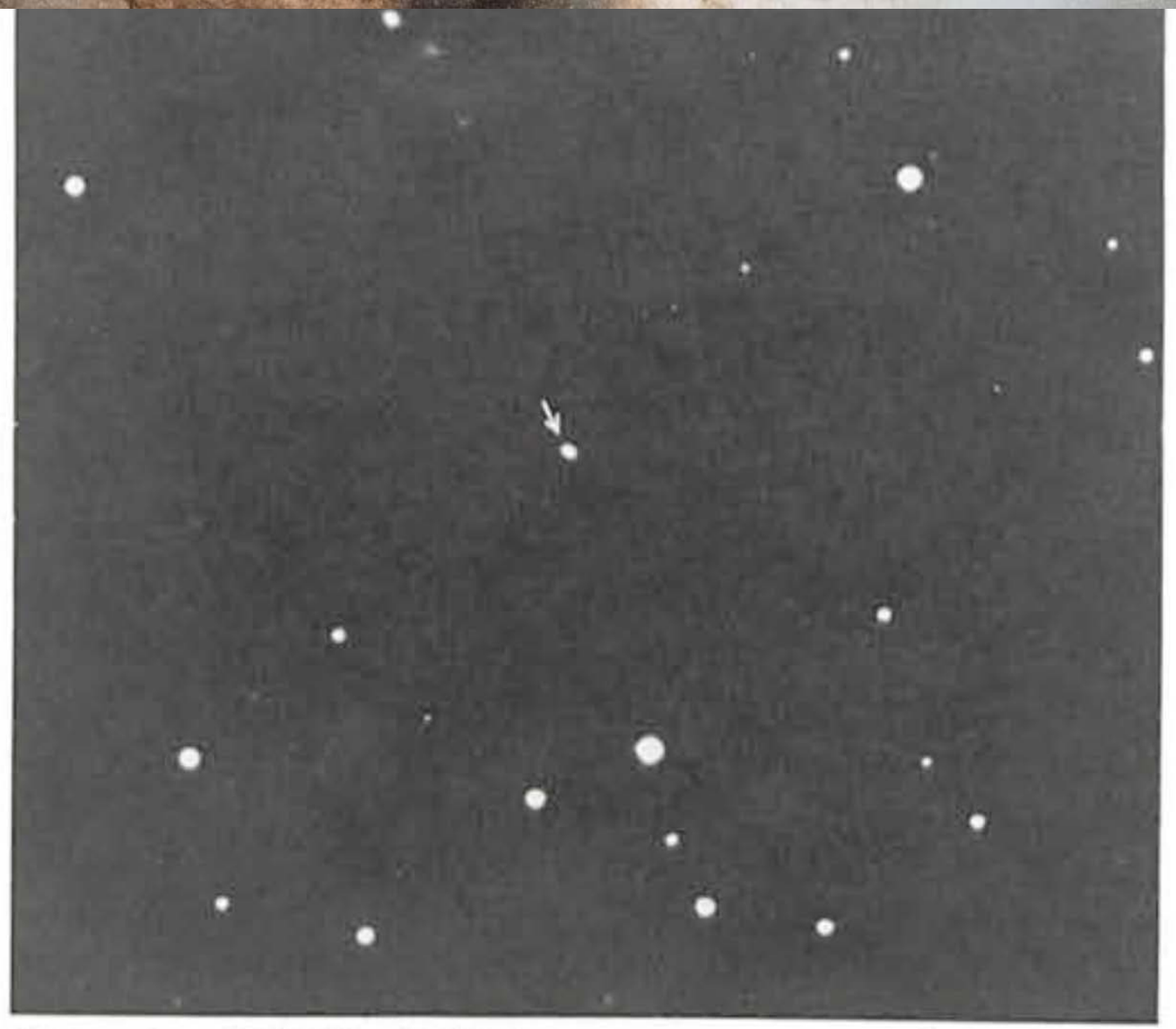
Credit: NASA, ESA, and The Hubble Heritage Team (STScI/AURA)

La Silla in the Sky

Attentive readers of the "Minor Planet and Comet Circulars" from the Minor Planet Bureau will have noticed that the December 1, 1979 issue contains reference to a newly-discovered minor planet, 1976 UH, that has now been numbered (2187) on page 5036 and also named LA SILLA on page 5039.

