The Division of the History of Chemistry of the American Chemical Society

米国化学会　化学史部門

Citation for Chemical Breakthrough Awards

歴史的化学論文大賞

Presented by Professor Yoshiteru Maneo, Kyoto University, Representing the Division of History of Chemistry of the Aerican Chemical Society, Nagoya University, July 2, 2022.

Citation for Chemical Breakthrough Awards

歴史的 化学論文 大賞

18世紀の後半から今日に至る自然科学研究における膨大な数の論文の中から、人類の発展に著しく貢献した歴史的な化学論文を選定し、その研究が行われた研究機関を顕彰する。

米国化学会の化学史部門（ACS-HIST）が、2006年以降、これまでに真に画期的な約80の論文を選出。

“化学の殿堂” “Chemistry Hall of Fame”

アジアの研究機関が受賞対象となるのは今回が初めて。

2021 Awardees

歴史的化学論文大賞 2021年度 受賞者

J. Willard Gibbs

"On the Equilibrium of Heterogeneous Substances,"
Transactions of the Connecticut Academy of Arts and Sciences **1876**, *3*, 108 - 248; **1878**,*3*, 343 - 524.
Yale University

K. Fukui, T. Yonezawa,and H. Shingu

"A Molecular Orbital Theory of Reactivity in Aromatic Hydrocarbons,"
The Journal of Chemical Physics **1952**, *20*, 722 -725.
Kyoto University

R. Noyori, T. Ohkuma,M. Kitamura,H. Takaya, N. Sayo, H. Kumobayashi, and S. Akutagawa

"Asymmetric Hydrogenationof β-Keto Carboxylic Esters. A Practical, Purely ChemicalAccess to β-Hydroxy Esters in High Enantiomeric Purity,"
J. Am. Chem. Soc. **1987**,*109(10)*, 5856 - 5858.
Nagoya University, Institute for MolecularScience, JapanTakasago InternationalCorporation

Citation for Chemical Breakthrough Awards --- Criteria

歴史的化学論文大賞の選考基準

- **Awards are made for breakthrough publications, patents, and books**

革命的
- **Revolutionary** - a change in practice or theory

広い視野
- **Broad in scope** - advances that permeate a sub-discipline of chemistry, or that has applications in more than one sub-discipline, or that has a significant benefit to society

長期に渡る影響力
- **Long term in impact** - a minimum of 25 years since the date of publication

出版から25年以上経過していること

Citation for Chemical Breakthrough Award Program

Nominations

歴史的化学論文大賞の推薦方法

- Anyone can make a nomination
- Nomination requirements
  - A full literature citation
  - A justification of no more than 200 words

推薦理由は200語以内で

Awards Committee

選考委員

- Anthony Barrett, FRS (Imperial College London)
- Michael Bowers (University of California, Santa Barbara)
- Carmen Giunta (Le Moyne College)
- Harry Gray (Caltech)
- Catherine Jackson (Oxford)
- Peter Morris (Science Museum, London)
- Mary Virginia Orna (College of New Rochelle)
- Amos Smith (University of Pennsylvania)
- **Jeffrey Seeman**, Non-voting secretary
  (University of Richmond) 米国ヴァージニア州

ジェフ・シーマン

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- ACS Corporate Associates
- Division of the History of Chemistry
- A number of individual donors
- Volunteer work by many
- And support from institutions like yours!

Some Previous Awardees

これまでの受賞者の例

M. Gomberg, An Instance of Trivalent Carbon: Triphenylmethyl [Free radicals], *J. Am. Chem. Soc.* **1900**, *22*, 757-771. (University of Michigan)

