

God save us from friends
or
How to ensure taxonomy against passing away
by dint of a successful operation?

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*Wy chcecie pieśni? Wy chcecie pieśni zapewne słodkiej i milej dla ucha,
A ja mam dla Was, o! moi rówieśni, pieśń co przypomni Wam brzęki łańcucha!*
[You want a song now? Perhaps you want a sweet song, melodious, that will
sound pleasantly,
But I have for you, my coeval brothers, a song reminding you of chains' rattle!]

Kornel UJEJSKI: *Maraton.*

Let me present here a somewhat unusual paper, in which the „nominal” author – Roman HOLYŃSKI – plays rather the role of editor of a multiauthored publication: my own text is but a commentary to earlier published (in some exceptional cases only hearsay) opinions of other persons. Two main reasons induced me to choose this style: on the one hand such an atypical, unhackneyed presentation looks interesting and worth trying; on the other... On the other I wished to secure myself – at least to some, even if slender, degree – against the (already more than once suffered on the occasion of similar discussions) „hit below the belt” in the form of „argument” that „*all scientists agree that editorial interventions, peer-reviewing, impact factor &c. are just and necessary, and suddenly some Holyński speechifies counter to all the world*”; the quotations show that by far **not everybody** esteems the currently dominating practices as honest and warranted, and the “speechifying” HOLYŃSKI finds himself in quite large (quoted excerpts represent of course but a small part of those selected, from a much more voluminous “database”, at the start of preparation of this work) and respectable (including docents, professors, Nobel Prize winners and other world-famous authorities) company!

The majority of the quoted sentences reflect opinions illustrating the gist of here presented reasoning, but some play quite the opposite role: express the – in my opinion – false views, misleading arguments, pernicious stipulations, whose destructive influence on the situation of science in general and taxonomy in particular I am just trying to demonstrate. Despite my efforts, it was not always possible to avoid the doubling of citations: in some instances one of two expressions conveying the same or similar point was quoted for its attractive wording while the second for the prestige of its author; sometimes I used each of them in different place (to illustrate a different aspect of the problem), &c. I also preferred short, concise formulations, but here the “iron consistency” proved not possible, either. With all these (and many others) defi-

ciencies I dare to hope that the proper apprehension of what I wish to submit in this way for consideration will not raise difficulties. Naturally, as always, I would be very happy if these “my although not originally mine” arguments and conclusions act as an incentive to heated and fruitful discussion, so any reasonable comments – whether supporting, supplementing or criticizing – will be greatly appreciated! Thanking very much in anticipation, I am passing on *ad rem!*

[Bracketed remarks in distinctive (plain in original versions, italicized in translations) print within citations are my explanations added when seemed necessary]

COLLECTIONS ← TAXONOMY ← SCIENCE ← WORLD

Certain measurements are crucial to our ordinary understanding of the universe. What, for example, is the mean diameter of the Earth? It is 12,742 kilometers. How many stars are there in the Milky Way? Approximately 10^{11} . How many genes are there in a small virus particle? There are 10 (in ϕ X174 phage). What is the mass of an electron? It is 9.1×10^{-28} grams. And how many species of organisms are there on the Earth? We do not know, not even to the nearest order of magnitude

E. O. WILSON, ex: WHEELER 2007.

It is important to browse through collections. Just as in a library, in looking for a book one thinks that one needs, it is actually the associated books that become important

YOCHELSON 2004.

Taxonomy ... is a science that is most explicitly and exclusively devoted to the ordering of complex data, and in this respect it has a special, ... almost a superscientific place among the sciences

SIMPSON 1961.

To 'simply' go to the field and collect specimens, study them carefully in the laboratory, compare them with collections, describe them, and publish their descriptions, taxonomy needs thousands of arms and brains (i.e. of permanent salaries). This is much more crucial for the discipline than computers, sophisticated techniques, molecular facilities, 'highly ranked' publications, and internet chats

DUBOIS 2008.

The „leading” subject of the Conference was the role of biological collections in taxonomy. It would be difficult to imagine taxonomy without private or public “museums” housing natural history specimens, but biogeography, palaeontology, phylogenetics, or any other branch of what is fashionably referred to as “biodiversity studies” – *i.e.* broadly conceived systematics – are also unimaginable without them. And whereas systematics is as well the starting point as the final “summary” of all biological knowledge (any sound research program must begin with the identification of the target organism, and the results of all such programs are integrated into the Great Synthesis: the natural classification), it can be said without exaggeration that collections make the foundation of the whole biology. On the other hand, taxonomy – even if not everybody is willing to accept this fact... – is a branch of science, and science runs in the real (gently speaking not quite ideal) – “environment”, thus the problems and purposes of natural history collections cannot be rationally discussed without reference to the position of taxonomy in science and the general situation of science in the present-day world. I evaluate both that position and the general situation as the worst in the modern history of our civilization, and in my further considerations will try to substantiate this opinion in the context of the current trends (in scientific policy of “decision-makers” on the

one hand, and in the views and attitudes of scientists themselves on the other), and at last to formulate the conditions which must be satisfied to avoid the final catastrophe, and actions which we, taxonomists, can and should undertake in order to increase the chances to fulfil these conditions.

THE WORLD WE ARE LIVING IN

Czasem można odnieść wrażenie, że żyjemy w świecie, który wypił o jedną wódkę za dużo...

[Sometimes one has the impression that we live in the world having drunk one vodka too much] RZEWUSKI 2006.

Wygląda na to, że człowiek to małpa, która z drzewa nie zeszła, lecz spadła. Na głowę

[It seems that man is an ape which has not come but rather fallen down from tree. Head on] LEWANDOWSKI 2005.

Czy myślisz, że byłoby rzeczą złą, gdyby ktoś chciał przewrócić świat, do góry dnem przewrócony?

[Do you think it would be bad if somebody wishes to overturn the world, which has been turned heels over head?] Giordano BRUNO, *ex*: ŻYLIŃSKA 1977.

Deficyt zdrowego rozsądku jest typowym problemem europejskiej demokracji

[Deficit of commonsense is a typical problem of European democracy]

Z. GIŁOWSKA; *ex*: CIELEMIĘCKI & TRĘBSKI 2006.

Mamy wodza wybierać, więc się, bracia, spieszmy,

Lecz wprzód sobie muzykę pułkową wybierzmy:

Na pierwszego trębacza podaję sapersa,

Niech trąbi, choć nie umie; wszak go lud wybiera

[We have to appoint the commander, hurry up, brothers,

But previously regimental orchestra should be selected:

For the first trumpeter I propose the sapper,

Let him play, though unable, when chosen by the people!] MICKIEWICZ 19??

... w sejmie, podobnie jak we wszystkich demokratycznych parlamentach, o przyjęciu lub odrzuceniu ustawy, będącej np. wspólnym dziełem prawników i ekonomistów, decydują lekarze, rolnicy, aktorzy, geolodzy, spawacze i wiele innych, godnych szacunku osób, mających o przedmiocie głosowania jedynie mgliste pojęcie. Tym zresztą można tłumaczyć fakt uchwalania licznych ustaw, które, zanim jeszcze wejdą w życie, wymagają nowelizacji

[In the Sejm, like in all democratic parliaments, acceptance or rejection of an act elaborated e.g. by a team of lawyers and economists, is decided by doctors, farmers, actors, geologists, welders and many other respectable persons having but a nebulous idea of the voted subject. This, by the way, may explain the fact that so many bills are passed which must be amended even before having come into force]

KACZKOWSKI 2006.

Bliskowschodnim politykom przyznano już sześć pokojowych Nagród Nobla, tylko pokoju tam jakoś nie widać...

[Politicians from the Near East have already been awarded six Nobel Prizes for Peace, only the peace cannot be seen there]

WEISS 2008.

[W dzieciństwie] doszedłem ... do wniosku, że miałem pecha urodzić się w świecie, którym rządzi niepodzielnie potwór zwany prawem, nieskończenie potężny, lecz równie nieskończenie głupi – od czasu do czasu przychodzi mi na myśl, że miałem rację

[In childhood] I arrived at the conclusion that I had the misfortune to come into the world ruled unrestrictedly by a monster going by the name of law, infinitely powerful but also infinitely stupid – from time to time it comes to my mind that I was right]

HOYLE 2001.

- Igazságosságot akartunk, és megkaptunk... a jogállamot...*
 [We strove for justice, and received... State of Law...]
 [German economist] B. BOHLEY, *ex*: SCHAUSCHITZ 1995.
- Obywatel XVIII-wiecznej Europy poczułby się w dowolnym państwie XX-wiecznym jak pozbawiony swobód niewolnik*
 [A citizen of XVIII century Europe transferred to any XX century country would feel like a slave deprived of any liberties]
 P. JASIEŃCA, *ex*: NOWAKOWSKI 2005: 82.
- Nic nie daje takiego złudzenia inteligencji jak osobisty kontakt z wielkimi sumami pieniędzy*
 [Nothing else gives such an illusion of intelligence as personal contact with large amounts of money]
 [American economist] J. K. GALBRAITH, *ex*: WOJTAŚIŃSKI 2006b.
- Kupuję, więc jestem kimś*
 [I buy, so I am somebody] CIEŚLIK & ZACZYŃSKI 2004.
- Pod hasłem walki o tolerancję w Krakowie odbyła się [gejowska] manifestacja nietolerancji*
 [Under the banner of struggle for tolerance a [homosexual] manifestation of intolerance passed off in Cracow] KNAP 2004.
- Zgodnie z pewną koncepcją sztuki jest nią wszystko, cokolwiek artysta napluje*
 [According to some conception of art. it is everything whatever the artist spits out] BRALCZYK 2004.

We live in a grotesque world, stranger than ever before, where everything “stands on its head”: what until quite recently was evident to everybody, is now refused; what earlier came to nobody’s mind, now is considered normal. In politics the fundamental dogma became democracy, conceived in practice (though naturally not in rhetoric) as a system where all (or at least many) are responsible for everything, what means that nobody (except scapegoats) bears the responsibility for anything, and where each important decision is taken (sometimes – as in the case of “civil control over the army” – obligatorily) by dilettantes; Nobel Prizes for Peace are most often awarded to terrorist leaders; law, euphemistically defined as “administration of justice”, is in fact a collection of rigid formulas and the arena of fencing with procedural loopholes and interpretational pitfalls, only just with justice has it very little in common (lawyers themselves frequently admit that “*the verdict is not just, but this-or-that article does not allow to rule othewise*”); journalists (applauded by a great part of “public opinion”...) insist on the unrestricted right to freely slander anybody they do not like, and even the demand to give the calumniated person the possibility to defend him/herself (to publish refutation) causes “righteous” indignation as an “*attempt to undermine the freedom of the press*”; art, in bygone days the source of aesthetic feelings, being dominated by watchwords like “*I shock, so I am*”, becomes increasingly vulgar and often outright loathsome; sport, allegedly a domain of honest gentlemanly competition, is in fact governed by the “laws of business” (even the rules of contest are frequently – usually with glaring adulteration, or at least increasing fortuitousness, of the results – modified according to the preferences of television or advertisers); “political correctness” interdicts not only the use of generally understood terms (geographical names are being changed with any change of political orientation, a Gypsy must now be a “Roma” and a Negro from USA an “Afroamerican” – I wonder how to call a Negro living in Africa: “Afroafrican”?, and if his homeland is not known, then “Afrowho”???), but even the tapping of some

subjects; while the Earth sinks in rubbish, industry produces loads of utterly superfluous, by design undurable “novelties” and we prize this as “progress”; earnings are almost inversely proportional to the genuine importance of the performed work; &c., &c., &c.! And we have spoken only on the generally accepted phenomena, with no mention of illegal misdeeds like frauds, corruption, or drugs (which, by the way, are also direct or indirect consequences of those “normal” rules of the game)! By and large, everything is being subordinated to profit (in the purely “material” sense), career (evaluated in terms of the position on the “monkey’s ladder”) and bureaucracy (multiplying formal procedures to make any real activity more complicated and less effective).

CURIOUS WORLD’S CURIOUS SCIENCE

... most science in the western world is already merely a caricature of what science should be, ..., and that in the non-western world is simply a caricature of a caricature

LEVINS & LEWONTIN, ex: WILLIAMS 1988.

... nauka jako całość lub znaczna jej część staje się na naszych oczach czymś w rodzaju pop-science, a więc przejawem podkultury na wzór pop-art lub pop-musics...

[Science as a whole, or a significant part of it, becomes before our eyes a kind of pop-science, i.e. a manifestation of subculture like pop-art or pop-music]

FALIŃSKI 2004b.

Oto znamię naszych czasów: przystałe wznoszącym zatrudnieniu w instytucjach naukowych coraz mniej tzw. naukowców trzodzi się na co dzień właściwymi dociekaniami naukowymi. Coraz większa liczba spośród nas zajmuje się zdobywaniem środków na badania (czytaj: na przetrwanie) i działalnością niby-naukową. Ta ostatnia zdaje się być zapowiedzią nowej epoki, kiedy to odpowiednio do nabytych umiejętności będziemy zaliczani do jednej z kast. Oto najważniejsi ich reprezentanci: naukowiec-planista, naukowiec-sprawozdawca, naukowiec-antyszambrownik, czyli skuteczny kwestarz, naukowiec-selekcjoner, czyli specjalista od rankingu, wreszcie naukowiec-szef, czyli najambitniejszy z nas, zarządzający permanentnie pokorną trzódką niegdysiejszych kolegów. Najkorzystniejsze będzie znalezienie się w kście naukowców-planistów, zazwyczaj autorów najwyżej cenionych projektów badawczych; wszak nikt nie spodziewa się po nich ani artykułu teoretycznego, ani też gruntownej monografii, ani podręcznika akademickiego. Tytuł naukowiec-badacz będzie przydzielany przez administrację instytutu tylko wyjątkowo i tylko niezgułom, a więc tym, którzy nie radzą sobie w żadnej z wyliczonych specjalizacji

[Here is the stamp of our times: simultaneously with increasing employment in scientific institutions fewer and fewer so-called scientists trouble themselves every day with genuine scientific investigations. Increasingly many of us are occupied with procurement of funds for research (viz.: for survival) and pseudoscientific activities. This latter seems to presage the new epoch when according to the acquired skills we will be classified into one of several castes. The most important representatives are: scientist-planner, scientist-reporter, scientist-mendicant effective in antechambering for funds, scientist-selector or specialist in ranking, at last the most ambitious scientist-boss governing the permanently submissive herd of former colleagues. The most advantageous will be to get into the caste of scientists-planners, ordinarily the authors of highest-evaluated research projects: after all, nobody expects from them either theoretical paper, or comprehensive monograph, or academic textbook. The title of scientist-researcher will be given by the institute’s trusteeship only exceptionally and only to muffs unable to get along in any of the specialities listed above]

FALIŃSKI 2004c.

Republika nie potrzebuje uczonych

[The republic has no use for scientists]

Judge COFFINHAL sentencing LAVOISIER to death, ex: SIMMONS 1997.

Ani państwo, ani fundacje nie są ... zbyt skore do wydawania pieniędzy na autentyczne badania naukowe

[Neither the State, nor foundations are particularly prone to spend money on genuine scientific research]

FALIŃSKI 2004c.

Panie i Panowie, dziewczęta i chłopcy, inteligentni, mniej inteligentni oraz doradcy prezydenta do spraw nauki!

[Ladies and gentlemen, girls and boys, intelligent, less intelligent, and scientific counsellors to the president!]

[„IgNobel” award cerem. 2005] M. ABRAHAMS, ex: SZYMCZAK 2005: 24.

Science does not function in a vacuum, therefore its condition is to a great extent determined by attitudes and trends dominating in the contemporary world. Contrary to the belief widely held among the non-scientific majority, and even to the optimistic pronouncements of some scientists, the trends and attitudes prevailing in the last decades are definitely unfavourable to scientific research – at least if the term “science” is understood in its exact, traditional, lexical meaning: as “*human activity aiming at methodical study of the objects, forces and phenomena of the physical universe, and description presenting results of this activity in the frames of a coherent system*”. Only “applied sciences” and “circumscientific” bureaucracy fare relatively well, and the published indices of “outlays on science”, grandiloquently advertised in national and international “scientific programs”, &c., refer almost entirely to them.

SCIENCE? WHAT IT IS?

Szermierze nauki prawdziwej jednego tylko znają nieprzyjaciela, to jest błąd, i jeden tylko cel, to jest prawdę

[Champions of genuine science recognize only one enemy: error, and only one aim: the truth]

[principle of Pol. students Univ. Dorpat XIX c.], ex: CIECHANOWICZ 1990.

Látni, amit már mindenki látott – és azt gondolni róla, amire még senki nem gondolt!

[To see what everybody has seen – and to think what nobody has thought about it!]

A. SZENT-GYÖRGYI, ex: MARX 2000.

Próba zrozumienia, w jaki sposób działa przyroda, stanowi najpoważniejszy sprawdzian ludzkich zdolności umysłowych

[The attempt to understand how Nature operates is the weightiest test of human mental capacities]

FEYNMAN 1999.

Życie, którego nie zgłębiamy, nie jest warte przeżycia

[The life which we do not investigate, is not worth living]

SOKRATES, ex: ANONIM 2005.

Nie należy oczekiwać, że ktoś, kto nie zgłębia wiedzy od podstaw, kiedykolwiek dotrze do jej sedna

[Who does not study thoroughly is not expected to get to the essence]

HELMHOLTZ, ex: SORBBIAN 2001.

Minden kérdést, amit meg lehet kérdezni, meg is kell kérdezni

[Every question that could be asked, should be asked]

[famous Hungarian mathematician] PÁL ERDŐS, ex: MARX 2000.