The dedication reads: "Named after the mountain in the Chilean Atacama desert on top of which is situated the European Southern Observatory." It is interesting to note that the size of the new planet is not too different from the La Silla Mountain, and-in view of the ever-increasing risk of (light and atmospheric) pollution that threatens many observatories (although certainly not the ESO establishment at the present time), one wonders whether one is here witnessing an extreme example of very long-term planning?!

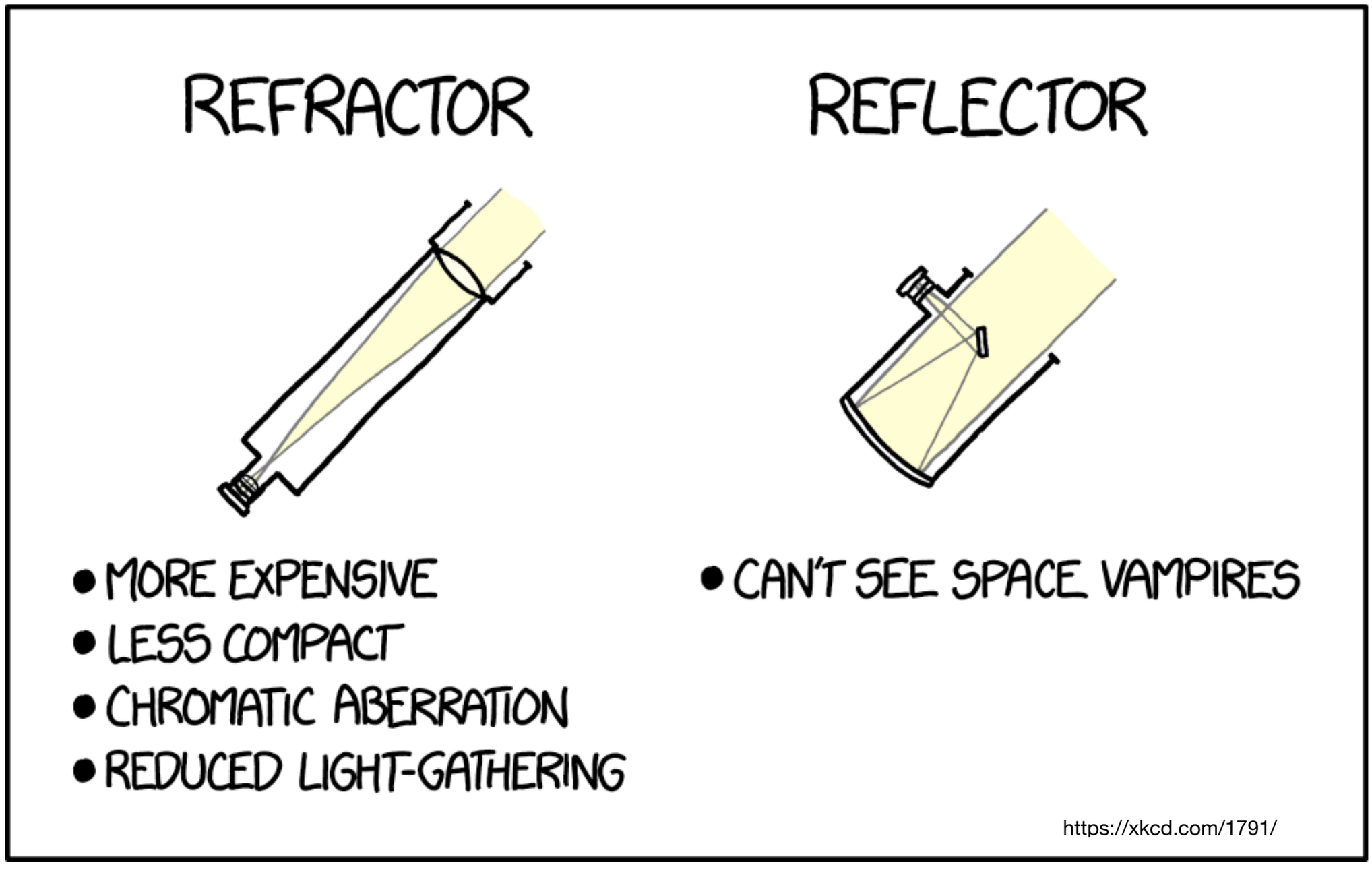
(From our South America correspondent)



Minor planet (2187) = LA SILLA as seen on a recent plate, obtained with the ESO 1 m Schmidt telescope (60 min. IIIa-F + RG 630). The planet was discovered with this telescope on October 24th, 1976 by ESO astronomer R. West.