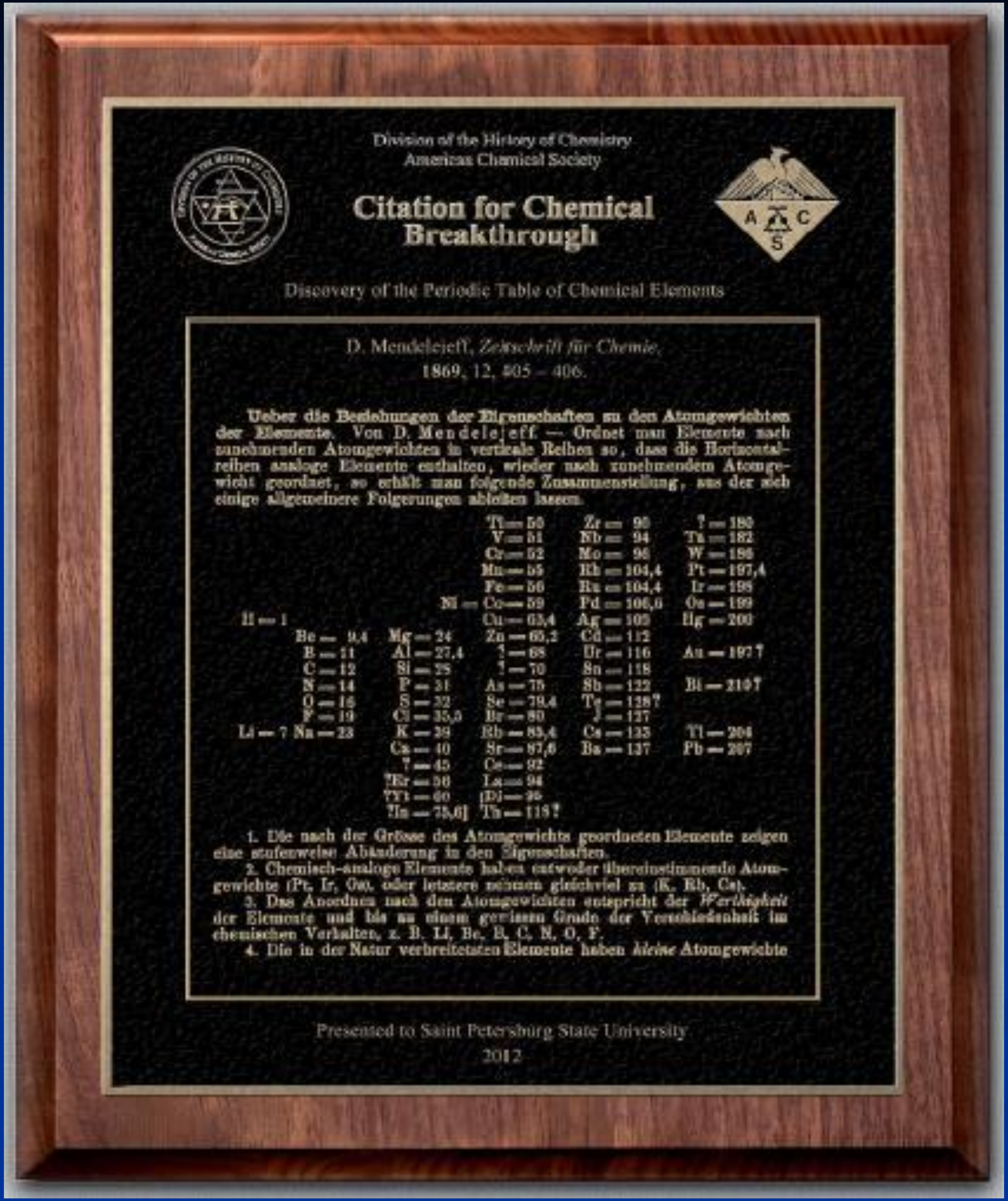
A. Werner, Neuere Anschauungen auf dem Gebiete der Anorganischen Chemie, Vieweg, Braunschweig, **1905** (Zurich) 元素の長周期表の考案者でもある

G N Lewis, The Atom and the Molecule, *J. Am. Chem. Soc.* **1916**, *38*, 762-785. (University of California, Berkeley)

L. Pauling, The Nature of the Chemical Bond, Cornell University Press, **1939**. (Caltech)

Watson, J. D.; Crick, F. H. Molecular structure of nucleic Acids. A structure for deoxyribose nucleic acid [Double helical structure of DNA], *Nature* **1953**, *171*, 737-738 (Medical Research Council, Cambridge)