Żeby dostać się na szczyt, gdy chodzi o oryginalne badania, trzeba być wariatem, gdyż

tylko wariaci wciąż próbują. Wpadasz na pomysł numer 1, jesteś podniecony, ale kończy się to klapą. Wpadasz na pomysł numer 2, jesteś podniecony, jednak to również kończy się klapą. Później masz pomysł numer 99, znów jesteś podniecony i znowu kończy się to klapą. Tylko wariat może wpadać w podniecenie z powodu setnego pomysłu, ale może się zdarzyć, że dopiero za setnym razem wreszcie coś się uda. Jeśli nie jesteś dostatecznie zwariowany, by wciąż się podniecać, zabraknie ci motywacji, nie będziesz miał dość energii, by dalej to ciągnąć. Bóg wynagradza wariatów

[To climb to the top in original research one must be a madman, as only madmen persistently keep trying. You conceive idea no. 1, you are excited, but it goes phut. You conceive idea no. 2, you are excited, but it also goes phut. Then you conceive idea no. 99, you are again excited, and again it goes phut. Only a madman can fall into excitement on account of the hundredth idea, but just the hundredth may at last be successful. If you are not sufficiently mad to be endlessly excited, you will lack motivation, run short of energy to continue. God gratifies madmen]

M. HELLMANN, ex: SINGH 2001.

Nie ma ... autentycznej twórczości w żadnej dziedzinie nauki, sztuki, wynalazczości, jeśli ... pracę trzeba ... wykonywać w niezgodzie ze swymi upodobaniami

[There is no ... genuine creativity in any branch of science, art, inventiveness, if ... the work must be ... done in disagreement with one's predilections]

FALIŃSKI 2004c.

Uczony nie bada przyrody dlatego, że jest to użyteczne; bada ją, bo sprawia mu to przyjemność

[A scientist does not study nature because it is useful; he studies it because he finds pleasure in it]

POINCARÉ, ex: CHANDRASEKHAR 1999.

What is science? – alas! the conceptions and practices related to this question have been perfectly confused: in the pronouncements concerning science this term is commonly used in the meanings having little to do with the definition quoted above. Especially pernicious is the lack of discrimination between genuine science (basic research) and works aimed at its practical utilization (“applied sciences”, *i.e.* in fact technology), leading to the extremely destructive muddle mainly in official documents. So *e.g.* from those anyway very stingy outlays the budget provides for “science”, after deduction of the lion’s share spent on the grotesquely expanded administration and preparation of bombastic but scientifically almost (or quite...) empty super-programs, the overwhelming majority goes in fact to “utilizable” studies (even in the domains qualified officially as “basic”, in evaluation of grant proposals the expected applications play a significant role!), prizes and distinctions have been as a rule adjudged for immediately profitable achievements, and if in the press or television any mention is made of “science” then almost invariably technical, agricultural or medical studies are concerned. What is worse, when at last these scraps find their way to the scientist really doing basic research, half of the time and effort (and so, effectively, half of the received funds!) he/she must spend on what prof. FALIŃSKI aptly terms “antechambering” (preparation of proposals, justifications, accounts, reports &c.), and even what remains is not truly at his/her disposal according to the *real* requirements of the project: it is the “grant-giver” who decides on what the particular hundred zloty may be spent, and for what it may not...

EVERYTHING IS BUSINESS, THE ONLY MEASURE OF SUCCESS IS PROFIT

- Poland tackles science like a business* SCHIERMEIER 2008.
Academy institutes should focus their research on selected areas of science that correspond to our national strategic and priority areas
 [Polish minister of science] Barbara KUBRYCKA, ex: SCHIERMEIER 2008.
Najpierw dajcie wyniki, a potem sobie badajcie
 [First show the results, then you may quietly play at science]
 [opening a scientific institute] P. JAROSZEWICZ, ex: FALIŃSKI 2004a.
To nie nauce, lecz transferowi gotowych technologii zawdzięczamy wzrost gospodarczy
 [We owe economic growth not to science, but to the transfer of ready technologies] BALCEROWICZ 2004b.
... az az ország, amely a tudomány és műveltség dolgában lemond az elsőség örömeiről és gondjairól, s mások ... követésére rendezkedik be, garantáltan ... szellemi öngyilkosságot követ el
 [A country which would, as regards science and education, relinquish the pleasures and troubles of primacy and is inclined to follow others, inevitably commits intellectual suicide] VEKERDI 1986: 44.
Inwestowanie w abstrakcyjne badania – na poziomie mniejszym niż jeden procent budżetu państw uprzemysłowionych! – przez ponad trzysta lat przynosiło o wiele większe zyski niż przeciętne notowania Dow Jonesa. Mimo to ... terroryzują nas sfrustrowani politycy, którzy domagają się, by nauka skupiła się na bardziej pilnych potrzebach społeczeństwa, ... nie rozumiejąc ... że większość istotnych zdobyczy technicznych ... pochodzi z czystych, abstrakcyjnych i napędzanych ciekawością badań
 [Investment in abstract research – at the level of less than one percent of the budget of industrialized countries – for more than three centuries yielded much higher profit than the average quotations of the Dow Jones. And in spite of this fact, we are terrorized by frustrated politicians who – unable to understand that the majority of significant technical achievements ... resulted from abstract studies motivated exclusively by curiosity – demand that science focus on the more urgent needs of society] LEDERMAN & TERESI 1996.
Konsekwentnie realizowana zasada ograniczania publicznego mecenatu nad badaniami naukowymi na rzecz sponsoringu ze strony bogatych firm prywatnych spowodowała, że w dziedzinach przynoszących krociowe zyski z bezwzględnej eksploatacji praw patentowych trudniej dziś o niezależnego eksperta z dobrze wyposażonym laboratorium niż o dziewicę w przemyśle rozrywkowym
 [Consistently realized curtailment of the public patronage on scientific research in favour of sponsoring by rich private business has resulted in the situation where it would be easier to find a virgin in the recreation industry than an independent expert with well equipped laboratory in the branches yielding fabulous profits from relentless exploitation of patent rights] [Ł. TURSKI] RUT 2001.

Reduction of scientific projects to the role of business concerns, whose purpose is to yield prompt and predictable profit, is of course a direct consequence of the “consumer ideology”, until recently characteristic mainly of uncivilized societies – apparently such are we in the opinion of those politicians who openly argue that this is not the time for original scientific research: first we should “overtake” developed countries taking advantage of their achievements, and only thereafter “play at science”... This parasitical “method” would perhaps be profitable from the purely utilitarian point of view, were it not for the fact that... in the last decades it is spreading all-over the world: if the trend continues, before long there will be nobody to crib from... But first of all→

WISE HOMO SAPIENS OR MERELY RAPACIOUS HOMO AVIDUS?

Człowiek nie powinien być jedynie fabryką gie i żyć dla zdobywania surowca na tę produkcję

[Man should not be just a shit factory and live merely to procure raw material for this production] Béla FEKETI, in: ŻUKROWSKI 1971.

Proszę nie mieszać dwóch pojęć i dwóch znaczeń – „warto” i „opłaca się”. Nie wszystko, co się opłaca, warto robić. A nie wszystko, co warto robić, zaraz się opłaca

[Please do not confuse two notions and two meanings – „it is worth” and „it pays”. Not everything that pays is worth doing. And not everything that is worth doing, pays] BARTOSZEWSKI 2005.

Hiszem, hogy a tudósok társadalmi szerepe is van. Kérdés, mit értsünk „társadalmi szerep”-en. Biztosan nem a vulgár-marxizmus által hirdetett gazdasági hasznosságot. Ha ezt elfogadjuk, a kopernikuszi világgép kevésbé volna értékes, mint egy újfajta WC-kefe

[I believe that scientists perform an important social function. The question is, what do we mean by “social function”? Certainly not the economical benefit propagated by vulgar-Marxism. If we accept this, the Copernican picture of the Universe would be of less value than a new form of toilet-brush]

A. KOESTLER, ex: MARX 2000.

You're not going to have science in the national interest if you don't have a national interest in science

[Acad. Freedom For., Univ. Calif.] M. R. C. GREENWOOD, ex: GRABSKI 2006.

We are not rich enough to spare funds on science

G. POMPIDOU.

Nic tak nie hamuje postępu w dziedzinie nauk, jak pragnienie przedwczesnego wykorzystania jego osiągnięć

[Nothing hampers scientific progress so much as the anxiety for premature utilization of its achievements]

G. C. LICHTENBERG, ex: WENDT 1960.

... nauka dla techniki jest loterią, w której kwota wygranych zawsze przekracza ponoszone na rozwój nauki koszty. Co nie oznacza, że wszystkie losy w tej loterii wygrywają. Nieliczne przynoszą wygraną od razu, liczniejsze – po wielu latach, a część – dopiero po długim czasie i nieraz po dodatkowych ciągnięciach... Technika zatem ... planowanie nauki musi pozostawić samej nauce, podobnie jak wartościującą ocenę jej postępów

[...science is for technology like a lottery in which the sum of winnings always exceeds the amount spent on the development of science. That does not mean that all tickets for this lottery win. Few bring the prize immediately, most – within several years, and some – only after a long time and often after additional drawings... Thus technology ... should leave the planning of science, as well as the evaluation of its progress, to science itself]

KUNICKI-GOLDFINGER 1978.

Bardzo niewiele wynalazków przystaje do popularnego poglądu o potrzebie - matce wynalazków. ... W rzeczywistości wielu, jeśli nie większości wynalazków dokonali ludzie kierujący się czystą ciekawością lub zamilowaniem do majsterkowania

[Very few inventions fit the popular slogan that „necessity is the mother of invention”. ... In fact many, if not the majority, of inventions have been done by persons led by pure curiosity or a preference for tinkering]

DIAMOND 2000.

... żeby zobaczyć, trzeba najpierw zrozumieć, co się widzi ...

[... to see, we must previously understand what are we looking at]

GOETHE, ex: JURGO PUSZCZ 2008.

Trudno jest uzasadnić wybór zagadnienia w dziedzinie badań teoretycznych. Dlatego też bowiem wybór jednego tematu ma być lepszy niż innego? Jednym z najważniejszych jest następujące kryterium: wybrany temat powinien zdecydowanie interesować badającego. Badania naukowe, ... wymagając oryginalności i myśli twórczej, są bardzo wrażliwe na stan psychiczny badacza. Jest nieprawdopodobne, żeby pracownik nie zainteresowany tematem stworzył nowe pomysły, niezbędne dla postępu

[It is difficult to give the reasons for the choice of subject in theoretical sciences. Indeed, why should one topic be better than another? One of the most important is the following criterion: the chosen problem must be decidedly interesting for the researcher. Scientific studies, ... demanding originality and creative thought, are highly sensitive to the psychological condition of the student. A worker not interested in the subject is unlikely to invent new ideas necessary for its progress]

WILSON 1968.

Ich wünschte, dass Ihr bestrebt seid zu denjenigen Wissenschaftlern zu gehören, die für das bezahlt werden, was sie machen und nicht zu denjenigen, die das machen, wofür sie bezahlt werden

[I wish you would attempt to belong to those scientists who are paid for what they do, rather than to those who do what they are paid for]

ROHRER 2006a.

The scientific name of the human species reads *Homo sapiens*, what some scoffers explain as “gasping man” [pol. “sapać” means “to gasp”], but in LINNAEUS’ intention it was “wise man”. Humans deserved this proud qualification by their intellectual achievements, whose roots – without exception – come directly or indirectly from their curiosity of the world, thirst for knowledge, need to know and understand the nearer and further environment and the phenomena occurring there. This need urged our ancestors to look for the originators of the observed but incomprehensible facts among heroes and gods, ancient Hindoos and Greeks to carry on heated disputes on spirit and matter, sailors to steer beyond every “Further Is Nothing” Cape or “Ultima Thule” Island; from this need religion and philosophy, mathematics and history, humanities and natural sciences originate – and only from them modern engineering, agriculture, medicine. These practical fields – applications of science, *i.e.* technology – can develop for some time within the frame of what the *basic* sciences have already discovered and explained, but without constant widening of that frame with new discoveries and interpretations the progress will unavoidably become stunted and finally stop. Moreover, various branches of science are rather closely interconnected like alpinists with a rope: one of them can temporarily come somewhat to the fore, but if the others lag too far behind, the “leader” must also slow down or stop! Petrified remains of extinct organisms were uninterpretable until geologists clarified the origins of rock layers – and then in turn the fossils became a (for a long time the only) reliable tool for (at least the relative) dating of these strata; evolutionary studies got stuck soon after DARWIN, to set forth again only when geneticists disclosed the mechanisms of heredity; the geographical distribution of animals and plants was subject to totally erroneous interpretations until geophysicists proved that the position of continents in relation to one another was not stable! At that, the interrelations between various scientific problems are usually unpredictable (“scientific alpinists” rarely know for whom they are waiting, whose delay hampers the progress of the “spearhead”). Thus, negligence of basic research, as well as discrimination of some branches in favour of others, inescapably causes stagnation in all. There is no reason to consider one scientific problem “more important” than any other, and if so, then the optimal subject to study is the one that we feel the most interesting: one performs best the work which he/she likes best!

CAN WE APPLY THE UNKNOWN?

There is no applied science, when there is no science to apply

[general director of the UNESCO] F. MAYOR, ex: KARCEWSKI 1996.

Institucje, które finansują badania naukowe, powinny... zdawać sobie sprawę, jak mądre jest dalekowzroczne wspieranie badań czysto naukowych, bez względu na ich tematykę. Najważniejszą lekcją, jaką można wynieść z odkryć naukowych dokonanych w przeszłości, jest to, że podstawowe badania przyrody nie tylko poszerzają wiedzę o... Wszechświecie, lecz także niezawodnie przynoszą nowe, nieoczekiwane korzyści, które potem odczuwamy w każdej dziedzinie naszego codziennego życia

[Institutions which finance research should ... realize how wise is sagacious supporting of purely scientific studies irrespective of their subject-matter. The most important lesson that could be drawn from the hitherto done discoveries is, that basic natural sciences not only broaden our knowledge of the ... Universe, but also unfailingly bring new, unexpected benefits we then feel in all spheres of our life]

ASHALL 1997.

Nauka, wzbogacając teorię, dokonując nowych odkryć, może jednocześnie służyć praktyce; w większym jednak stopniu praktyce dnia jutrzejszego, niż dzisiejszego

[Besides enrichment of the theory and bringing about new discoveries, science may simultaneously serve the practice; however, the practice of tomorrow rather than that of today]

[rektor SGPiS] W. SADOWSKI [ex: Życie Warszawy 7 III 1972].
... nie má podobno takiéy istoty między dziełami WSZECHMOCNEGO, któraby dlá Człowieka jakiéy korzyści nie przynosiła; a lubo wiele wydaia się nám nieużytecznemi: winę tego mniemania naszéy niewiadomości przypisać náležý

[... There is probably no such being among the ALMIGHTY's creatures, which would not provide some benefit for Man; and although many of them seem useless: the blame for such opinion should be ascribed to our ignorance]

JAROCKI 1825.

Do czego te badania [nad indukcją elektromagnetyczną] mają służyć? – nie mam pojęcia, ale z pewnością skarb Jej Królewskiej Mości niedługo to opodatkuje

[What are these observations [on electromagnetic induction] to be used for? – I have no idea, but surely before long the Lord High Treasurer will tax it]

M. FARADAY.

Fleming nie przeprowadził żadnych doświadczeń, w których próbowano by leczyć penicyliną ... możliwości penicyliny zostały docenione dopiero na początku drugiej wojny światowej ... w laboratorium kierowanym przez profesora Howarda Floreya

[Fleming did not perform any experiments attempting the medical application of penicillin ... the potential of penicillin was appreciated only at the beginning of World War II ... in the laboratory of prof. Howard Florey]

ASHALL 1997.

Jedyną moją motywacją było zainteresowanie czysto naukowe. Kiedy zaczynaliśmy badania nad penicyliną, nie mieliśmy pojęcia, że znajdzie ona praktyczne zastosowanie w medycynie

[My only motivation was purely scientific interest. When we started the studies on penicillin, we had no idea that it would prove applicable to medicine]

[member of FLOREY's team]

E. B. CHAIN, ex: ASHALL 1997.

... Szilárd Leó ... meglátogatta volt Rutherfordot és azt mondta neki: a nukleáris energiát hasznosítani lehet, ... Erre Rutherford kidobta az irodájából ... [és]... napok múlva sem tudott másról beszélni, csak arról, hogy ez az ötlet milyen ostobaság

[Leó Szilárd ... visited Rutherford and said that nuclear energy may be exploited ... Rutherford chucked him out ... [and] ... even after several days he could not stop speaking about how stupid such an idea was]

E. TELLER, ex: MARX 2000.

Semmi sem praktikusabb, mint egy jó elmélet

[Nothing is more practical than a good theory]

[famous aircraft engineer] T. KÁRMÁN, ex: MARX 2000.

The inevitable consequence of stagnation in science is stagnation in technology: we cannot apply something we are not aware of. Without MAXWELL's work on electromagnetic waves we would not have radio or television; exploitation of atomic energy became possible in consequence of RUTHERFORD's studies on nuclear fission (though RUTHERFORD himself considered the practical applicability of his discoveries as irritating nonsense!); had FLEMING simply thrown the accidentally mouldy bacterial cultures on the scrap-heap instead of observing with curiosity the further "progress of events", we would not have antibiotics; &c., &c., &c.

LET'S ORDER... WHAT???

A kto to zamawiał?

[Who on earth did order this?]

[reacting to the discovery of mion] I. RABI, ex: LEDERMAN & TERESI 1996.

W dłuższym czasie da się wykorzystać wszystko, co jest naprawdę dobrą nauką: od teorii liczb po badania nad językami ludów Gwinei. Na nic nie zdadzą się natomiast innowacje na zamówienie

[In longer perspective every result of truly good science may be utilized: from the theory of numbers to linguistic studies on Guinean nations. Instead, innovations made to order will be of no avail] Turski 2004.

Jest rzeczą śmieszną obstalowywać poemat tak, jak się u krawca zamawia ubranie

[It is ridiculous to order a poem as one orders a dress from a tailor] NAPOLEON, in.: ŁYSIAK 1990.