"Idealised depiction of an astronomer as a scientist and thinker"
Ferdinand Bol, An Astronomer, 1652,

Telescopes: Refractor vs Reflector



N
E

It Is Too Early To Be Santa's Sleigh, Isn't It?

Mini
All
Sky
Cloud
Observation
Tool

ESO
PARANAL

Flying Object Finally Identified

Astronomers at ESO's frontline Paranal Observatory got a surprise on the morning of 18 December when looking at the observatory's all-sky camera, MASCOT. For about 45 minutes in the early morning, an object appeared first as a bright stripe then as a cloud that dissolved. The discovery was made a little after 4 o'clock in the morning by telescope operator Christian Esparza, who showed it to ESO astronomer Thomas Rivinius. "*I went outside to make sure this was not an optical effect,*" said Rivinius. "*At the time I saw it, it had already taken the appearance of a cloud. In fact, it was as large and as bright as the Large Magellanic Cloud.*" Having been convinced this was no fault on the camera, the astronomers went on a real detective chase to try to find out what the object could be. ESO's comet specialist Emmanuel Jehin quickly established that it could not be a meteor nor a comet. It was moving too slowly for a meteor or for the International Space Station. Moreover, no other known satellite was supposed to pass above Cerro Paranal, in the Atacama Desert at that time. And why would the ISS or a satellite suddenly change shape from a bright point to a cloud?

Checking the Night Sky Live website, the astronomers then found out that the same phenomenon had been observed with the all-sky camera located at the site of Gemini South at Cerro Pachon, also in Chile and 600 km south of Paranal. Using these observations and a simple triangulation technique used, for example, in land surveys, it was then possible to measure the distance of the object. It appeared that the object was about 6000 km high when first seen and about double that in the later images. The object was moving away from Earth at tremendous speed!

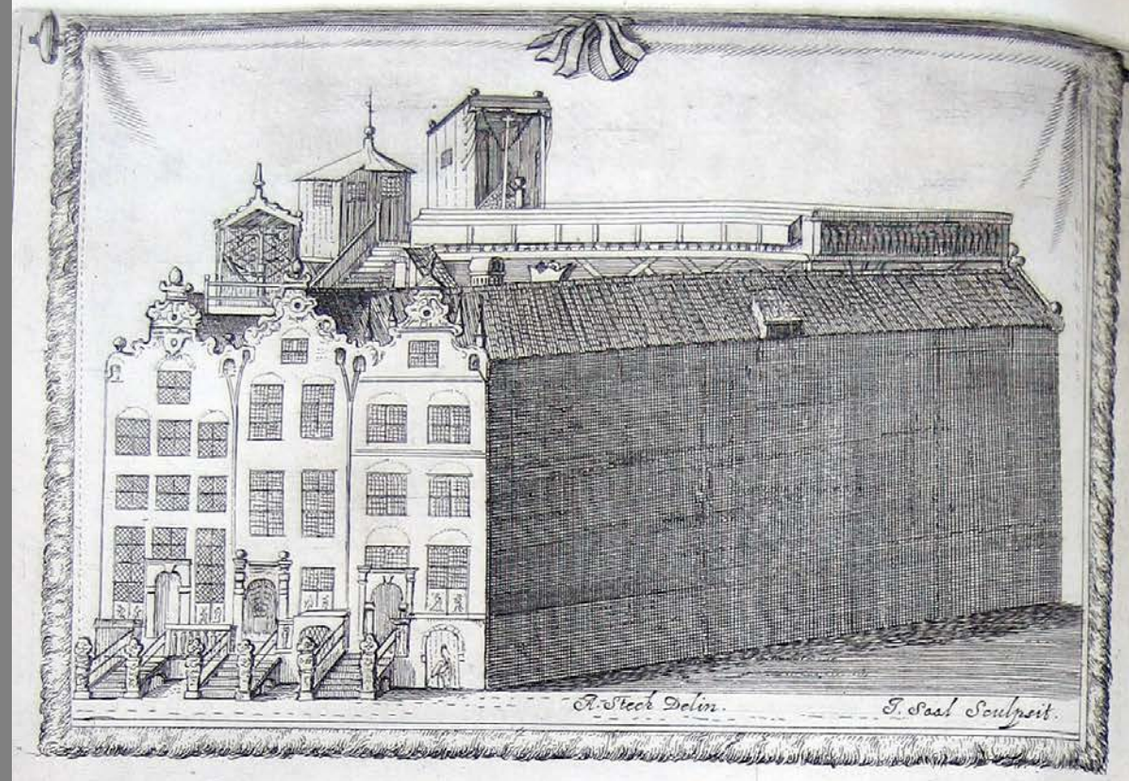
Given this close distance, an astronomical object seemed unlikely and the only remaining possibility left to the scientists was to consider if a rocket had been launched. And, eureka!, it was quickly discovered that the same morning, about one hour before the object was seen from Paranal, the Japanese Aerospace Exploration Agency had launched a rocket carrying the KIKU No. 8, one of the largest geostationary satellites in the world.

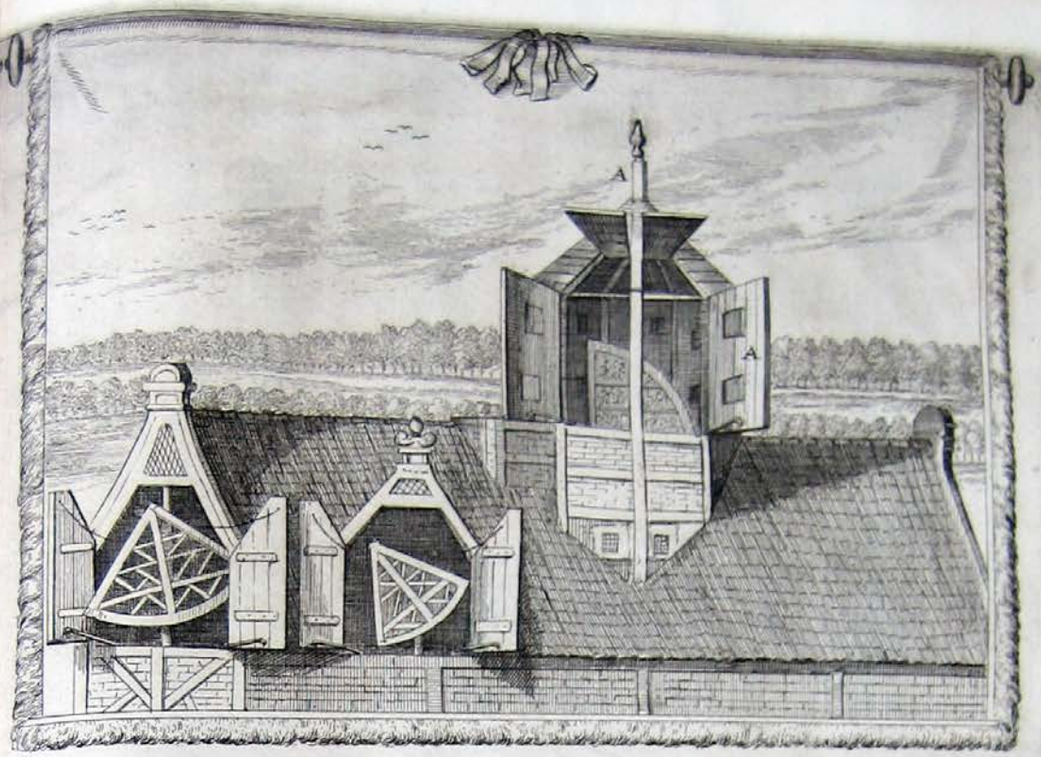
Finally the mystery was solved: the object was most probably the second stage of the launcher and the cloudy appearance at the end of the sequence most likely a dump of liquid fuel, made to avoid the explosion of the rocket in hundreds of scattered pieces, as a result of leftover fuel inside spent rocket stages. Having cracked the problem with his colleagues, Thomas Rivinius could finally go to sleep!