Charakterystycznym dziś błędem jest wyobrażanie sobie, że poseł, konserwatyista czy socjalista, może zdecydować o linii badań, a potem zostawić naukowcom wypracowanie szczegółów. Żaden król ani minister nie mógł polecić Newtonowi, aby odkrył prawo ciężenia, gdyż żaden z nich nie wiedział i nie mógł wiedzieć, że takie prawo było do odkrycia. Żaden urzędnik Ministerstwa Skarbu nie powiedział Flemingowi, żeby odkrył penicylinę. ... W naszych czasach jeden kraj zostaje pod względem naukowym w tyle za drugim, równie zamożnym, najprawdopodobniej dlatego, że rząd powiedział swoim uczonym, co mają odkryć. ... Więcej zasobów przeznaczono na projekty, które politycy mogą zrozumieć – to znaczy na rozwój odkryć już dokonanych i opublikowanych – mniej na odkrycia jeszcze niewyobrażalne

[A characteristic mistake nowadays is the idea that a member of parliament – no matter whether conservative or socialist – can decide the general line of research and then leave to scientists the elaboration of details. No king or minister could have ordered Newton to discover the law of gravitation, because none of them knew or could have known that such a law was to be discovered. No official of the Ministry of Finance told Fleming that he should discover penicillin. ... If in our times one country lags as regards scientific development behind another equally wealthy, it is most probably because its government instructed its researchers what they should discover. ... More resources have been assigned for projects which politicians can understand – i.e. for the development of discoveries already done and published – less for the yet unimaginable ones] PARKINSON 1967.

Z przyszłości można przewidzieć tylko to, co jest podobne do przeszłości, a dzieło, które kiedy się pojawi, z pewnością nie będzie podobne do żadnego z istniejących

[From the future we can predict only what is similar to the past, whereas what after some time will appear will certainly not resemble anything we know today]

PARANDOWSKI 1968.

[Badania naukowe są] *czymś co się robi, kiedy się nie wie, co się robi*

[(*Scientific research is*) what we do when we do not know what are we doing]

[Secretary of State USA] C.E. WILSON, *ex*: SELYE 1967.

Krzyś wyciągnął notes i uzupełnił mapę o numery ... – Wędrujemy drogą numer Trzy – oznajmił. – Widzisz, Kubusiu, postępujemy teraz jak prawdziwi badacze. Wiemy, którą drogą idziemy. – A dokąd idziemy? – spytał Kubuś. – Tego nie wiem – przyznał Krzyś – ale przynajmniej zaczęliśmy wędrowkę w sposób naukowy

[Chris took out his notebook and supplemented the map with numbers... – We follow road number Three – he announced. – You see, Jimmie, we are now proceeding like genuine scientists. We know, which way we are going. – And where are we going? – asked Jimmie. – This I do not know – admitted Chris – but at least we started in a scientific manner]

HRYNKIEWICZ 2000.

Niedaleko zajdzie ten, kto wie dokąd zmierza

[If you know where are you going, you will not get far]

NAPOLEON, *ex*.: ??? 1999.

My advice is to go for the messes – that's where the action is. ... exploring the unclear, uncharted areas of science can lead to creative work

WEINBERG 2003.

Mamy znane wiadome. Rzeczy, o których wiemy, że je wiemy. Wiemy również, że istnieją znane niewiadome. Innymi słowy, wiemy, że są pewne rzeczy, których nie wiemy. Ale są również nieznanne niewiadome – takie, o których nie wiemy, że ich nie wiemy

[We have recognized knowns: things which we know that we know. We are also aware of the existence of recognized unknowns; in other words, we know that there are some things which we do not know. But there are also unrecognized unknowns – such of which we do not know that we do not know them]

[Amer. Secretary of Defence] Donald RUMSFELD, *ex*: SHERMER 2005.

Supporting projects which „*match the actual needs of the economy and market*” at the expense of basic research is an evident misconception that leads to mere “marking time”: it is evident that nobody knows or could know to what degree and which “needs of economy” will match the not yet made discovery. We could hardly imagine an occupation less promising from the “practical” point of view than toilsome counting of white, pink and red pea-flowers (MENDEL would have little chance to win the EU grant...), but still harder would be to imagine modern agriculture or medicine without the results of that “drudgery”! But even if a given discovery does not bring any direct, concrete benefits, even then – by deepening and broadening our general knowledge of the world – it is conducive to others, many of whom undoubtedly will initiate progress, and in some cases a crucial turn, also in technology.

SHOULD THE TAIL WAG THE DOG?

Swoją funkcję [instytuty badań podstawowych] pełnić mogą tylko w warunkach wolności uprawiania nauki. Owa wolność oznacza określoną relację między nauką a administracją, gdzie ta ostatnia winna pełnić funkcje służebne, a nie kierownicze

[*Institutes of basic research*] can fulfil their tasks only under conditions of scientific freedom. That freedom means particular relations between science and administration, where the latter should perform ancillary, not managing, functions]

ZAGÓRSKI-OSTOJA 2006.

Niestety, mamy ... grupę akademickich urzędników, nie rozumiejących, po co rozwija się badania oraz tworzy wyższe uczelnie

- [Unfortunately we have ... a group of academic clerks who do not understand why scientific studies are supported and universities set up] TURSKI 2005.
- Straty są wynikiem nadmiaru kontroli, nie jej braku*
 [Losses result from excess rather than from lack of control] PARKINSON 1967.
- Ile dodatkowych batalionów można by utrzymać za sumę wydaną na wydział finansowy Ministerstwa Wojny?*
 [How many additional battalions could be maintained for the outlay spent on the Financial Department of the Ministry of War?] PARKINSON 1967.
- Aby zadowolić biurokrację, trzeba ciągle podporządkowywać się czymś poleceniom i właśnie dlatego dzisiejsza nauka, prawie w całości zdominowana przez biurokratów, jest w znacznej mierze jałowym zajęciem*
 [To satisfy the bureaucracy one must incessantly submit to somebody's instructions, and just therefore present-day science, almost totally dominated by bureaucrats, is to a significant degree a vapid occupation] HOYLE 2001.
- When analyzing bureaucratic ideas, it is impossible to determine when the most foolish proposal ever will come to fore*
 YOCHELSON 2004.
- Ha egy elgondolást úgy is meg lehet valósítani, hogy előbb bürokratikus ellenőrzésen esett át, akkor nem volt érdemes megvalósítani*
 [If a given idea may be realized despite its having passed through bureaucratic control, it was not worthy of realization] BLOCH 1985.
- Aki tudja, csinálja. Aki nem tudja, tanítja. Aki nem tudja tanítani, igazgatja*
 [Who is able, does. Who is unable, teaches. Who is unable to teach, manages] MENCKEN/MARTIN'S Law, ex: BLOCH 1985.
- Biurokracja jest stara jak prostytutka. Wszak pierwsze pismo wynaleziono na potrzeby biurokracji, a pierwsze zapisane w historii dochody podobno dotyczą dochodów z prostitucji*
 [Bureaucracy is as old as prostitution. Indeed, the first writing had been invented for the needs of the bureaucracy, and the historically earliest recorded revenues allegedly refer to income from prostitution] FALIŃSKI 2004c.

Conceiving science mainly or exclusively in terms of “business” and the dominating role of bureaucracy are closely related phenomena: bureaucrats are appointed by politicians, politicians owe their authority to the electorate, and in the ears of the overwhelming majority of electors the word “profit” sounds much more pleasant than discovering the mysteries of nature, whose relation to profit they do not understand... And as the rules of democracy impose short-term planning (in four years probably not “we” will be in power), so the profit (applications, economic benefits) should be direct and immediate – even if someone of the “decision-makers” realizes that by neglecting basic research he contributes to the technological stagnation in a somewhat longer perspective, this will already be a problem of the next team (and for “us” an additional advantage: the responsibility can be devolved on those successors, increasing “our” chances in the next elections...). When the power over science has been seized by *Santa Burrocratia*, it is being executed in the bureaucratic way: by rigid regulations, formal restrictions, “objective” indexes, multiplication of plans, reports, accounts, justifications. Those scientists unwilling or unable to accept so imposed style of work are eliminated, others *nolens volens* sacrifice half (or more) of their time and effort on the altar of the Supreme Deity, and the most zealous confessors quickly ascend on the rungs of monkey-ladder until they themselves become decision-makers, pursuing and further intensifying the “achievements” of their masters and predecessors...

RAT-RACE: PUBLISH OR PERISH

My... advice is... to forgive yourself for wasting time... in the real world, it's very hard to know which problems are important, and you never know whether at a given moment of history a problem is solvable. ... As you will never be sure which are the right problems to work on, most of the time you spend in the laboratory or at your desk will be wasted. If you want to be creative, then you will have to get used to spending most of your time not being creative

WEINBERG 2003.

Az arguskakas evezőtollai után az intraspecifikus szelekció legbutább terméke a modern emberiség munkatempója

[Next to the wing feathers of the male argus pheasant, the most foolish product of intraspecific selection is the modern man's working pace]

O. HEINROTH, *ex*: LORENZ 1988.

Pierwszy etap to intuicja – przychodzi ona nagle, trudności pojawiają się później. To się nie udaje, potem tamto – „pluskowy” – jak nazywamy takie drobne błędy i trudności – wychodzą na jaw i trzeba miesięcy usilnych obserwacji, studiów i pracy, zanim uzyska się pewność, że osiągnęło się komercyjny sukces lub poniosło porażkę... Mam właściwą zasadę postępowania i podążam we właściwym kierunku, lecz niezbędny jest także czas, ciężka praca i trochę szczęścia

[The first step is intuition – it comes suddenly, difficulties appear later. Now this fails, then something else: ‘bugs’ (as we call such trifling errors) emerge, and it takes months of strenuous effort, observations, studies to acquire certainty of success – or defeat... [...] I have a good idea and proceed in the right direction, but time, hard work and a bit of luck are also indispensable]

T. A. EDISON, *ex*: SPROULE 1991.

American universities, formerly citadels of thought, [have been transformed] into organizations where, nowadays, no one has a moment in which to stop and think

E. G. LEIGH, *ex*: HEADS 2002.

One of the now widely applied „objective” measures of the value of scientists’ work is the number of publications, therefore everybody except the disdained „amateurs” must maximally extend the list. There are several recipes, all in common use: 1) “Divide each project into as many fragments as possible, and publish each of them as a separate paper: you will have five or ten publications instead of one”; 2) “Add the names of some colleagues as co-authors, then they will add yours in their papers, and again each of you will have several times more items on your lists”; 3) “Choose possibly most schematic subjects, in which the majority of work will be done by computer, and you will need only to change numbers and names in the introduction and discussion – you will save plenty of time otherwise lost on thinking and interpretation”; 4) “Avoid original, unorthodox methods and conclusions, so you will not be compelled to spend weeks or months on quarrels with reviewers and editors”; 5) “If nevertheless the reviewer or editor has found that you should change something, never let enter your mind the erratic hypothesis that perhaps right may be on your side, and anyway under no circumstances try to defend your view: quickly introduce the required changes, humbly express your gratitude for the valuable remarks, and automatically consider them in your further papers – after all, you will not be evaluated according to the aptness of your conclusions but to the number of your publications and the “ranking” of the journals they have appeared in. And always remember, that even if you have published thousands of papers in most renowned journals, this does not matter a bit unless you swiftly climbed to an adequately high rung on the “monkey ladder”: as master you are nobody, as doctor – almost nobody, you begin to count only after habilitation...

PRODUCTION OF CHAFF

Ilość przechodzi w bylejakość

[Quantity transforms into flimsy quality]

Prof. J. KOSTRZEWSKI, ex: ROSZKO 1974.

Hustle and bustle of current science, focusing on writing the maximum number of papers about minimum publishable entities, selling himself at conferences, or investing substantial amount of energy and time in grant proposals with only maximum chance of 15% success

KRELL 2005.

In fact, to do the full amount of comparative work appropriate to the first rate species hypothesis test one has in essence done the better part of a revision of at least some sub-clade of the higher taxon to which the species belongs. This is why taxonomists have relied upon revisions and monographs

WHEELER 2004.

There are worse sins for a scientist than to be wrong. One is to be trivial

R. MACARTHUR, ex: BROWN 1999.

Unjustified splitting of research projects into exiguous contributions is the simplest and relatively least harmful way to expand the list of publications, but even this has serious faults: it enforces multiple repetitions (introduction, methods, references, acknowledgements), decreases the likelihood of completion of the entire project, occasions heterogeneity of elaboration (e.g. due to discordant editorial policies), is inconvenient for the readers (assembling all parts can be problematic), and above all makes it difficult to synthesize the results and draw general conclusions. In this way the author, maximizing the number (and total volume) of his/her publications, simultaneously minimizes their scientific value.

CO-AUTHORSHIP: BENEFIT AND GLORY VS. RESPONSIBILITY

Spółka to pomysłowy wynalazek dla zapewnienia sobie indywidualnych zysków i uniknięcia indywidualnej odpowiedzialności

[Company is an ingenious invention to assure individual profit avoiding individual responsibility]

[writer] A. BIERCE; ex: NOWAKOWSKA 2002.

Im raport z badań ma więcej autorów, tym bardziej prawdopodobne jest, że idea i samo odkrycie (jeśli zaistniało odkrycie!) jest dziełem jednego lub co najwyżej dwojga z nich. ... Nierzadkie są ... przypadki, że owa zespołowość pracy wyrażona współautorstwem jest tylko przejawem pasożytnictwa ... spełnienia imperatywów niektórych szefów, decydentów, sponsorów

[The more authors have signed a research report, the more probable is that the idea and discovery (if there was any!) had been done by one, or at most two, of them. ... Not so rare are ... cases, where that collectivity of work expressed by co-authorship is in fact a manifestation of parasitism ... compliance with the requirements of some bosses, decidents, sponsors]

FALIŃSKI 2004c.

If two men agree on everything, you may be sure that one of them is doing the thinking

L. B. JOHNSON, ex: WOLSAN 2005 i.l.

Jednej woli jednemu trzeba przedsięwzięciu,

Lepszy jeden wódz głupi niż mądrych dziesięciu

[One will is needed for one enterprise,
one stupid chief is better than ten wise]

MICKIEWICZ 19??.

Any issue of Nature today has nearly the same number of Articles and Letters as one from 1950, but about four times as many authors. The lone author has all but disappeared. ... Curiously, however, in most journals we are not told which of

authors] ... *did what part of the work, nor may we be certain (have we ceased to care?) who drafted the paper*
GREENE: 2007.

Miej nawet mały rozum, ale swój

[Have even a small mind, but your own]

J. W. GOETHE.

Z pieniędzy przeznaczanych na naukę korzystają głównie plagiatorzy

[From the funds allocated for science benefit mainly plagiarists] HOYLE 2001.

When, several years ago, a colleague of my Wife, asked to send for comparison some specimens of a common cyclops from his home area, replied that “*well, I will send, but on the condition that you accept me as the co-author of your paper*”, I was exceedingly astounded and surprised – even not so much by the fact of making such a trivial comradely kindness dependent upon some conditions, but mainly by the demanding, or in fact the very willingness, to assume the responsibility for the content and form of not his own publication. Now such cases continue to astonish me, but already do not surprise: unfortunately multi-authored (often grotesquely) texts appear (especially in “high-ranked” journals) so frequently that I must have become accustomed, while bureaucratic criteria of evaluation of scientists have also provided the explanation... It is hard to believe that a one-page report in *Nature* has **really** been written by several tens (sometimes several hundred) of authors – one person formulated one sentence??? – but even if there are only two or three (except for totally problemless contributions and some very special situations where each author is responsible for his own well defined heading) one can be almost sure that either the paper was prepared by one of them and the others have been added as my Wife’s colleague wished to be, or – still worse – the text is a “corrupt compromise” that does not fully match the opinion of any of the co-authors: there are no two thinking persons whose views would be identical!

HIS MAJESTY THE IMPACT FACTOR

Można powiedzieć, że życie naukowców przenosi się stopniowo z laboratoriów, bibliotek i poletek doświadczalnych – do biur, sal kongresowych, na ulice, na trybuny. Grozi nam powstanie czegoś, co nazwać możemy nauką bez uczonych. W nauce bez uczonych będą nadal bogato wyposażone laboratoria, a zwłaszcza liczne publikacje, wedle których urzędnicy wespół ze środkami masowego przekazu będą odpowiednio wyżej oceniać naszą aktywność niż jej efekty poznawcze

[One can say, that the life of scientists gradually moves from laboratories, libraries and experimental plots – to offices, conference rooms, into streets, onto tribunes. There is a treat of appearance of something that may be described as science without scientists. Science without scientists will still have richly equipped laboratories, and especially plentiful publications, according to which officials together with mass-media will appropriately higher evaluate our activity than its scientific effects]

FALIŃSKI 2004b.

Państwo, w którym nagromadzi się zbyt wiele procedur formalnych, skazane jest na upadek

[The state in which too many formal procedures accumulate, is doomed to crash]

HOYLE 2001.

Nasz świat zdaje się być blisko stanu ... szaleństwa, skoro niektórzy z nas całkowicie oglupieli od liczenia filadelfijskich cytatów, ...; skoro czas przeznaczony na badanie przyrody zgodzili się poświęcić na sporządzanie nigdy nie kończących się planów

i sprawozdań

[Our world seems to be close to the state ... of madness, if some of us have been totally stupefied from counting Philadelphia citations, ... if the time destined for studying nature they agreed to spend on preparation of endless plans and reports]

FALIŃSKI 2004c.

... o częstotliwości cytowań danego autora, a ściślej któregoś z jego artykułów lub serii raportów, decyduje nie oryginalność pomysłu lub specjalne odkrycie, tylko świadome lub przypadkowe wejście czy też wpisanie się w aktualnie rozwijający się nurt badań, lub lepiej: w modny temat. ... może to być najbardziej prymitywny i mało obiecujący kierunek poszukiwań

[... the frequency of citations of a given author, or more exactly of some of his papers or series of reports, is determined not by the originality of the idea or special discovery, but deliberate or accidental joining or ascription to the currently developing trend, or better: fashionable topic. ... this may be just the most primitive and least promising target for research]

FALIŃSKI 2004c.

... *unfashionable does not mean irrelevant*

PARKES 1982.

Once citation counting became established as a means to determine prominence, players began to 'game the system' ..., and the metric ceased to have a close relation to the outcome it was designed to measure. Such attempts led to the somewhat occult business of impact factors, ...

GREENE: 2007.

Grzegorz Mendel opublikował w podrzędnym, lokalnym piśmie zaskakujące wyniki
[Gregor Mendel has published amazing results in a secondary, local magazine]

ŻYLICZ 2006.

Bureaucratic management could not go without „objective” evaluation of scientists and their publications according to some formal criteria (until recently the favourite was „citation index”, now “impact factor” dominates). There would be nothing wrong with this, if the “objectivity” could be combined with adequacy – unfortunately the indexes proposed hitherto, though in a sense objective indeed, as a measure of scientific value of the researcher’s work are hardly better than his/her stature or date of birth... In effect their application is to a considerable degree destructive: discriminates some branches of science (including taxonomy); inclines to choose fashionable (worked on by many other authors) and non-controversial (thence less likely to be rejected by reviewers or editors) problems; promotes opportunism in selection of methods, interpretation of results, and form of presentation; coerces submission of the manuscript to a “high-ranked” journal instead of one often more appropriate but not belonging to the “Mutual Admiration Society”; most frequently causes delay in publication (“renowned” periodicals are usually “overloaded”); &c., &c., &c.

IS THE GAME WORTH THE CANDLE? – THE COSTS OF EDITORIAL PRIGGISHNESS

Wielka to praca ... wielka i mozolna, ale za to jałowa!

[This was a great work ... great and arduous, but in reward idle]

[Actor-humorist] Franc FISZER, ex: BRALCZYK 2004.

Nie mam czasu, żeby tracić czas

[I have no time to waste time]

Ariel SZARON, ex: SZAFIR 2005.

Jestem osobą bardzo pracowitą i strasznie leniwą. ... Lenistwo jest potrzebne, aby zorientować się, w co inwestować swoją pracę

[I'm a very industrious but very lazy person. ... Laziness is necessary to recognize what is worth investing my work in]

TYSZKIEWICZ 2004.

Najwięcej nieporządku robią ci, co robią porządek

[Disorder is mostly introduced by those eager to make order]

KOTARBIŃSKI 1986.

Forma jest ekspresją treści

[Form is the expression of essence]

René DUBOS, *ex*: FALIŃSKI 2004c.

Words differently arranged have a different meaning and meanings differently arranged have a different effect

[NN], *ex*: WOLSAN 2005 *i.l.*

Musiałem za każdym razem, podobnie jak i inni ludzie, wyważyć w swoim sumieniu, czy zgoda na opublikowanie czegoś niepełnego jest mniejszym złem niż całkowite milczenie, czy jest już złem, którego nie mogę przyjąć i zrezygnować z publikowania

[Every time I – like others – must have weighed in my conscience whether consent to the publication of something deficient is a lesser evil than total silence, or it would be an already unacceptable evil and I must give up the publication]

BARTOSZEWSKI 2004.

Each editor has a set of “the only acceptable” (though in each case different...), and exacted with stiff obstinacy, regulations – “instruction for the authors” often fills several pages! The hapless author first studies all these rules: where to put a full-stop and where a comma, what to emphasize by italics and what to leave unemphasized, whether the date of publication must be quoted after the author’s name or after the volume number, &c.; then he diligently turns semicolons into dashes (or dashes into semicolons), changes the subtitle from “Literature” to “References” (or from “References” to “Literature”); abbreviates the journal titles (or unfolds the abbreviations), &c.; then, frowning with disgust for the coerced malformities submits the paper to the editor, who checks whether all is “made to order” and then sends the manuscript to referees who, among others, verify the adherence to the editorial rules; referees of course find some “improper” display or square brackets instead of round parentheses (or the opposite), the text returns to the author who again refashions, “corrects”, and sends back to the editor, who checks... What wonder (especially if we supplement this with the effects of the professional “omniscience” of reviewers...) that while in the XIX century a text written with a quill after the lecture presented in July appeared in print in August or September, in the XXI century “*a typical paper* [in “*an efficiently operated scientific journal*” – emphasis mine (RBH)] ... *can spend 9 months to a year on various desks before actual publication*” (ERWIN & JOHNSON 2000)? What a lot of time, effort, money, stress; risk of introducing inconsistencies and errors (or at least disturbing the clarity of expression: after all, all these dashes and semicolons have not been invented in order that the editors may have what to regulate, but to enable the author to express his views as precisely as possible) – and all this for the only purpose of making some (for the reader mostly unnoticeable) formal details looking as preferred by the editor rather than as the author would like... Is it really worth it???

EVERYBODY KNOWS BETTER, ONLY THE AUTHOR IS BY DEFINITION IGNORANT

*Dawniej o wiele łatwiej było opublikować artykuł w „Nature” o czymś nowym i niezwykłym; teraz można go „zarecenzować” na śmierć...
Recenzowanie prac osiągnęło stan szaleństwa*

[Formerly it was much easier to publish in „Nature” a paper on something new

and unusual; now it can be “overreviewed” to death... Reviewing of works has attained the state of madness]

[renowned cosmologist] G. BURBRIDGE, *ex*: CROSSWELL 1997.

Wszak wszyscy recenzenci wiedzą wszystko lepiej niż autorzy i raczej woleliby sami napisać książkę na dany temat niż trudzić się oceną cudzego rękopisu. Jednak nie pozwalają im na to ważniejsze obowiązki, które byli zmuszeni wziąć na siebie dla ogólnego dobra

[Isn't it that all reviewers know everything better than the authors and would rather prefer to write themselves a book on the given subject than to toil at the recension of other scientist's manuscript. However, they cannot afford to do this because of more important duties, which they must have undertaken in the public interest] FALIŃSKI 2004c.

Krytyk to kura, która gdać, gdy inne znoszą jaja

[A reviewer is like a hen, which cackles when others are laying eggs]

Giovanni GUARESCHI, *ex*: DANIEN 1991.

... odpowiedź wielkiego fizyka lorda Rayleigha na stwierdzenie Thomasa Huxleya, że: „Uczni powyżej sześćdziesiątki czynią więcej złego niż dobrego”. Rayleigh (mający wówczas 67 lat) odpowiedział: „Może tak być, jeśli uczoney zajmuje się krytykowaniem prac młodszych kolegów, nie widzę jednak powodu, aby musiało tak być, jeśli zajmuje się sprawami, na których się zna”

[... the answer of the great physicist lord Rayleigh to Thomas Huxley's opinion that: „Scientists over sixty do more harm than good”. Rayleigh (then 67 years old) replied: „It may be so, if the scientist is busy with criticizing younger colleagues, but I do not see any reason to be it so if he is occupied with problems which he is experienced in] REES 1999.

Strzelanie zza płotu jest zawsze świństwem

[To shoot from behind a fence [= “snipe”, *attack somebody from hiding*] is always a scurviness]

J. DĄBROWSKI, *ex*: KOSSAK 1964.

... poprawiacz był widocznie przekonany, że wie lepiej. ... Tylko dlaczego podpisywać?

[The „corrector” was apparently persuaded that he knows better... But why it is ME who must sign this stupidity WITH MY NAME?] POKRYSZKO 1998.

Biorąc pod uwagę eksperymentalne skrzywienie tej książki, wyglądało [korekta merytoryczna wykonana przez teoretyka] tak, jakby Marcin Luter zwrócił się do papieża z prośbą o korektę ... [swoich] 95 tez

[Taking into consideration the experimental attitude of this book, it [a recension by a theoretician] looked as if Martin Luther asked the Pope for a review ... of his 95 theses] LEDERMAN & TERESI 1996.

Recenzowanie prac przed dopuszczeniem do publikacji to sposób stosowany przez elitę do obrony swojej pozycji

[Reviewing works before acceptance for publication is a method used by the élite to defend their positions] HOYLE 2001.

Jeśli powieść jest zła proszę jej nie drukować – ale toć to nie szkolne wypracowanie na podany przez profesora temat, aby je oceniać i kreślić

[If the novel is poor, do not publish it – but after all it is not a school exercise, on the topic given by the teacher, to be rated and crossed]

M. RODZIEWICZÓWNA, *ex*: GLUSZENIA 1992.

... dotychczasowy rozwój nauki był możliwy jedynie dlatego, że przebiegał wbrew usankcjonowanym poglądom na metodę naukową. Jedyną zasadą, której należy w nauce bronić, jest teza o równouprawnieniu wszystkich, najbardziej nawet „szalonych” sposobów badania

[... the hitherto achieved development of science was only possible because it proceeded contrary to the sanctioned views on the scientific method. The only

rule which should be defended in science is the thesis of the equiponderance of all, even the most “crazy”, ways of investigation]

[science philosopher] P. FEYERABEND, *ex*: BRONK 2006.

I am not prepared to spend months submitting manuscripts to journals before receiving negative replies simply because the referees have „opinions” different from mine

DUBOIS 2005.

You can get almost anything into print if you go far enough down the ranks of journals

SVETLOV 2004.

Często całkowicie błędne prace bardziej stymulują naukowców od tych poprawnych, ale niewiele wnoszących, prac badawczych

[Often totally erroneous works prove more stimulating for scientists than correct but trivial ones]

ŻYLICZ 2006.

Ich [WATSONA i CRICKA o strukturze DNA] praca opublikowana w „Nature” ... nie opierała się na żadnym doświadczeniu, była czystą spekulacją ... znając rady redakcyjne międzynarodowych czasopism, taka praca w obecnym czasie nigdy nie ukazałaby się ani w „Nature” ani w „Science”

[Their [WATSON & CRICK's on the structure of DNA] paper published in „Nature” ... was not based on any experiment, was purely speculative ... knowing editorial committees of international journals, nowadays such work would have never appeared either in „Nature” or in „Science”]

ŻYLICZ 2006.

Nie powinno być tak, że nieznaną z nazwiska osobie lub osobom udostępni się najnowsze wyniki na kilka miesięcy wcześniej niż innym ... Znane są przypadki, w których recenzent doprowadził do odrzucenia pracy, a potem wykorzystał to, co w niej przeczytał, do własnych badań. Z drugiej strony osoba o nadmiernych skrupułach poproszona o zrecenzowanie czyjejś pracy może mieć potem opory wewnętrzne przed publikowaniem własnych prac na podobny temat. Opowiadano mi, że dlatego właśnie Wolfgang Pauli nie opublikował równania, które znane jest dzisiaj jako równanie Schrödingera

[It should not be so that the newest results are made available to an unknown person or persons several months earlier than to others ... Cases are known where a reviewer induced the rejection of a paper and then used its content to his own studies. On the other hand, an excessively scrupulous person asked to review somebody's work may then feel embarrassing to publish his/her own works on a similar topic. I have been told that it was just therefore that Wolfgang Pauli had not published the equation known today as Schrödinger's equation]

HOYLE 2001.

Prosty język, łatwy styl, brak obcych słów, jasne i krótkie zdania ... – podstawowe kryteria naszych wydawców – to recepta na niezobowiązującą lekturę na plażę, ale nie na źródło poważnych informacji na ważne tematy

[Simple language, easy style, lack of foreign words, clear and short sentences ... – the main criteria of our publishers – make a recipe for a light beach-lecture, but not for a source of serious informations on important matters]

RYSZKIEWICZ 2002.

Inni czynili mi zarzuty z powodu mego wystąpienia, któremu zbywa jakoby na powadze, a właściwie na oschłości akademickiej. Ci się lękają, że stronica, którą się czyta z łatwością, nie zawsze daje świadectwo prawdzie. Według nich, głębokim można być tylko pod warunkiem, że się jest niezrozumiałym

[Others accused me for my wording, which allegedly lacks solemnity, or in fact rather academic stiffness. They are afraid that a page easy to read may not always be good expression of the truth. According to them, one can be profound only on the condition of being abstruse]

J. H. FABRE, *ex*: BANASZAK 2002.

„Obligatory peer reviewing” is one of the most worshipped fetishes – or, if one prefers, Sacred Cows – of present-day science: slogans preaching the enormous importance of this procedure to “*guarantee high standards*” of published works have been

repeated again and again to the point of boredom, but I have never met with any *serious* [*i.e.* not restricted to repetition of slogans] substantiation of its positive role (from time to time appearing timid voices to the contrary are either – in most cases – ignored, or put off with one more triteness). I do not wish to amplify on this subject here (I have discussed it already several times, and can send the respective publications with pleasure to those possibly interested), I only repeat some questions which would be nice to have answered in a non-slogan (*i.e.* **supported by facts**) form: Is the procedure of “peer reviewing” **truly efficient** in elimination of worthless works? Is it **really efficient** in improving valuable contributions? Is it not possible to achieve these results **without** “peer reviewing”? Is the occasional publication of erroneous or worthless paper **more harmful** than **rejection of a scientifically important** one? What is the more harmful aspect of the circumstance which so troubles the author of one of the above citations (that “*you can get almost anything into print if you go far enough down the ranks of journals*”): the occasional appearance of poor quality papers (in the “top-ranked” periodicals they are also not so rare...), or rather the fact that you often **must** “*go far enough down the ranks of journals*” to publish a paper more or less faithfully presenting the views of the **author** (who signs it and is responsible for its content and form) rather than those of an anonymous (at least to the reader) editor and/or reviewer? And first of all, are the supposed benefits **really not too extravagantly disproportionate to the costs** [of course I mean as well those measured in zlotys or dollars as – especially! – others: the time wasted by the author, reviewer and editor; creation of the opportunity to dishonest “tripping” and/or usurp the results of the other’s work; discouraging from bold, unfashionable, innovative methods and original interpretations in favour of “orthodox” stereotypes; muffling discussions and confrontation of views (it is difficult to fruitfully discuss with a “sniper” shooting from behind the fence of anonymity, even if – what happens rather rarely... – he/she is willing to venture to discussion...); abating or even fully suppressing the author’s feeling of responsibility for the content and form of the papers published under his/her name]?

TO WHOM, WHAT FOR, AND WHY?

Nem az a kérdés, hogy van-e pénz, hanem hogyha nincs, mire van mégis

[The problem is not whether enough money is available, but if it is not, for what it nevertheless is?] [film director] J. GULYÁS, *ex:* TÓTH 1995.

Może wydawać się logiczne, że rząd, który dostarcza pieniądze, powinien decydować, jak należy je wydać. Ale upieranie się ... przy prawie kontroli bardzo przypomina sytuację, w której pacjent pouczałby swego lekarza, mówiąc: „Ja płacę rachunek, więc ja będę decydował, ... na czym powinno polegać leczenie”

[It might seem logical that the government which provides the money should decide on what it must be spent. But insistence ... on the right of control would strongly resemble the situation where a patient would instruct the doctor, saying: “I am paying the bill, so I will decide ... what treatment you should apply”]

PARKINSON 1967.

Taxonomists are cheap dates. That might seem to be a good thing, but trends in academic science have gone in the opposite direction. Laboratory space and jobs go to those who can bring in the largest grants, those which will result in the greatest amount of overhead or profit returned to the university WINSTON 2007.

Rządy wydają setki milionów dolarów na systematyczne badania gwiazd, ale zaledwie drobną cząstkę tych sum przeznaczają na systematyczne badania przyrody na Ziemi

[Governments spend hundreds of millions of dollars on systematic studies of stars, but merely a trifling particle of these sums devote to systematic studies of Nature on the Earth] LEAKEY & LEVIN 1999.

Zdolności niezbędne do dobrego wykonywania pracy naukowej są zupełnie inne od tych, które pomagają w uzyskaniu subsydiów

[Abilities necessary to effective scientific work are totally different from those which help in procurement of subsidies] J. SELYE; *ex*: FALIŃSKI 2004c.

Lies, damned lies, and grant proposals

STANLEY & HIGLEY 1997.

Uciążliwa i w znacznej części zbędna jest ogromna praca, którą muszą wykonać naukowcy, starający się o fundusze u połączonego ciała naukowo-urzędniczego. ...

Nie spełnia też oczekiwań żadnej ze stron: nie ułatwia podejmowania decyzji [Arduous and largely superfluous is the enormous work, that scientists must do seeking to procure the funds from the joint scientific-clerical body. ... At that, it does not satisfy the expectations of either party: does not help in taking decisions]

FALIŃSKI 2004c.

... najgorszą kradzieżą jest kradzież cudzego czasu

[... the worst theft is stealing of others' time]

REICH 1980.

Nie będzie użyteczne, jeśli rzecz [systemy finansowania nauki] pozostanie w rękach administracji ministerialnej, mającej naturalną tendencję do zastępowania kompetencji formalizacją

[It will not be useful if the matter [system of funding science] remains in the hands of ministerial administration, which shows the natural tendency to substitute formalities for competence]

ZAGÓRSKI-OSTOJA 2006.

Sponsor ... najpierw żąda przekonującego opisu wyników badań ... Następnie oczekuje częściowych sprawozdań zgodnie z harmonogramem prac ... Wreszcie w zaplanowanym terminie chce otrzymać produkt. Jednak pomimo upodobnienia do procesu produkcyjnego nauka pozostaje nieprzewidywalna. ... Co ma zrobić badacz, kiedy odkryje, że nie uda się zrealizować oczekiwań lub dotrzymać terminów? „Podkreślić” wyniki? To by było oszustwo. Uczciwie poinformować sponsora, że projekt nie wypalił? Ryzykowałby, że nie dostanie następnych grantów. A może, zanim złożył wniosek o grant, powinien był się upewnić, czy jego projekt da się zrealizować? Ale do tego byłoby potrzebne badania, które ktoś musiałby sponzorować

[Sponsor ... at first demands a convincing description of the results of research ... Then expects partial reports according to the schedule of work ... At last he wishes to receive the product in the appointed time. However, despite some similarity to the production process science remains unpredictable. ... What should the scientist do when the realization of the project or keeping the appointment proved impossible? “Correct” the results? This would be a fraud. Honestly inform the sponsor that the project failed? This would decrease the chances of success in the future grant applications. Or perhaps he should make sure that the project is workable before submitting the application? But this would need a study which somebody must sponsor]

ŁUKÓW 2007.

Skretyniiali urzędnicy układający formularze, na których należy planować badania naukowe nie zdają sobie chyba sprawy z tego, że tylko wyrobnik nauki może przewidzieć, jakie wyniki osiągnie za trzy lata, a choćby i za rok (albo dalej nic nowego, albo siedemdziesiąty ósmy wariant dawno znanego wyniku). Twórca nie wie, czy i co uzyska za miesiąc czy rok. Często nawet nie wie, do czego konkretnie dąży...