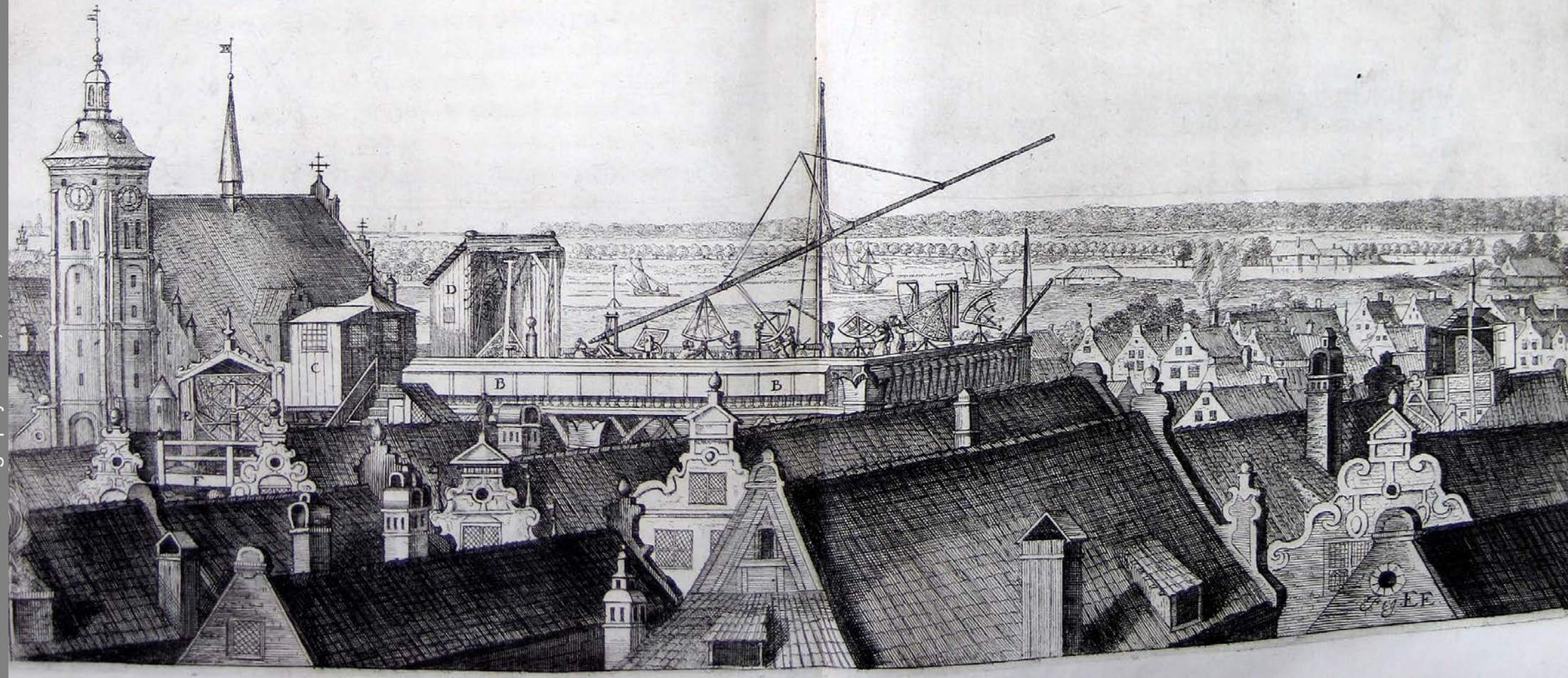
(eso0648**)**

The Paranal of its time...

Observatory of Johannes Hevelius in Danzig around 1641







Credit: Naval Oceanography Portal, USNO

Jan Neruda: “*Do Frogs Exist there Too ?*”

Frogs sat around a puddle
And gazed at heavens high
Frog teacher pounding into skulls
The science of the sky.