[Cretinous clerks inventing the forms on which to plan research, apparently do not realize that only a pot-boiler of science can predict what will be the results achieved after three years or even one year (either nothing new, or seventyeighth

- version of what has been known since long). A genuine scientist does not know what (if anything) will he get after a month or year. Oftentimes he does not even know what is he aiming at] RUT 1995.
- ... *trzeba być zawsze czujnym i rozglądać się bacznie dokoła, bo najciekawsze rzeczy dzieją się niespodziewanie*
[... you must always be watchful and look intently round, because the most interesting things happen unexpectedly]
the bear Baloo [in *The Jungle Book*], wg.: MANKIEWICZ 2008.
- ... *grant proposals have to be „so doable they're already done”*. ... [Applicant] *must ask for support for work already completed and use new funds to develop research for the next proposal* STANLEY et HIGLEY 1997.
- Dziś o sensie i przebiegu symposium decydują sponsorzy, wszak uczestnictwo ... musi być poświadczone referatem lub plakatem, nawet jeśli nie ma się nic do powiedzenia na dany temat*
[Nowadays the sense and course of a symposium is being decided by sponsors: participation must be justified by a lecture or poster, even if one has nothing to say in the matter] FALIŃSKI 2004c.

One must be either very rich or fanatically devoted to be able, under the present circumstances, to effectively conduct serious scientific studies without “grants” and climbing rungs of “monkey ladder”, and these are conditioned by fulfilling some criteria having one trait in common: lack of apparent relation to *real scientific* qualifications of a researcher or *real scientific* value of his/her work. The procedure starts with preparation of the project – of course according to more and more detailed, schematic form and indispensably “*on-line only*” – in which the applicant must describe (*before the beginning* of research, and even before the decision making it possible to undertake it!) the program of work, schedule of start and completion of each partial task, costs (with detailed partitioning into various “clauses” and justification), results, form of publication, possibilities for practical applications, &c. Only a clairvoyant or impostor can answer these questions before the *termination* of the research, and thus – as the gift of clairvoyancy is rather rare among scientists – the majority is forced to a not quite honest composition of “scientific poetry” (the ancient Romans would say: *mundus vult decipi, ergo decipiatur...*) so as to look more or less probable but leave the chances to “lie oneself out” when the reality will not comply with our wishful thinking... One must also be a clairvoyant to foresee what the reviewers will give as the justification (if they will honour the applicant with any...) for rejection of the application: the reasons are oftentimes absolutely grotesque and, at that, mutually contradictory! Sponsor pays, sponsor demands? Well, on the one hand a governmental sponsor does not pay with its own money but with that of the “tax-payers” (including those “magnanimously sponsored” scientists!); and on the other, having paid for the air-ticket, have I the right (to say nothing of sense...) to enter the cabin of pilots and dictate them the route, altitude and speed of flight???

WHY IS THE BELL LOUD? BECAUSE INSIDE EMPTY!

Ut aliquid fecisse videamur

[To make appearance of having something done]

LACTANTIUS, ex: JĘDRASZKO 1990.

Jeśli nie chcesz czegoś zrobić, powołaj komisję aby nad tym pracowała
 [If you wish something to be never done, call a committee to work on it]

NAPOLEON.

Lepiej robić małe coś niż wielkie nic
 [It is better to do a small something than a big nothing]

Stefan KISIELEWSKI, ex: BLINKIEWICZ & DZIERŻANOWSKI 2005.

Prawdziwa sztuka nie lubi chadzać w parze z przejawskrawioną propagandą
 [Genuine art dislikes to go hand in hand with exaggerated propaganda]

SKURJAT 1975.

Risum teneatis, amici?

[May you resist laughing, my friends?] HORATIUS, ex: JĘDRASZKO 1990.

To receive support for an individual, nowhere “attached” project is little short of an impossibility: application must be submitted either through some institution (even such a “freelancer” as me can – or at least some years ago could – apply for a grant (by the way, on glaringly discriminative terms) only under the “patronage” of this or that Department or Institute], or in the frames of one of Polish or “European” programs. The problem is, that those programs, as a rule far-flung and grandiosely formulated, in practice almost invariably turn out a proverbial “mountain that gives birth to a mouse”: after the empty watchwords having nothing to do with science (like “fight against discrimination of women”, “tightening of the cooperation between nations”, “promotion of less developed regions” &c.) have been filtered out not very much remains – they finance mainly their own administration...

PARIAHS OF SCIENCE

All animals are equal, but some animals are more equal than others”.

ORWELL 1989.

Malheureusement, – et ceci accuse plus que tout l’imbécillité humaine, – la persécution s’attache de préférence à ceux qui, loin de la mériter à aucun titre, ont acquis le plus de droit à la considération universelle

[Unfortunately, one of the most serious blames of human imbecility is the fact, that persecutions affect most often those who not only do not deserve this, but even have gained special right to general respect]

HOLINSKI 1853 [=HOLYŃSKI 1981].

Istnieją niezliczone pomniki przedstawiające badaczy. Jak dotąd jednak nie wystawiono jeszcze żadnego pomnika samej pracy badawczej. Gdyby kiedyś zechciano go wznieść, należałoby na cokole żmudnej pracy naukowej ustawić posąg zadumanego dyletanta z głową okoloną nimbem błędu. Od Kolumba po Schliemanna bowiem całe legiony dyletantów przeciągały polami wiedzy, błędząc i wąpiąc, tratując ziarnazasiane przez naukowców, wprawiając w ruch koło epokowych rozstrzygnięć. Ich przypuszczenia bywały często mylne. Przeważnie nie udawało się im odnaleźć przedmiotu swych poszukiwań lecz w zamian za to odkrywali nowe światy

[There exist innumerable monuments commemorating scientists, but hitherto not a single monument has been erected for scientific work as such. If, at one time, it is to be raised, placed on the plinth of arduous research should be a statue of pensive amateur with the head enfolded in the aureole of error. Indeed, from Columbus to Schliemann legions of amateurs passed the fields of knowledge, straying and doubting, trampling the seeds sown by professional scientists, setting the wheel of epoch-making solutions. Their suppositions proved often erroneous, in most cases they failed to find the object of their quest, but in return they discovered new worlds]

WENDT 1960.

Dziwnym zbiegiem okoliczności wszystkie niemal podstawowe prace dotyczące istoty ciepła zawdzięczamy fizykom-amatorom, dla których fizyka była tylko ulubioną rozrywką

[By strange coincidence nearly all fundamental works on the nature of heat we owe to amateur physicists, for whom physics was but the favourite pastime]

EINSTEIN & INFELD 1998.

... the vast majority of the published records used in compiling the recent conservation reviews of many British insect taxa ... were generated by amateurs, even for taxonomically difficult taxa ... The loss of amateurs rather than professionals may have a disproportionate impact on conservation efforts for a number of reasons. First, amateurs are more widely distributed across the country than professionals and their activity therefore provides a better geographic coverage of the fauna. Amateurs are also perhaps more likely to generate background information of interest to conservation, since they are free to pursue whatever they find interesting

HOPKINS & FRECKLETON 2002.

Można zaryzykować twierdzenie, że nieprzypadkowo największy wynalazca w dziejach Thomas Alva Edison, posiadacz rekordowej liczby 1097 patentów, miał za sobą zaledwie parę miesięcy szkolnego wykształcenia

[We can venture the assumption that not by mere accident the greatest inventor in history, Thomas Alva Edison, owner of the record number of 1097 patents, had only a few months of school education]

ORŁOWSKI 2004.

Choć ani Karol Darwin, ani Alfred Wallace, dwaj giganci ... światowej nauki, nie mieli nawet formalnych tytułów i nigdy nie pracowali w instytucjach naukowych, ich osiągnięcia są nieprzemijające

[Although as well Charles Darwin as Alfred Wallace, the two giants ... of the world science, had no formal degrees and were never employed in scientific institutions, their achievements are imperishable]

RYSZKIEWICZ 1995.

Historycy twierdzą, że [LINNEUSZ] był leniwym uczniem i daleko mniej interesował się nauką niż kwiatami rosnącymi w ... ogrodzie jego ojca. Jeśli tak było istotnie, to można powiedzieć, że już wtedy obrał właściwy kierunek przyszłej drogi życiowej. Gdyby był wykazał tyleż pilności ... co jego młodszy brat ... toby go niewątpliwie skierowano na studium teologii, aby mógł objąć ... następstwo po ojcu. A tak ... bujającemu w obłokach Kallemu nie pozostało nic innego jak ... wkroczyć na drogę, która uczyniła zeń jednego z największych synów Szwecji

[Historians assert, that [Linnaeus] was a lazy disciple and showed much less interest in learning than in flowers growing in ... his father's garden. If it was truly so, we might say that by then he had already embraced the direction of his future way of life. Should he be as sedulous ... as his younger brother, ... he would have certainly been sent to study theology in order to ... succeed his father. And thus ... day-dreaming Kalle had no choice but ... to step on the route that made him one of the greatest sons of Sweden]

WENDT 1960.

Możesz nie być uczonym, ale musisz być doktorem (doktorem habilitowanym)

[You need not be a scientist, but you must be a doctor (qualified doctor [in the Polish system])]

[NN], ex: WOLSAN 2005 i.l.

Almost all “europrograms” include (if not in the subtitle then at least in the description) a solemn declaration of the exclusion of any discrimination according to sex, age, nationality, place of employment, &c., &c., &c. These declarations look very nice, but unfortunately have not very much in common with much less amiable reality: in practice each program which I know anything about contains discriminative restrictions! The most frequently “disqualifying” factors are age and – especially – lack of institutional background. The sense and motivation of the aversion to those so-called “amateurs”, only because they are not paid for their scientific work, is difficult to find (commonsense

would suggest them to be especially patronized) – perhaps the only explanation is the bureaucrats general hostility towards any aspect of independence...

HERETICS TO THE STAKE!

Obecnie naukowiec, którego poglądy różnią się od dominujących, szybko przekona się, że jego artykuły nie są drukowane w czasopiśmie naukowych, a aplikacje o granty hurtem odrzucane przez państwowych dysponentów funduszy. ... środowisko naukowców nie dąży w gruncie rzeczy do prawdy naukowej, lecz do tego, by wszyscy jej członkowie myśleli tak samo

[Presently a scientist whose views differ from those currently dominating, will quickly see that his/her papers are not published in scientific periodicals and grant applications are outright rejected by the governmental fund disposers. ... scientific circles do not, in fact, aim at the scientific truth, but at the situation where all their members would think the same]

HOYLE 2001.

Pojęcie „geniuszu” było używane w różnym znaczeniu, ale ... w nauce jego najbardziej charakterystyczną cechą jest oryginalność

[The term „genius” was used in various meanings, but ... in science its most characteristic trait is originality]

SELYE 1967.

Astronomia stanowi domenę chwilowych mód i fetyszy. ... Pod względem psychologicznym mody te przypominają zabawy dziecięce. W danym momencie wszystkie dzieci bawią się w jedną zabawę, a po jakimś czasie zapominają o niej całkowicie

[Astronomy is a domain of transitory fashions and fetishes. ... From the psychological viewpoint these fashions resemble children's games: now all children play a given game, some time later they forget it altogether]

HOYLE 2001.

W swej naiwności Kago ... nie wiedział, że ludzie mogą zostać powaleni jedną ideą jak cholera czy dżuma. Odporność na durne pomysły na Ziemi nie istniała

[In his simple-heartedness Kago ... did not know, that humans may be knocked down by one idea as by cholera or pestis. Immunity from foolish conceptions had not existed on the Earth]

Kurt VONNEGUT, ex: BIEDRZYCKI 1998.

Zawsze jak miałem rację, byłem w mniejszości

[Each time when I was right, I was in the minority]

CHURCHILL, ex: GWIAZDOWSKI 2006.

Metoda naukowa polega na używaniu głowy, a pozatym wszystkie chwytły są dozwolone

[The scientific method consists on using your brain, otherwise everything is permissible]

[Amer. physicist] P. BRIDGMAN, ex: NEWTON 1996.

Do ogólnej teorii nie prowadzi żaden czysto logiczny proces. Potrzebna jest ... intuicja wsparta doświadczeniem

[No strictly logical process leads to a general theory. Necessary is intuition supported by experience]

EINSTEIN, ex: WOJTAŚIŃSKI 2006a.

*The good systematist develops what the medieval philosophers called a **habitus**, which is more than a habit and is better designated by its other name of **secunda natura**. Perhaps, like a tennis player or a musician, he works best when he does not get too introspective about what he is doing*

W. R. THOMPSON, ex: SIMPSON 1961.

Im prymitywniejszy stan nauki, tym łatwiej uczonemu ulegać iluzji, że jest czystym empirykiem

[The more primitive the level of knowledge the easier a scientist yields to the illusion of being a pure empiricist]

EINSTEIN, ex: PAIS 2001.

Rozum jest wiernym sługą, ale intuicja to dar boski

[Reason is a faithful servant, but intuition is a divine gift]

NEWTON 1996.

Uczony bez zwiariowanych idei (z których tylko co setna, może co tysięczna ma w ogóle jakiś sens) nigdy nie będzie liczącym się badaczem

[A scientist without crazy ideas (of which but every hundredth, perhaps every thousandth makes any sense whatsoever) will never count as a researcher]

KARCZEWSKI 1998.

Nie ma żadnej wątpliwości, że mamy przed sobą zwiariowaną teorię. Zagadnienie polega na tym, czy jest zwiariowana dostatecznie, żeby być prawdziwą

[Beyond any doubt we have to do with a crazy theory. The only problem is, whether it is sufficiently crazy to be true]

Niels BOHR [on HEISENBERG's theory], ex: PARNOW 1971.

Nauczmy się śnić, panowie, może wtedy odkryjemy prawdę

[Let's learn to dream, gentlemen, perhaps then we will discover the truth]

F. KEKULÉ, ex: ROUKES 2001.

Science is that domain of human activity for which all kinds of formal stereotypes, dogmatic rules, authoritative instructions act as especially dangerous poison – and nevertheless it is nowadays dominated just by stereotypes, dogmas and directives. Whether submitting a grant proposal, defending doctor's dissertation, or attempting to publish a paper in an obligatorily "peer-reviewed" journal, we must be aware that any deviation from the current fashion, adoption of somewhat unorthodox assumptions, application of a less familiar method, original interpretation, let alone unpopular subject or non trite form of presentation, drastically decreases the likelihood of success. One of the particularly "unshakeable" axioms is "*exact demarcation of aims and unequivocal formulation of the problems to be solved*" as a necessary precondition of effective work, although in fact excessive "exactitude" and "univocality" are neither needed nor even advantageous – to the contrary, except for some very narrow questions (which, however, rarely occur separately, usually appearing as particular aspects of broader research programs), are in most cases decidedly harmful!

OBJECTIVITY, MODERNNESS, AND OTHER FETISHES

Obiektywność to marzenie podobne do marzeń o perpetuum mobile

[Objectivity is a dream like that of perpetuum mobile]

LUKÓW 2006.

A methodology that generally avoids all ad hoc hypotheses may be most parsimonious, but certainly will have to be regarded as senseless

BECHLY 2000.

Praca badawcza jest zawsze opanowana przez uprzednio powzięte idee – to jest przez hipotezy

[Research work is always dominated by beforehand conceived ideas – that is, by hypotheses]

Karl POPPER, ex: DENBIGH 1979.

Powie ktoś, że wszystko to jest tylko hipotezą, i to nazbyt śmiałą. Ale nauka rozwija się tylko dzięki śmiałym hipotezom

[One can say, all this is but a hypothesis, and overly bold at that. But science is developing only through bold hypotheses]

KRAWCZUK 1990.

[S. ULAM swoje uzdolnienia] *określał jako „mieszankę pamięci i wyobraźni, czyli tego, co składa się na talent w matematyce i naukach ścisłych”.* (Mogłabym dodać, że oprócz tego miał jeszcze sporo zdrowego rozsądku)

[(S. Ulam his abilities) defined as a „mixture of memory and imagination, that is what makes the talent in mathematics and science” (I could add that, besides these, he had a lot of common sense]

[Stanisław's wife] Françoise ULAM, in: ULAM 1996: 333.

If you close the door to all mistakes, the truth will remain outside

Rabindranath TAGORE.

Choć może się to wydać paradoksalne, wszystkie nauki ścisłe opanowane są przez nieścisłe przybliżenia

[Even if this may seem paradoxical, all exact sciences are dominated by inexact approximations] Bertrand RUSSELL, ex: SINGH 1999.

[wybitny matematyk, Solomon LEFSCHETZ] *Wręcz gardził matematykami, którzy tracili mnóstwo czasu na podanie ścisłego dowodu czegoś, co dla niego było oczywiste. Mówiono, że nigdy nie podał poprawnego dowodu matematycznego, ale też nigdy nie ogłosił fałszywego wyniku*

[(Eminent mathematician, Solomon LEFSCHITZ) held in outright contempt those mathematicians who lost much time to find strict proof of something that for him was evident. It was said that he had never given a correct mathematical proof, but had also never published an erroneous result] WRÓBLEWSKI 2005: 76.

Bóg istnieje, ponieważ matematyka jest niesprzeczna; diabeł zaś istnieje, ponieważ nie możemy tego udowodnić

[God exists, because mathematics is uncontradictory; devil also exists, because we are unable to prove this] André WEIL, ex: SINGH 1999.

It is better to know some of the questions than all of the answers

James TURNER, ex: DeSALLE & SCHIERWATER 2007.

Lepiej powiedzieć coś, nie będąc pewnym, niż w ogóle nic nie mówić

[It is better to say something without certainty, than not to say anything at all]

FEYNMAN 1999.

De omnibus dubitandum

[Everything should be doubted]

KARTEJUSZ, ex: BRALCZYK 2004.

If I have seen further it is by standing on ye shoulders of Giants

I. NEWTON, ex: HELLMAN 1998.

Ahhoz, hogy a jövöben igazunk legyen, néha bele kell nyugodni abba, hogy elavultnak látszunk

[To be in the right later, we must sometimes put up with being seemingly outdated]

RENAN, ex: D. KOSÁRY, in: NÁDOR 1986.

Słabe są dzieła ..., których główną zaletą jest nowość, cecha ta bowiem jest tą właśnie, która najszybciej się starzeje

[Poor are the works ... whose main virtue is newness, as this is just that feature which becomes most rapidly old]

W. LUTOSŁAWSKI, ex: ??? 2008.

... a misperception that you are not doing real science unless you are doing it on computers

KELLY 2008.

The actual internal workings of these [phylogenetic] programs, ... are likely to be incomprehensible to all but the most knowledgeable computer person

WILEY 1981.

Ha a komputerbe értelmetlenséget táplálunk be, csak értelmetlenség jöhet ki. De, a tapasztalat szerint, ez az értelmetlenség, minthogy drága gépen megy át, valahogy rangot kap, és senki sem meri kétségbe vonni

[If we enter senselessness into a computer, only a senselessness could get out. But experience shows that such senselessness, since it has passed through an expensive machine, somehow acquires a dignity and nobody dares to call it in question]

ANONIM 1975.

One, admittedly subjective, test of a phylogeny for a biologist is that it must make sense according to various ecological, biogeographic and behavioural criteria

HUYS & BOXSHALL 1991.

Wiemy więc jaka była produkcja, respiracja, P/B, K1, K2 czy budżet energetyczny zooplanktonu w tym [Mikołajskim] jeziorze, brak natomiast podstawowych, wydawałoby się, informacji – jakie gatunki ten zespół tworzyły i jaka była ich liczebność

[Thus we already know what was the production, respiration, P/B, K1, K2 or energy budget of zooplankton in this lake [Mikolajski], yet we lack the apparently fundamental information – the species the community consisted of, and their numbers]

EJSMONT-KARABIN & KARABIN 1999.

If the world is real, there is a single objective truth about it; if the world is scientifically cognizable, there is no fundamental reason for the results of our studies not to be in agreement with the objective reality; if the aim of science is to get knowledge about the world, then the ultimate criterion of the value of our research results is just that agreement. Of course we do not know the objective reality (if we do, there would be no need for research), so we cannot directly compare our conclusions to it, but we can more or less exactly estimate which of the available methods is most likely to bring us to the adequate – agreeing with the reality – results. And just that method a reliable scientist should – *is obliged to* – apply, irrespective of whether and to what degree it fulfils all the other (even if “in principle” desirable) conditions like objectivity or modernness. By the way, *no* method, *no* experiment, *no* argumentation is truly objective, never objective is also the comparison of the degree of their objectivity, so the requirement of “objectivity” as criterion for evaluation of scientific work is a pure illusion and most often leads to glaringly erroneous decisions. The preference of “modernness” is still more evident nonsense: should we cease to travel by train or car because airplanes exist?; should binoculars, field-glasses and “classical” telescopes be scrapped as “relicts of XVII century” as soon as the radiotelescope has been invented?; should scientific journals reject papers in which the colours of flowers or butterflies have been described with traditional terms (“red”, “green”, “blue”, &c.) because “modern” spectrometer analysis “ought” to be performed and the distribution of light wave-lengths given??? The method applied in research should be maximally *adequate* (lead as likely as possible to correct conclusions), and such – according to the purpose and subject of the study, the conditions it is performed in, the abilities of the scientist, and many other circumstances – is sometimes that more and sometimes that less “objective”, sometimes that invented a month ago and sometimes that known already to ancient Egyptians!

DO YOU NEED CANNON TO KILL A MOSQUITO?

Nie mylcie... doskonałości waszych narzędzi ze znaczeniem waszej pracy. To wasze osiągnięcia, a nie ... narzędzia, powinny być godne podziwu

[Do not mistake the ... perfection of your tools for the value of your work. It is your achievements, not ... equipment, that should be admirable] SELYE 1967.

Jego [Linusa PAULINGA] zdaniem porównanie metod przybliżonych z dużo bardziej dokładnymi wypada na korzyść tych pierwszych, gdyż metody ściśle nie przyczyniły się do rozwoju intuicji fizycznej. ... W nauce dostrzeganie stopnia dokładności potrzebnej i uzasadnionej w danych okolicznościach stanowi ważną umiejętność

[In his [Linus PAULING'S] opinion the comparison of approximate methods with much more exact ones falls out to the advantage of the former, because exact methods do not contribute to the development of physicists' intuition. ... In science the assessment of the degree of precision needed and justified in a given circumstances is an important ability] NEWTON 1996.

Rozwiązanie każdego problemu statystycznego ma pogłębiać wiedzę biologiczną, a nie tylko po raz kolejny udowadniać matematyczny geniusz badacza

[Solution of any statistical problem should deepen our biological knowledge, and not only once again prove the researcher's mathematical genius]

Masatoshi NEI, ex: STIX 2005.

... we know too little to specify a realistic model of evolutionary change. Even if we could do so, it would not be mathematically tractable FELSENSTEIN 1984: 188.

The danger of statistical (and general of mathematical) methods ... is that their application gives a stamp of extreme exactitude and reliability to conclusions even if derived from faulty, though sufficiently numerous, data

B. P. UVAROV, ex: KRELL 2004.

Sceptyk powiedziałby: „Być może ten układ równań jest rozsądny z punktu widzenia logiki, ale to jeszcze nie dowodzi, że jest on zgodny z przyrodą”. Masz rację, drogi sceptyku. Tylko doświadczenie może zdecydować, czy to prawda

[Skeptic would say: „Perhaps this set of equations makes sense from the logical viewpoint, yet this does not prove that it agrees with the Nature”. You are right, dear skeptic. Only experiment may decide whether it is true]

EINSTEIN, ex: PAIS 2001.

Numbers are increasingly used as a substitute for real explanation FRYER 1987.
Wiele nowo powstałych prac to tylko zabawy matematyczne na marginesie problemów biologicznych

[Many recent works are but mathematical games on the margin of biological problems]

DORST 1987.

Probably another manifestation of the strive for „modernness” is the so frequent “shooting at mosquito with a cannon”: application of excessively complicated procedures where simple ones would perfectly suffice. The most popular “cannons” are sophisticated statistical tests (from which, at that, oftentimes nothing follows to the extent that the authors do not even try to interpret their results...), but to the same category of phenomena belong, among many others, determination keys based on characters difficult to check (e.g. demanding special preparations or great magnifications) when some of those seen “at a glance” are equally diagnostic, superfluously “overphilosophized” argumentation, &c. Such practices are not only unneeded but also harmful: markedly increase the probability of mistaken interpretation, frequently cause cumulation of errors, and first of all lead to the habit of uncritical acceptance of results as The Last Word of Science.

IDEAL SCIENTIST: MULTIDISCIPLINARY MOUNTEBANK

Niechaj każdy z nas poznaże trud pracy urzędnika, nabierze do niej szacunku i uległości, niechaj nauczy się wszystkiego, by jednakowo sprawnie pisać wnioski o dotacje, ścinać trzcinę cukrową, naprawiać kanalizację, nadzorować budynek, nabrać nawyku do pracy w kamieniołomach i w oddziale specjalnym. Przecież dzięki wszechstronności i zaradności najambitniejszych jednostek ludzkość szczęśliwie przeżyła okresy wspólnoty pierwotnej i komunistycznej, a nawet ma szansę do którejś wspólnoty powrócić

[Let all of us become acquainted with the pains of clerks' work, develop respect and submissiveness to it, learn everything to be equally competent in writing applications for funds, cut sugarcane, repair sanitation, supervise a building, work in stone-pits and in the special section. Indeed, it is just to the versatility and resourcefulness of the most ambitious individuals that humanity owes the lucky survival through the periods of primitive and communist communities and even has a chance to return to one of these communities]

FALIŃSKI 2004c.

... I did learn one big thing: that no one knows everything, and you don't have to

WEINBERG 2003.

Mistrzostwo względne we własnej specjalności ma za warunek nieuctwo względne w

specjalności cudzej

[Relative mastery in one's own speciality is conditioned by relative ignorance in specialities of others] KOTARBIŃSKI 1986.

Let us not confuse the need for taxonomy to have multiple data sources with an expectation that the full range is generated by each taxonomist WHEELER 2008.

The current fashion of multidisciplinary science is good in principle, but ... is achieved more easily through transdisciplinary teams rather than multidisciplinary individuals. Into these teams the community of amateur taxonomists should be integrated, although their numbers appear also to be declining WHEELER 2008.

Ernst [MAYR] was truly a non-technical person; the most sophisticated tool he used was a Dictaphone ... he did not even know the location of the keys on the keyboard ... Computers were out of question BOCK 2007.

Po tem wyższego męża możesz poznać w tłumie

Że on zawsze to tylko zwykły robić, co umie

[In a crowd is knowable the superior man

By his habit of doing only what he can]

MICKIEWICZ 19??

[MAYR's] belief in himself rested on a realistic assessment of his own strengths and limitations, constraining him – unlike some other great scientists and many great musicians – to stay within his competence DIAMOND 2007.

One more picklock that according to „managers” of science should open the gate to magnificent results is multidisciplinary, conceived unfortunately not as (not necessarily formalized) cooperation between experts of various specialities, but as preferential support to scientists who “know” everything from the taxonomy of springtails to computer technologies and DNA-sequencing. Apparently not everybody managed to notice that the times of „jacks-of-all-trades” have irrevocably passed; the present-day science is so extensive, diverse and complicated a domain that even the medieval expectation that a scholar should know “*everything about something and something about everything*” is manifestly unrealistic: a contemporary scholar knows a good deal about his/her own (sometimes two, exceptionally three), as a rule not too broad group of problems, and almost nothing about others, whereas an attempt to master many at once inevitably leads to superficial and chaotic “knowledge” – “multidisciplinary expert” is in fact almost always a multidisciplinary dabbler.

ONLY DEAD FISHES SWIM WITH THE CURRENT

Wer sich zum Schafe macht, dem zerreißen die Wölfe

[Who behaves like a sheep, will be torn up by wolves]

Ulrich VON JUNGINGEN, *ex*: WÓJCICKI 1986.

Dawniej człowiek był w gruncie rzeczy tylko piłką w rękach ślepych sił; dzisiaj jest poza tym piłką w rękach biurokratów. A jednak zgadza się na to

[Man was formerly but a ball in the hands of blind forces; now he is also a ball in the hands of bureaucrats. And yet he accepts this]

EINSTEIN, *ex*: FALIŃSKI 2004c.

Nie jeden z nas łatwiej porozumiewa się z urzędnikami niż ze swymi kolegami. Na początek staje się wraz z nimi tylko autorem lub współautorem bezmyślnych dyrektyw i wymyślnych formularzy do sporządzania planów i sprawozdań z badań naukowych

[More than one of us comes to a better understanding with clerks than with his colleagues. At the beginning he joins them as the author or co-author of thoughtless directives and sophisticated forms to prepare plans and reports from scientific studies]

FALIŃSKI 2004c.

I, however, miss the determination of the scientific community not only to regain the lost freedom, but even trying to increase it. ... Instead, the scientists even deprive themselves of some of their freedom by introducing unscientific practices into science. To name a few:

-Introducing competition for replacing standards. Competition is a cheap measure of whatever performance. "Better" does not even mean "good" and science is too serious a matter for racing contests. ...

- Scientist minds fall too often to the temptations of programs or of rich but narrowly focused agencies

ROHRER 2006b.

Aby dojść do czegoś naprawdę wartościowego w pracy naukowej, należy iść pod prąd opinii swojego środowiska. ... Trzymanie się powszechnie uznawanej opinii nic nie kosztuje, nie ryzykuje się reputacji. Przyjmowanie do wiadomości istnienia dowodów z nią niezgodnych, wskazujących na inne możliwe wyjaśnienia ..., oznacza narażenie się na akademicką wersję wytarzania w smołę i pierzu. Jednak nie podejmując tego ryzyka, możemy być pewni, że jeżeli kryje się w tym coś nowego, nie my to odkryjemy

[To achieve something truly valuable in scientific work one must go against the current of his/her community's opinion. ... Adherence to the generally held views costs nothing, reputation is not at risk. Acceptation of contradictory evidence pointing to possibly different interpretations ... means exposure to the academic version of being rolled in tar and feathers. However, having not taken the risk, we could be sure that if there is anything new, it will not be us who will discover this]

HOYLE 2001.

Aki az árral uszik, lefelé halad [Who swims with the current, goes down]

BODNÁR 1989.

Ciągle utrzymuj pan statek przeciw fali. ... Przeciw fali, ciągle przeciw fali to jedyny sposób przebicia się przez burzę

[Keep the ship constantly against waves. ... Against waves, constantly against waves, this is the only means to break through the storm]

Captain MAC WHIRR, in: CONRAD 1957.

Hitherto we spoke about „external” conditions, about the limitations and perversions coerced by politicians, bureaucrats, consumer’s community, &c. Unfortunately, the responsibility for that state of affairs falls to a significant degree upon scientists themselves, who – complying zealously, without opposition to all those “directives” – provide a convenient “*alibi*” for their authors and followers. Some of them do so because as a matter of fact just such a style suits them: they perceive the perspective of career in what prof. FALIŃSKI dubbed “surroundings of science” rather than in serious scientific research; the majority perhaps from simple opportunism and a feeling of helplessness: the slogan that “*the world will not conform to us, thence we must conform to the world*” looks outwardly so logical that it paralyses all the inclination to not only active resistance, but even expressions of disagreement. Yet, one moment of reflection suffices to realize that this slogan is senseless: would it be right, or would everybody think so (what, by the way, happened in the case of communism, and just therefore it persisted for so long...), villeins would still be obliged to corvée, children would work in coal-mines for fifteen hours daily, heretics would perish at stakes, and *crimen laesae maiestatis* would be punished by putting to the rack... After all, that “world” which we allegedly “must” conform to, consists also of ourselves, bureaucratic restrictions are imposed on us not by some allmighty Cosmites but by politicians elected by us, ministers more than one of whom is a former or even actual scientist, editors having mostly originated from among our colleagues!

ENVOIOUS SCHEMERS BACKBITE, ENEMIES REJOICE

Whitehall jest miejscem, gdzie nie można swobodnie oddychać. Wszyscy wokół siedzą w maskach tlenowych, przy czym nikt nie ma kontroli nad własnym dopływem tlenu, może jedynie przykręcić zawór komuś innemu

[Whitehall is a place where one cannot breathe freely. Everybody around sits in oxygen-masks, whereas nobody has the control over his own oxygen-intake, only can turn somebody else's valve off] A. COTTRELL, ex: HOYLE 2001.

Polska to taki kraj, w którym szewc z Białegostoku na wieść o tym, że krawiec w Wilnie wygrał na loterii 25 zł, chory z zazdrości kładzie się na trzy dni do łóżka

[Poland is such a country, where a shoemaker in Białystok, having heard that a tailor in Vilna had won 25 zł. at a lottery, sick from jealousy goes for three days to bed] [pre-WWII Vilna columnist] Zygmunt NOWAKOWSKI, ex: WINIECKI 2004.

Nie spodziewaj się ..., że twoje dzieło posłuży na coś innym; strzeż się raczej, by nie zaszkodziło tobie samemu

[Do not expect that your work will be of any service to others; rather beware lest they hurt yourself] DIDEROT, ex: FALIŃSKI 2004c.

Dzisiaj dużo łatwiej być przyzwoitym człowiekiem. Każdy bez trudu może się wnieść do wymaganego poziomu etyki, gdyż ten obniżył się do poziomu każdego

[Nowadays it is much easier to be a decent man. Everybody can rise with no trouble to the required level, because that has descended to the level of everybody]

ŁYSIAK 2000.

Natychmiastowy sukces jest dla większości ludzi bardziej przekonujący niż rozważania o zasadach

[Immediate success is more convincing for most people than considerations about principles] EINSTEIN, ex: PAIS 2001.

Opportunism is an injurious sin, but envy and mutual „backbiting” is a rascality towards colleagues and a crime against science. If a specialist in one branch of knowledge describes (especially from the position of “authority” and/or “decision-maker”) another branch as “*XIX-century philately for which it is useless to spend money*”, if a representative of a fashionable “school” presents the traditional approach (or the opposite) as “non-scientific” (of course I have not in mind a *bona fide* essential discussion between professionals but spiteful appeals intended directly or indirectly – Polish people would say “*speak to the cap that the man should hear*” – for “science managers”), if advocate of one method urges the rejection of papers based on alternative procedures, this is – to quote TALLEYRAND’s adage – “*worse than a crime: a mistake*”: such a person not only “plays foul” with colleagues, but undercuts the branch he himself is sitting on: earlier or later the “decision-makers” will use the arguments of all belligerent parties to reduce funds for science in general...

TAXONOMIST: A PARTICULARLY ENDANGERED SPECIES

One of the most threatened species in world: the natural historian and general entomologist LEATHER 2008.

The museum tradition is dying. ... (Robert E. Ricklefs, 1980)

The museum tradition is not dying – it is being killed; strangled by the pervasive attitude that only theoretical and experimental approaches to biology are valid, by university departments that have eliminated evolutionary or morphological biology from their curricula, and by museum administrators who fill curatorships with ecologists, ethologists and chemists while their collections languish (Storrs L. Olson, 1981) McALPINE 1996.

- Many taxonomists find it possible to produce their most important syntheses and monographs only once freed from the constraints of regular employment* NEW 1999.
- There are already too few high-quality international journals willing to publish basic taxonomic research, in spite of the fact that the description and conservation of biodiversity is greatly dependent on such studies* SLUYS & al. 2004.
- In light of the recent revival of plans for space exploration with the explicit goal of searching for extraterrestrial life, it never ceases to amaze me how little interest there is in investigating organismal aspect of our own planet* NASKRECKI 2005.
- What I think must be avoided is, on the one hand, the pecking order in taxonomy that believes, for example, that cladistic analysis of a group is better than the description of new species and on the other hand the belief that only “applied taxonomy” should be supported strongly. In short, there must be a rejection of the idea that taxonomists and taxonomy can be considered only as a tool for allied sciences, rather than a discipline in its own right* SLATER 1984.
- Taxonomy is a science and not a created (stable) frame of reference* KRELL 2004.
- New idea that DNA barcoding can replace normal taxonomy for naming new species and studying their relationships is worse than bad, it is destructive* WILL & al. 2005.
- Taxonomy is at the same time the most elementary and the most inclusive part of zoology, most elementary because animals cannot be discussed or treated in a scientific way until some taxonomy has been achieved, and most inclusive because taxonomy in its various guises and branches eventually gathers together, utilizes, summarizes, and implements everything that is known about animals* SIMPSON 1945.
- The taxonomic literature ages ... slowly ... Moreover, ... is large and diffuse and a much greater fraction is potentially relevant compared with most sciences. A taxonomist cannot just ignore a paper published in an obscure journal in an unfamiliar language as other scientist might be tempted to. A description anywhere is a taxonomic hypothesis that needs to be considered* GODFRAY & al. 2007.
- Być biologiem nie znaczy pracować jako biolog, to znaczy: wybrać pewien sposób życia*
[To be a biologist does not mean to work as biologist, it means: to choose a particular way of life] MAYR 2002.