He spoke about the heavens
Bright dots we see there burning
And men watch them, “astronomers”
Like moles they dig for learning.

When these moles start to map the stars
The large becomes quite small
What's twenty million miles to us
They call one foot, that's all.

So, as those moles did figure out
(If you believe their plan)
Neptune is thirty feet away
Venus, less than one.

If we chopped up the Sun, he said
(Awed frogs could only stare)
We'd get three hundred thousand Earth's
With still a few to spare

The Sun helps us make use of time,
It rolls round heaven's sphere
And cuts a workday into shifts
“Forever” to a year

What comets are is hard to say
A strange manifestation
Though this is not a reason for
Some idle speculation

They are no evil sign, we hope
No reason for great fright
As in a story we got from
Lubyenyetsky, great knight

A comet there appeared, and when
It rays were seen by all
The cobblers in a tavern
Began a shameful brawl

He told them how the stars we see
So many, overhead
Are actually only suns
Some green, some blue, some red

And if we use the spectroscope
Their light tells, in addition
Those distant stars and our Earth
Have the same composition

He stopped. The frogs were overwhelmed.
Their froggy eyeballs rolled.
"What more about this universe
Would you like to be told?"

"Just one more thing, please tell us sir"
A frog asked, "Is it true?
Do creatures live there just like us
Do frogs exist there too?"

Translated by D.P. Stern – http://www.phy6.org/stargaze/

Accurate but pathetic

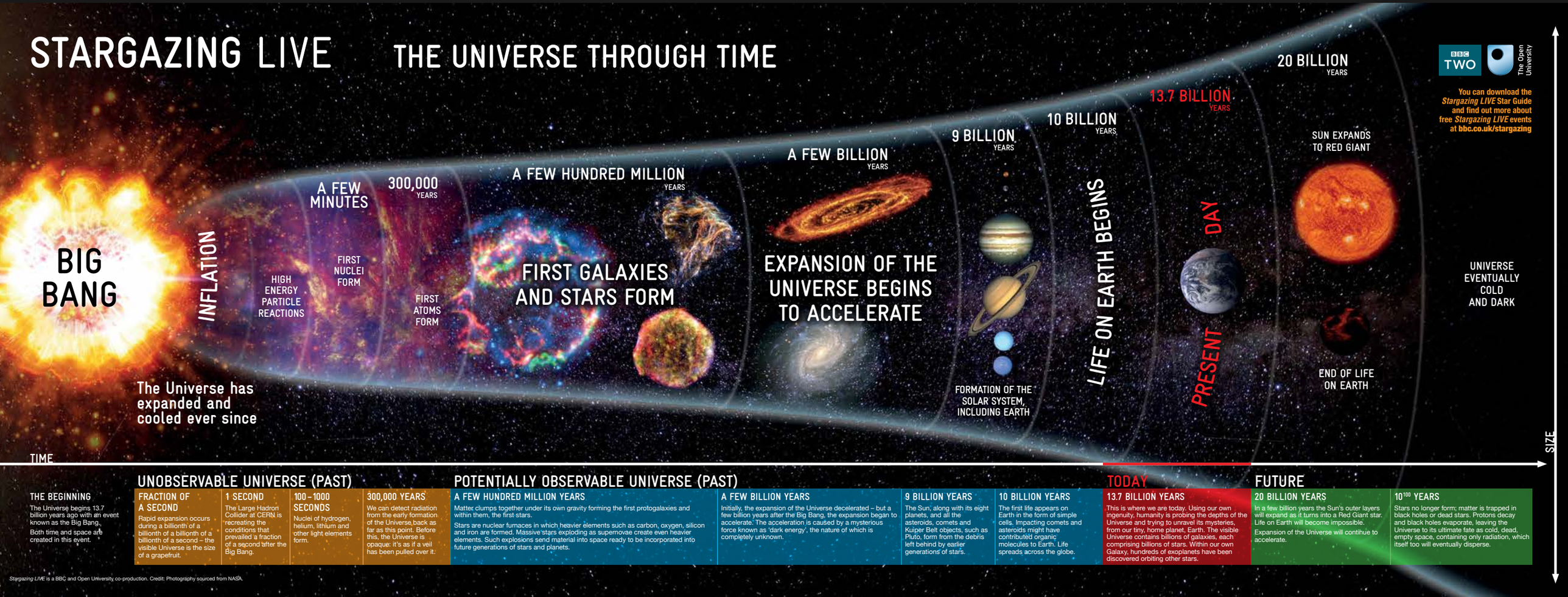
We are 12 billion light-years from the edge,
That's a guess,
No one can ever say it's true,
But I know that I will always be with you.