The object of interest of taxonomy is the almost unimaginably diversified world of living creatures: the studies comprise the entire process from meticulous analysis of intra- and interpopulational relations to the, resisting any schematic approach, final synthesis in form of natural classification; neither the methods of research nor the results seem usually attractive to society (fascinated by technological gadgets and “sensations”); practical applications are rarely direct, evident for laymen, effect of work, and still less frequently appear within a short time; all this (and many other factors) makes this branch of science especially susceptible as well to all kinds of bureaucratic restrictions, formalisms and authoritative regulations as to evil-minded demagogy.

AM I A BONY FISH?

- Kochany, dobry człowiek. Szkoda tylko, że nie ma nic do roboty. Traci czas na spacerach po ogrodzie i czasami przez kwadrans lub dłużej przypatruje się jednemu kwiatkowi*
[Dear, good man. It is only a pity that he has nothing to do. He wastes time walking in the garden and often looking at a single flower for quarter of an hour or more] DARWIN’s gardener, ex: GOLEMBOWICZ 1968.

I want to emphasize that taxonomists should be proud of their support of such important disciplines as ecology and conservation biology. However, ... the best taxonomy is done for its own sake. It follows that the best taxonomic services are spin offs of taxonomy done for its own sake

WHEELER 2007.

As a scientist, you're probably not going to get rich. Your friends and relatives probably won't understand what you're doing. And ... you won't even have the satisfaction of doing something that is immediately useful

WEINBERG 2003.

Without accurate descriptive work all branches of natural history would be ... unreliable

WHEELER & VALDECASAS 2007.

Kladyści kupują sobie możliwość obiektywizmu za cenę pomijania ważnych dla biologii informacji

[Cladists buy the possibility of objectivism at the expense of neglecting biologically important informations]

GOULD 1991.

Your work, Sir, is both new and good, but what's new is not good and what's good is not new

Samuel JOHNSON, ex: WILL & al. 2005.

In a [natural] classification those characteristics of the elements which serve as criteria of membership in a given class are associated, universally or with high probability, with more or less extensive clusters of other characteristics

C. G. HEMPEL, ex: MAYR & BOCK 2002.

The maxim by which all systems professing to be natural must be tested is this: that the arrangement obtained from one set of characters coincides with the arrangement from another set

W. WHEWELL, ex: MAYR & BOCK 2002.

In their overwhelming majority the objects of taxonomical research are organisms unknown and/or uninteresting for non-systematists: while the question whether Floresian “hobbit” was a microcephalic modern man or dwarfish ape-man, or whether Africa is inhabited by one or two species of elephants, may arouse the curiosity of at least some “élite” part of the general public, description of a new species of beetle or ant (to say nothing about a nematode, copepod or mite) will hardly fascinate anybody. At that, the research methods do neither allure with intelligibility, nor excite with technological refinement, nor impress with mathematic precision. The appearance of chaos and inconsistency further aggravates – contrary to the declared intentions – the currently *en vogue* cladistic “ideology” with its hermetic terminology, entangled argumentation and queer conclusions: the assertion that a chick is a dinosaur – based on the same logic as the (adopted from BRUMMITT 2006) title-question of this chapter – or that *Latimeria* is more closely related to the chimpanzee than to lungfish or even herring, may for a while look attractively shocking (on this effect base their careers many of the contemporary “artists”), but after a moment of reflection the surprise abates leaving behind only the feeling of unreality...

NOT PHYSICS, NOT PHILOSOPHY: BIOLOGY!

Prawa [naukowe] mogą istnieć wyłącznie tam, gdzie istnieją klasy tworów, których wszyscy członkowie są ściśle podobni do siebie, o ile nawet nie nieodróżnialni
[(Scientific) laws may exist only there, where there are categories of creatures whose members are all closely similar if not undistinguishable]

DENBIGH 1979.

The authors of many ... papers ... thought that those approaches would be most successful that were based on some basic philosophical principles. We had adopted the same approach in our first endeavours. But none of our attempts was successful

MAYR & BOCK 2002.

- ... now and then scientists are hampered by believing one of the oversimplified models of science that have been proposed by philosophers ... The best antidote to the philosophy of science is a knowledge of the history of science WEINBERG 2003.
- Czyż cała filozofia nie jest jak gdyby napisana miodem? Wygląda cudownie, gdy ją kontemplujemy, ale gdy przyglądamy się jej ponownie, wszystko gdzieś znika, pozostaje tylko paćka*
[Doesn't all philosophy make the appearance of having been written with honey? It looks superb when contemplated, but as soon as we examine it again all vanishes somewhere and only a mash remains] EINSTEIN, ex: PAIS 2001.
- Descriptive research provides the fuel on which the hypothesis-testing engine must run* MARTENS & SEGERS 2005.
- [In phylogenetic reconstructions] *Morphology is THE place to start, And morphology based trees are often needed to design the geographic and taxon sampling of a molecular tree. ... the most challenging task is the collecting and morphology. I can train any undergraduate to do the molecular studies. But one has to be an accomplished scientist to do a morphological phylogeny*
[molecular biologist] Prof. G.A. WYNGAARD 2008 i.l.
- No system of weighing is perfect, but almost any method of weighing is preferable to using unweighed characters, that is, to give all characters the same weight* MAYR & BOCK 2002.
- Similarities: all else is rhetoric* CRACRAFT 2000.
- In historical studies like phylogeny, ... the imagination, properly disciplined by respect for evidence, has a very important part to play* CROWSON 1982.

Lack of mathematical precision, relative inadequacy of all kinds of rigid “algorithms”, largely intuitive hypotheses, expose taxonomy to the accusation of “backwardness” or even “unscientific” character – critics do not understand (all the more so as for many of them it is convenient “not to understand”...) that the reason is not “underdevelopment” but on the one hand enormous complexity and diversity of living organisms, on the other “historical” (as opposed to “deductive”) nature of taxonomic problems: here we never have two identical processes, circumstances, individuals, and even the same individual every time looks and behaves differently.

CHAOS AS A PLEDGE OF STABILITY?

- Nomina si nescis, perit et cognitio rerum*
[If you do not know names, knowledge of things also perish]
LINNAEUS, ex: LEPERT & TURYN 2005.
- The god Stability is unlikely to find a reliable servant in the demon Inconsistency*
OLSON 1990.
- A vállalatok nem azért múlnak ki, mert rosszul dolgoznak. A legtöbb vállalat azért bukik el, mert habozik, és nem kötelezi el magát egy irányba*
[Businesses crash not because of poor work. Most of them collapse because they hesitate, do not keep to one direction]
[INTEL dyrektor Andy GROVE], ex: MARX 2000.
- [in taxonomy] *stability is ignorance* GAFFNEY 1979.
- Seemingly simple formula like “taxonomic stability” or “nomenclatural stability” is a complex matter that ... need to be solved by taxonomists, not by arrogant outsiders of the field* DUBOIS 2005.
- Phylogenetic nomenclature ... offers many opportunities for interesting philosophical debate, but it is patently an absurd proposition as a practical system*
BENTON 2000.

The PhyloCode rests on arguments that range from the misguided (e.g. that names should be immutable for hypotheses that change; ...) to the false (e.g. that the PhyloCode is more stable than the Linnaean system; ...) to the absurd (e.g. that the Linnaean system cannot convey evolutionary schemes because it predates Darwin). ... it may be fairly concluded that what the PhyloCode seeks to do does not need to be done and what it claims to do it does not. ... The community should, in my view, boycott the proposed meeting on the PhyloCode ... with deafening unity. There are many good reasons to go to Paris. This is not one of them

WHEELER 2004.

Accelerating considerably the effort of collecting and studying the vanishing species on our planet in the coming decades is certainly much more important and urgent than ... 'redefining' the nomina of the already known taxa ...

DUBOIS 2008.

Similar effect to that of cladistic muddle result (also in drastic discordance with declared aims) from the activity of the Commission of Zoological Nomenclature: frequently changing rules (every few years a new Code), contradiction between the Principle of Priority announced in Preamble and “Principle of Posteriority” (“*current usage*”) ruling in practice, arbitrary (and almost always incongruent with the respective Articles) Opinions, strict regulations in cases where they are absolutely superfluous (the ending “-i” vs. “-ii” in species names based on personal names, comma between the name of the author and date of publication, &c.) – all this gives only the impression of “art for art’s sake”, empty quarrels on imaginary pseudoproblems. In the last years this effect has been amplified by attempts to bring about a “Cultural Revolution” with total abandonment of hitherto applied rules of nomenclature and replacing them by “PhyloCode”.

HOW TO MEASURE THE UNMENSURABLE?

Not everything that counts can be counted, and not everything that can be counted counts

[NN], ex: WOLSAN 2005 i.l.

Nauka jest działalnością racjonalną, ale trudną do skodyfikowania

[Science is a rational activity, but difficult to classify]

SOKAL & BRICMONT 2004.

It is becoming increasingly difficult to publish the results of descriptive research projects, as international journals, ... increasingly shy away from it because it is thought that such papers are bad for impact factors

MARTENS & SEGERS 2005.

Wkrótce zostaną nam tylko statystycy i entuzjaści genów, ale nie będzie biologów...

[Before long only statisticians and enthusiasts of genes, but no biologists will remain]

GOLDSCHMIDT 1999.

All kinds of schematic, „parametric” assessment of scientific value of either scientists or their publications („citation index”, „impact factor” *et consortes*) are to but a very small degree correlated with what they are intended to measure – this is like if we try to measure weight with a ruler: “others being equal” a longer object should indeed weigh more, alas! “others” (e.g. shape or density) are almost never equal, and therefore a lead ball of one cm. in diameter will probably be heavier than a 100 m. flaxen thread. In taxonomy the inequality of “others” is particularly evident: with a relatively very small number of systematists in the face of huge diversity of organisms, most groups are studied at a given time by very few specialists, and thence even

a very important monograph may not be cited for years or decades – the more so that original publications where the taxa mentioned in text had been described (or even those used for identification) are customarily not listed in references, and especially that only a handful of journals taken into account in calculation of “impact factors” accepts taxonomical works for publication...

PRIMUM NON NOCERE

Prawdopodobnie wczesny Wszechświat łatwiej jest zrozumieć niż najmniejszy żywy organizm. To przed biologami i ewolucjonistami stoją najtrudniejsze wyzwania
[Early Universe has probably been easier to understand than the smallest living organism. It is biologists and evolutionists who are facing the hardest challenges]

REES 1999.

Science progresses by transmitting, transforming, increasing and challenging knowledge, but certainly not by ignoring it, and the achievements of centuries of research in comparative morphology must not be ignored

DAYRAT 2005.

The modest recommendation of Lockett and Hartenberger ... is well worth repeating: „We also recommend that the accumulated wisdom from 300 years of assessing cranioskeletal and dental characters be considered when collecting and evaluating molecular or other biological data

BERGSTEN 2005.

Powinniśmy koniecznie przestrzegać dwóch uzupełniających się zasad: nie zaczynać niczego, czego nie potrafilibyśmy opanować, nie robić niczego, co mogłoby prowadzić do sytuacji nieodwracalnych

[We should anyway observe two complementary rules: not enter upon anything that we could prove unable to control, and not doing anything what could lead to irreversible situations]

DORST 1987.

High-powered computation and software come low on the list after the meagre needs of traditional taxonomy are (barely) met

KELLY 2008.

... after over 90% of the world's bird species have been described, is it logical to select an entirely new form of documentation?

PETERSON & LANYON 1992.

Lepsze jest wrogiem dobrego

[The best is the enemy of the good]

[NN].

If it ain't broke, don't fix it

BENTON 2000.

Ludzie to lubią, ludzie to kupią, byle na chama, byle głośno, byle głupio!

[People will like this, people will accept this, just do it roughly, rowdily, foolishly!]

Wojciech MŁYNARSKI.

The alleged „backwardness” of taxonomy is a synergetic effect on the one hand (*e.g.* inadequacy of some philosophical dogmas and mathematically strict formulas) of the specificity of the subject, and on the other (strikingly little number of described and classified species in relation to the really existing ones, &c.) catastrophic (even in comparison to other – also notoriously impecunious... – branches of basic research) underfunding, but some “allies” apparently do not understand this, and rivals do not wish to understand (it is symptomatic, that the *objectively* non-mathematical structure of organismal science – so hardly cognizable to many biologists – for physicists is usually obvious...). False interpretation of this situation is a good medium for more and more frequently – in good or bad faith – proposed means to “improve” or “sanify” taxonomy, what unfortunately (but nor surprisingly: revolutions always, under the cover of *seeming* advantages, bring *quite real* destruction...) is as a rule a “medicine worse than the disease”.

THE SHORTEST WAY LEADS OFTEN ASTRAY

Pół-środki i pół-życzenia świadczą tylko o polowicznych ludziach

[Half-measures and half-desires only testify to half-personalities]

NAPOLÉON, ex: WOŁOZYZNOWSKI 1992.

... underlying the taxonomic impediment is the fact that life is complex ... No one said that study of evolution would be easy, and the "grandeur in this view of life" (Darwin 1859) will be lost if we take the easy way out

TREWICK 2008.

I find little comfort in the increasingly frequent "refuge" taken by scientists in terms such as "morphospecies", or the rather superficial application of "new characters" or "new techniques" as panaceas to mask or analyse variability of largely unknown taxonomic and biological significance

NEW 1999.

Even a single morphological character in most cases is likely a summary of many genes and thousands of base pairs, filtered by eons of natural selection and canalized by the hierarchy that results from a history of common ancestry. Such a rich, highly predictive, broadly explanatory understanding of species, ... offer an imminently more interesting and powerful approach to taxonomy than the comparatively easy but relatively uninformative and phenetic barcoding alternative

WILL & al. 2005.

Users seem content with inferior products; "molecular taxonomists" with providing them

WHEELER & VALDECASAS 2007.

Greg Venter, the leader of the Human Genome Project, has announced on one of the barcoding meetings that he can sequence 100 000 species per week. ... But ... which army of taxonomists will identify the 100 000 species that Venter will sequence every week?

MARTENS & SEGERS 2005.

"Astute media management skills" were at play [in promotion of DNA barcoding]

F. SPERLING, ex: WILL & al. 2005.

At all stages (e.g. collecting efforts, sorting specimens, curating collections of vouchers, providing names), the construction of a centralized DNA-based system of identification would depend in part on the expertise of 'non-DNA' taxonomists

DAYRAT 2005.

As internet sites have no long-term permanency ... the text as it is today on this site may be unavailable to future readers. [It is a] „phantom” text. Discussing this unpublished text in publications is similar to discussing phantom unpublished manuscripts

DUBOIS 2005.

In face of the disastrous delay (already at the descriptive stage) in biodiversity research, which suddenly became (at least in rhetoric and solemn declarations...) a fashionable watchword, increasing popularity gain seemingly reasonable proposals to “take a short cut”: replace taxonomy by “parataxonomy”; study (performed by systematists) of real taxa by counting various (pigeonholed by technicians) “morphospecies”, “RTU”-s (“Recognizable Taxonomic Units”), &c.; specialistic “holomorphological” analysis of hundreds or thousands of individuals by mechanical comparison of a scrap of some primary biochemical structure (“barcoding”); &c. Eventual implementation of these proposals, ousting scientific methods by pseudoscientific ones, may only result in disastrous degeneration of taxonomy, its degradation to the role of undereducated laboratory assistant, not too reliably performing simple services for farmers, medicals or “environmentalists”...

ARE BIOLOGICAL COLLECTIONS NEEDED?

Systematic work that does not rely on museum specimens to verify or falsify the identities of the taxa studied is not science

WINSTON 2007.

Prima laus est humanae sapientiae, valde similia posse distinguere

- [A major pride of human wisdom is the ability to distinguish between the very similar] ARISTOTELES, wg.: JAROCKI 1825.
- Inquiries based on careful examination of museum skins spawn many unexpected and unanticipated surprises long after the specimens themselves are added to the museum drawers, ranging from delineation of new species or even new genera, to documentation of phenotypic change in short timeframes, to comparison of toxin levels over time* KANNAN 2007.
- Regardless of how much information in museums is databased or how many specimens are scanned and high-resolution images posted to the World Wide Web, the ultimate value of collections resides in specimens* WHEELER 2004.
- Considerable effort and money will be spent in digitizing images of type specimens. The rationale will be that this will make material readily available worldwide. It will be a spectacular failure, for no image can substitute for looking at the real object* YOCHELSON 2004.
- ... taxonomist will consult the literature, the original description and those that follow. However, except in the case of common well-known species, specimens must be consulted, both those available at nearby museums and those that must be borrowed from more distance institutions to ensure that results are science, not fantasy* WINSTON 2007.
- The most important contributions to systematics and ecology during the last two centuries, from Richard Owen and Charles Darwin to J.B.S. Haldane and Ernst Mayr, were made by scientists who studied specimens* STUEBING 1998.
- Major reason that museums are not doing well today is that they have increasingly distanced themselves from their taxonomic roots* WHEELER 2004.
- ... I know of a few "very modern museums" which have become so over-staffed with theoretical systematists or molecular biologists that even basic identifications of major groups of plants and animals cannot be done!* NG 2000.
- Because selection is the result of interaction between the individual morphology/physiology and the environment, comparative morphology will always be essential for our understanding of evolution* WÄGELE & WETZEL 1994.
- [In] *all molecular systematic studies, the strength of interpretation relies on comparative morphological data to make biological sense* HUYS & al. 2006.
- ... the famed Raffles Museum, ... repository of some of the most significant collections of Southeast Asian fauna in the world, suffered a serious, unsettling policy change in the early 1970s. The authorities ... abruptly decided that ... the zoological collections should be removed, given away to interested parties, or even thrown away if there are no takers. Only through a mixture of luck, and the foresight of several local zoologists did the collections survive ...* STUEBING 1998.
- A group of entomologists from a university in eastern Europe was trying to develop a molecular profile of different populations [of] some dangerous groups of mosquitoes, especially those responsible for dengue fever. ... The intrepid team of researchers was taken to jail in handcuffs while working on Palawan ... Their ambassador had to travel down from Jakarta to secure their release. They left behind 22 vials of dead mosquitoes in alcohol – which presumably now are in the "black museum" of the environment department as a major triumph. At the same time Manila was plastered with posters on how to kill as many mosquitoes as possible in dozens of ingenious ways* LARSEN 2005.
- ... to save species is to study them closely ...* WILSON 1992.

That „museum” collections (no matter whether „public” or private, under the only condition to be available for study to all interested biologists) provide the basis for all systematical, biogeographical or phylogenetical studies (and to a high degree for all the remaining branches of biology) seems so evident that I feel embarrassed to write

about this: it is as if I would specially explain that there can be no archaeology without excavations, history without archives, or geography without maps... And nevertheless suggestions to restrict (or even almost totally wind up) them, or at least to make them accessible only or mainly in form of internet “databases”, “digital” pictures &c., appear in increasing frequency. Simultaneously collecting, transport and exchange of botanical and zoological specimens encounter more and more numerous and drastical bureaucratic restrictions, respective institutions (museums) have no funds (and usually do not show particular interest) for this while “amateurs” are by any means impeded and discouraged from keeping collections or even forbidden to hold any!

ROBOT INSTEAD OF SCIENTIST?

Computer scientists think they can just walk in the door and solve things. But they come to realize you need biology too

[bioinformatics expert] Wyeth WASSERMAN, ex: PEARSON 2006.

It seemed incredibly easy to do very slick, hypermodern science: just grab a bunch of fossils, measure the hell out of them, crank them through the IBM 7090/7094 –preferably using one of the sophisticated multivariate statistical procedures– and voilà! instant answers, instant results, instant success ... there has been (and still is) a tendency (ineluctable in some quarters) to let someone else’s algorithm (numerical procedure) massage your data (more often than not these days collected by a technician) as a substitute for careful thinking about either the data themselves or even the assumptions and apparent results of the computer analysis

ELDRIDGE 1989.

The old adage “the closer to the gene the closer to the truth” simply does not wash ... The closer to the gene, the more chances there are to pick up nonhomologues that are structurally identical

WILEY 1981.

Continuing emphasis on the mere computerization of label data from museums and herbaria is misguided, ... there is limited benefit in rapid electronic access to unreliable data. There are so few taxonomists that for many diverse taxa, such as insects, revisions are completed only once or twice per century. The challenge before us is thus not to computerize museum data but to have an efficient system and a sufficient number of taxonomists to support ongoing improvement and verification of data as well as making those data rapidly searchable

WHEELER 2004.

Unfortunately, the tenor of American life is conditioning the public and some scientists to the view that anything that is not on the Internet is insignificant and can be ignored. If this attitude expands, it will mark the eventual end of the natural history for as a consequence, a single classification, or a single illustration of an organism, or even a single interpretation will be continuously recycled through future generations

YOCHELSON 2004.

Many scientists (and still more non-scientists), fascinated with the achievements of present-day technology, begin to consider them the panacea that will solve all the problems, making traditional, “non-modern”, tools and methods of taxonomic work outdated and superfluous. This is especially the case at the stage of interpretation, when with increasing frequency the computer has been treated not as an aid for the scientist’s brain, but as a substitute allowing (or even coercing) one to switch the brain off: a computer evaluation of computer analysis based on models selected by computer and statistics calculated by computer, providing – in many instances unquestionably useful

– preliminary material for considerations involving all the other available evidence, has been instead attributed the status of the Revealed Truth relieving the author from the duty of thinking...

WHAT SHOULD BE DONE?

The fact that knowing all of Earth's species requires a large number of scholars is a reason to educate and employ taxonomists, not an argument to abandon scholarship in favour of theoretically vacuous technology WHEELER 2004.

In the midst of a biodiversity crisis ... we should make species exploration, discovery and description an extremely high priority. We should make the growth and development of natural history collections as comprehensive evidence of species and clade diversity a high priority. And we should make the practice of taxonomy according to its very best theories and methods a mandate ... Instead funds flow to the latest molecular techniques that we seem to do only because we now can, not because they offer improved estimates of species or reference systems WHEELER & VALDECASAS 2007.

We need a taxonomy that integrates the expertise, diligence, knowledge, passion and talents of teams of specialists, each contributing something unique and excellent to collaborative studies of taxa. ... If someone is a good collector and that is what he or she enjoys and excels at, then let us provide support for collecting. ... If someone is interested in comparative morphology, then let us support him or her to be the best morphologist he or she can be, and not require a dilution of good morphology by prescribed molecular laboratory work. If another is interested in molecular techniques, then let us sustain that interest, and so forth. ... Let us celebrate the diversity of interests and motivations ..., and not attempt to define what a good 'systematist' is WHEELER 2008.

... paradoksalne; istnieje centralne archiwum sekwencji DNA oznaczonych w laboratoriach biologii molekularnej na całym świecie, ale nie ma podobnej bazy danych na temat organizmów, z których materiał DNA się otrzymuje

[...paradoxically, there exist central archives of DNA sequences identified in molecular biology laboratories all-over the world, but there is no similar database for the organisms the DNA material is being obtained from]

LEAKEY & LEVIN 1999.

By ignoring the traditional jobs of taxonomy (describing and corroborating species and characters, making species identifiable, providing informative names and predictive classifications, and continually exploring biological diversity at and above the species level) it is only a matter of time until untested species, outdated names, or unimproved classifications lead to mistakes of enormous cost. A misidentified disease vector or pest species at a port of entry; conflated species with similar barcode genes but significantly different attributes; use of name that no longer reflects an accurate understanding of natural patterns; or misidentification of a study organism can contribute to decisions with disastrous consequences in applied or experimental biology. Must we witness such disasters before restoring support and resources in to taxonomy? WHEELER 2007.

In the context of all these impediments, insufficiency (and especially discriminative distribution) of funds, bureaucratic regulations that drastically reduce the effectiveness of work, “innovatory” ideas of “sanators”, &c., astounding is not the fact that taxonomy is passing through a crisis, but rather that it has nevertheless managed to remain “above ground”: that there are still some cranks willing to perform difficult but not respected work at their own expense or for a salary amounting to a fraction of what

could be earned in intellectually much less demanding professions; that the knowledge about biodiversity – at a pace that is very slow in relation to the needs but impressive on the background of available outlays and possibilities – from year to year increases; that not only (coerced by short-term grants and the necessity to keep position in the rat-race) “contributions to the knowledge of...”, “serials” on in fact the same topic, and other narrow-scope reports, but also resulting from many years of intensive work, comprehensive monographs of large groups continue to appear; that many systematists have retained the ability to use their brains and treat a computer-generated cladogram (with all its statistical indices) as the starting point to interpretational considerations rather than as the final result (evtl. to be mechanically “transcribed” into cladistic classification); &c. But of course it is also true that the enthusiasm of a few “desperates” is by far not enough (especially in face of the horrifying tempo of destruction of natural environments and resulting extermination of organisms inhabiting them). What, in such situation, should be done? The answer to this question is of course a consequence of what has been written above: the effective antidote against the present crisis would simply be the reverse of the described trends and practices: restraint of bureaucracy; distribution of funds such that for science is assigned more than just the scraps remaining after administration and applications have been satiated; desistance from discrimination of taxonomy in general and particular [groups of] taxonomists in particular; relegation of the choice of methods, form of presentation &c. to the specialist performing the study; braking the snobistic technological “armament race”; evaluation of scientists and their publications based on real scientific value instead of “objective” but inadequate indexes; withdrawal from wringing the “rat-race”, to leave researchers some time to think; &c., &c., &c.

WHAT CAN WE DO?

It is time that taxonomists find their backbones. A series of compromises and accommodations in the 20th century only served to further marginalize taxonomy.

WHEELER 2007.

Posłuszeństwo względem złych przepisów to najlepszy sposób ich utrwalenia

[Obedience with bad regulations is the best way to fix them]

KOTARBIŃSKI 1986.

Kiedy się działa, można się pomylić, nicnierobienie zawsze jest pomyłką

[Acting one can make a mistake; doing nothing is always a mistake]

Romain ROLLAND, ex: LEWIN 2004.

Jak możemy dokonać rzeczy niemożliwej? – Z entuzjazmem

[How can we do the impossible? – with enthusiasm]

Paolo COELHO, ex: FALIŃSKI 2004c.

Sukces to przechodzenie od porażki do porażki bez utraty entuzjazmu

[Success is to pass on from one defeat to another without loss of enthusiasm]

Winston CHURCHILL, ex: SKALSKI & SUPRANOWICZ 2007.

Gutta cavat lapidem non vi, sed saepe cadendo

[Drops wear the stone, not by force but by falling frequently]

OVIDIUS, ex: JĘDRASZKO 1990 107.

To work in a science in a crisis state is a more challenging and inspiring enterprise for a scientist endowed with a creative spirit than it is to labor in a field developing

- quickly and “normally”, DOBZHANSKY 1964.
I believe that an antithesis is most easily provoked by a categorical statement of a thesis, and that the issue is most readily resolved by such a confrontation of an uncompromising thesis and antithesis and that the ultimate synthesis is thus most quickly achieved E. MAYR, ex: FUTUYMA 1994.
When the greatest taxonomic institutions support molecular genetics, conservation, and ecological studies at the expense of taxonomy, what are others to think of the importance of the latter? If taxonomy is not important enough for us to make our own top priority, why should any agency or individual seriously entertain supporting it financially? WHEELER 2007.
Így lettem “nehéz ember”, ..., így lettem “konok ember”, és a hátam mögött mondva “ostoba ember” is. De ember akartam maradni mindig
 [Thus I became a „difficult man”, ... thus I became a „stubborn man”, and in talks behind my back also a “stupid man”. But man I have always tried to remain] MÁTYÁS 2005.
„Cóż jest trucizną? Wszystko jest trucizną i nic nie jest trucizną. Wszystko zależy od dawki (Dosis facit venenum)
 [What is poison? Everything is poison and nothing is poison. All depends upon the dose (Dose makes the venom)]

T. P. A. B. VON HOHENHEIM (PARACELUSUS), in: ANONIM 2008: 18.

Not very much depends upon a single “private soldier” of science, but among taxonomists there are also “captains”, “colonels”, and even “generals”, and while we are indeed not very numerous there is nevertheless enough of us to be heard if we speak loudly and unanimously. Therefore first of all we should break the silence, cease to passively accept bureaucratic regulations, refuse to dance to an imposed tune! Any of us, according to the filled post, performed function, professional and financial situation, has different possibilities to influence the “rules of the game” and their implementation: minister or director by issuing proper regulations; editor, reviewer, member of a qualifying committee by justly and honestly evaluating other scientists’ work; professor by sensitizing future researchers to these problems; such an old “professional amateur” as Roman HOŁYŃSKI by delivering lectures on related topics, discussing with colleagues, obstinately trying to push polemical papers like this through editorial obstacles; and all of us by preserving common sense and not yielding to fashionable but destructive “trends”... People “from time immemorial” dreamt of the “panacea” that would solve all problems simply and without effort: not only fairy-tales have their Aladin’s lamps, magic wands and Golden Fishes satisfying every desire of the lucky angler, but also quite serious scholars quite seriously searched for the “philosophers’ stone” or “elixir of immortality”, casted horoscopes and organized séances, constructed *perpetuum mobile* and devised systems of universal happiness. Today we do not believe any more in the existence of the philosophers’ stone, but many of us still cherish the secret hope that some modern version will appear: the actual “general” favourite is informatics, and in biology DNA-sequences, therefore more than one scientist or – still more frequently – “decision-maker” eagerly strives to replace museal collections with internet databases and transmission of digital pictures, species descriptions with barcodes, laborious studies of phylogeny of organisms with mechanical constructing of computer-generated branching patterns (cladograms) of this or that gene. One of the ancient philosophers, asked by the sovereign about easy means to acquire mathematical knowledge, answered “*sorry, Sir, there is no king’s way to mathematics!*”; no such way leads to real

achievements in any other branch of science, either, and thus also biologists – and especially persons deciding the distribution of funds, filling museal posts, acceptance of submitted papers, &c. – must reconcile themselves to the fact that if they are serious about so frequently pronounced declarations of the necessity (or even only willing) to make the biodiversity known, then there is only one way to achieve this goal: very much (in relation to the present outlay, though still very little as compared to the sums spent *e.g.* on space research, corpuscular physics or just on genomics) money must be assigned for funding the studies of very many taxonomists, who must devote very much effort through a very long time to find in the field, collect, describe and classify these ten, thirty or perhaps hundred million (this we will really know only if we succeed in accomplishing the task...) plant and animal species that we may manage to discover before they are totally exterminated. There is – and will never be – any alternative way: panaceas and philosophers' stones do not exist! Does it mean that we should eliminate computer programs, molecular analyses and other achievements of contemporary technology from our studies, and keep working only with “quill and abacus”? Naturally (despite the derisions of some fans of “modernness”) nobody suggests anything like this: barcodes and molecular clocks, PAUP and MODELTEST, interactive databases and Markov chains, all are very useful, undoubtedly each of them may serve as efficient remedy for some “illness”, and thus not only may but of course should be applied. However, any medicine is potent only in specified situations and in optimal doses, and so should be adhibited only according to the doctor's [in this case: the scientist's doing the particular research] advice: if applied inappropriately or overdosed, a medicament – even that recommended in the best faith by the best friend – becomes a poison: “successful” curation ends with passing away of the patient!

BITTER CONCLUSION: WHY ARE WE SO OBSTINATE IN REPEATING WELL-KNOWN MISTAKES?

Można wywieść z błędu tego, kto popełnił pomyłkę niechcący; ale od której strony dotrzeć do człowieka broniącego się przed zdrowym rozsądkiem?

[One can disabuse somebody who made a mistake inadvertently, but from which side should we approach a man shielding himself from common sense?]

DIDEROT, *ex*: FALIŃSKI 2004c.

Jeden uważa tak, drugi uważa siak, a większość nie uważa

[One thinks this, other thinks that, and the majority doesn't think] [NN].

Jedni ludzie piszą, a drudzy nie czytają; jedni mówią, a drudzy nie słuchają

[Some people write, others don't read; some people speak, others don't listen]

S. KULCZYŃSKI, *ex*: FALIŃSKI 2004c.

Prawdziwy postęp to umiejętność przeanalizowania i zrozumienia tych wszystkich błędów, jakie w jego imieniu popełniamy

[True progress consists in the ability to analyse and understand the mistakes which we make in its name]

S. AGA KHAN, *ex*: ŁYSIAK 2000.

Doświadczenie pozwala nam popełniać stare błędy bardziej finyzyjnie

[Experience allows us to make old mistakes with more subtlety]

Derwood FINCHER; *ex*: NOWAKOWSKA 2002.

...choćbyśmy nawet mogli stać się uczonymi uczonością drugich, mądrzy możemy być jedynie własną mądrością

[... even if we could become scholars with others' erudition, wise can we be only with our own wisdom] Pope Klemens VII, ex: FALIŃSKI 2004c.

Why run a planet without an inventory? ... It comes down to a reason that has remained unspoken: to create a world-wide biodiversity inventory would be against the best interests of that short-term oriented, but overwhelmingly effective triumvirate: politics, money, and power. If you don't have an inventory, no one will ever know you've run out of something (...) that you used to have in stock. ... From that point of view natural science collections and their researchers are dangerous enemies

WINSTON 2007.

Gdy sytuacja robi się dostatecznie niedobra ludzie podejmą nawet najbardziej oczywiste i sensowne kroki

[When the situation becomes sufficiently bad, people will take even the most evident and rational steps]

[Amer. biznesman and politician] George SHULTZ, ex: WINIECKI 2005.

As the quoted excerpts show, all the matters referred to in this paper were already discussed many times by other authors, not a single statement is my „discovery”, every argument was again and again set forth – and yet the crisis of taxonomy does not abate: indeed, it deepens! Why is it so? In my opinion to a significant degree because we speak about this too rarely, too timidly, and almost exclusively within our own circles: young MSc-s and PhD-s occupying lower grades of the hierarchy, whom the negative trends affect most painfully, have no immediate contact with “decision-makers”, while older scientists, after having attained influential positions which assure them a relatively high degree of “immunity” to most of these difficulties and restrictions (some of them being, by the way, advantageous for the better situated...), perhaps lack the motivation to “fight windmills”. Some hope could be perceived in the truth expressed by the last of the quoted citations: indeed, when the situation is already very bad, *Homo sapiens* [???] begins to think seriously on remedial measures. This is, however, a very bitter truth – at the stage sufficiently advanced to dispose the “decision-makers” to effective action it is usually too late: so it is with endangered species which we start to protect (of course I have in mind *real* protection, not “make-believe” – mostly counter-productive – interventions like the absurd multiplication of collecting bans) only when (as in the case of European bison) not a single wild individual remained (and none could have remained, as in the meantime we managed to destroy all the habitats in which it could survive as truly *natural* – not fed, not selected, &c. – element of biocoenosis); so it is with “demographic explosion”, that has already led the world population to the multiplicity of what it should be, and even so politicians are anxious about... minimal decrease in some countries of the most overcrowded continent; so it is with “greenhouse gases”, which should have been dealt with (much more seriously than is even presently being done!) half a century ago, because now we can at most (with great difficulties and at hardly acceptable costs) perform some cosmetic manipulations allowing in the best case to delay slightly the catastrophe or perhaps somewhat reduce its scale; such examples could be multiplied to infinity... Will the same be the fate of taxonomy, will its importance be appreciated only when the proportion of „known” (*i.e.* recognized and described) species among those still in existence approaches 100% without further studies: when those unknown (and the majority of the “known”...) have departed into the irrevocable past together with the natural environments they could have lived in?

*Cierpka to mowa jak krew spiekła, czarna, ale w niej skryta myśl zbawienna leży:
Wszak wiecie, Bracia, z cierpkiego to ziarna dąb rozłożysty pod niebo wybieży!*
[Bitter my sermon, like black clotted bloodscab, but salutary is the thought it
launches:
Recall, my brethren: from small bitter acorn powerful oaktree spreads its
mighty branches!]

Kornel UJEJSKI: *Maraton*.

THE SOURCES OF THE CITATIONS

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