– Katie Melua

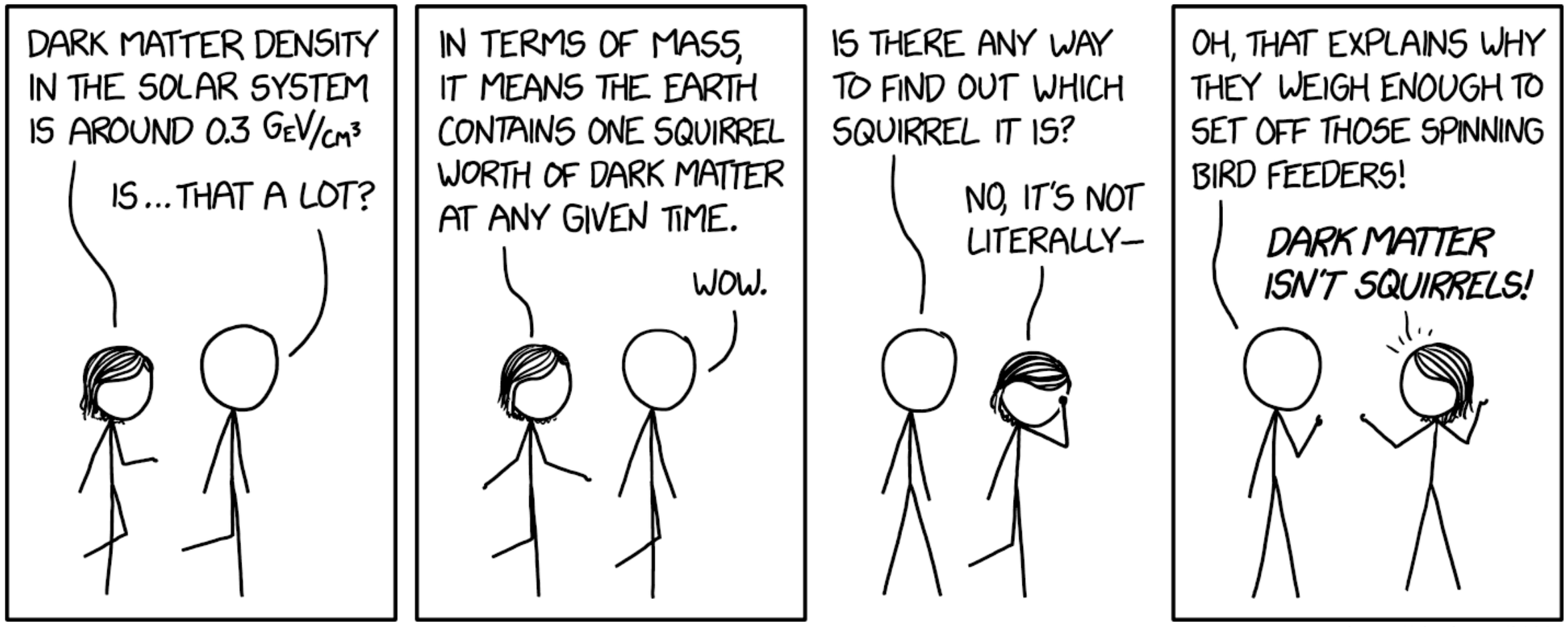
We are 13.7 billion light-years from the edge of the observable universe,
That's a good estimate with well-defined error bars,
Scientists say it's true, but acknowledge that it may be refined,
And with the available information, I predict that I will always be with you.

– Simon Singh

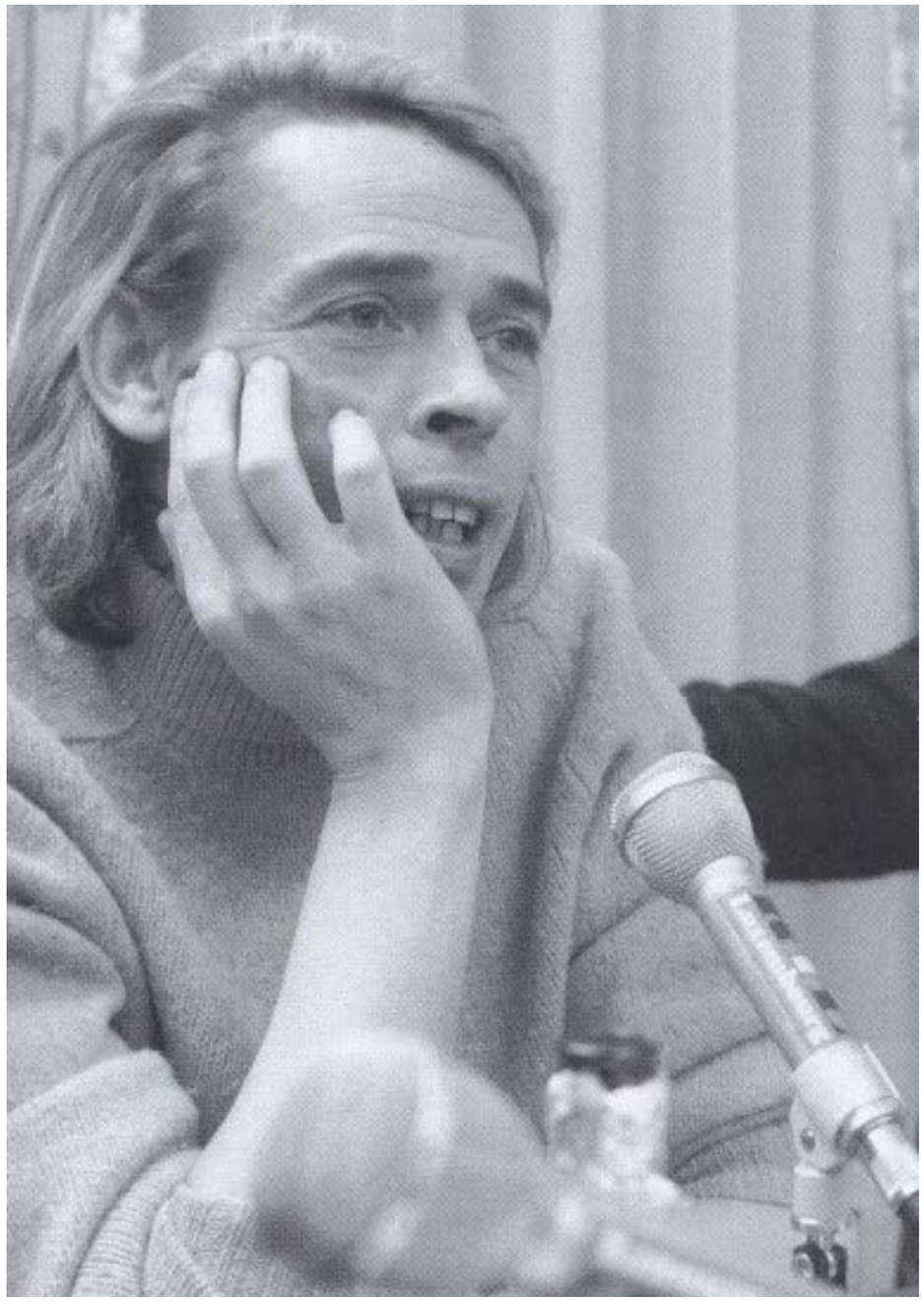
According to Wikipedia, "*after an amusing and good-natured debate in the Press Melua eventually recorded Singh's version, which both agreed was scientifically accurate and musically pathetic.*"
See https://youtu.be/21iUUe-W8L4



Dark Matter



https://xkcd.com/2186/



Credit: Jean-Pierre Leloir

“Je préfère les hommes qui donnent à ceux qui expliquent.”

— Jacques Brel

(I prefer people who give to those who explain.)