M. J. Molina and F. S. Rowland, Stratospheric Sink for Chlorofluoromethanes: Chlorine Atom-Catalysed Destruction of Ozone, *Nature* **1974**, *249*, 810-812. (University of California, Irvine)

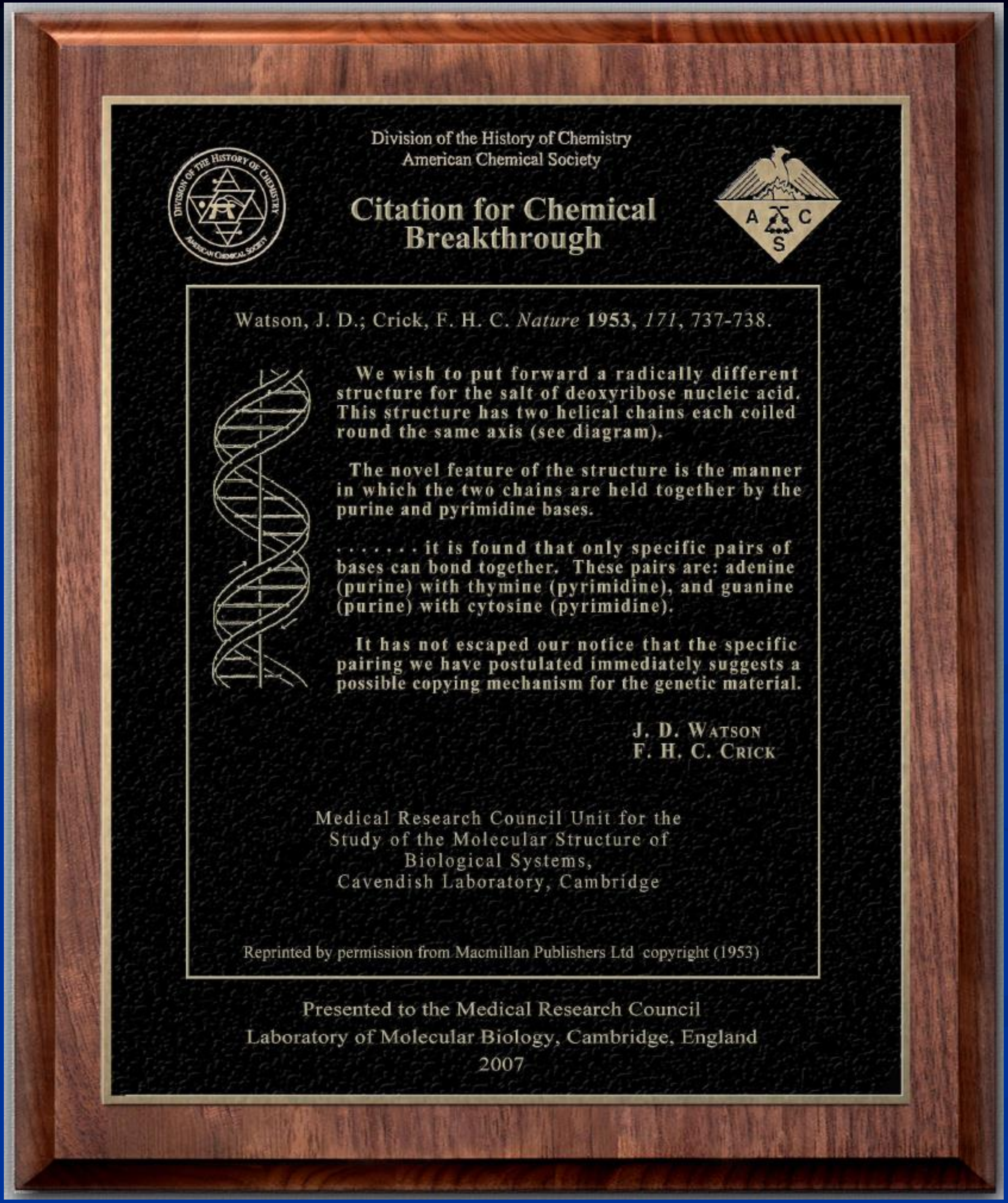


Mendelejeff, the Periodic Table.

Spelling of his name is as on the paper itself.

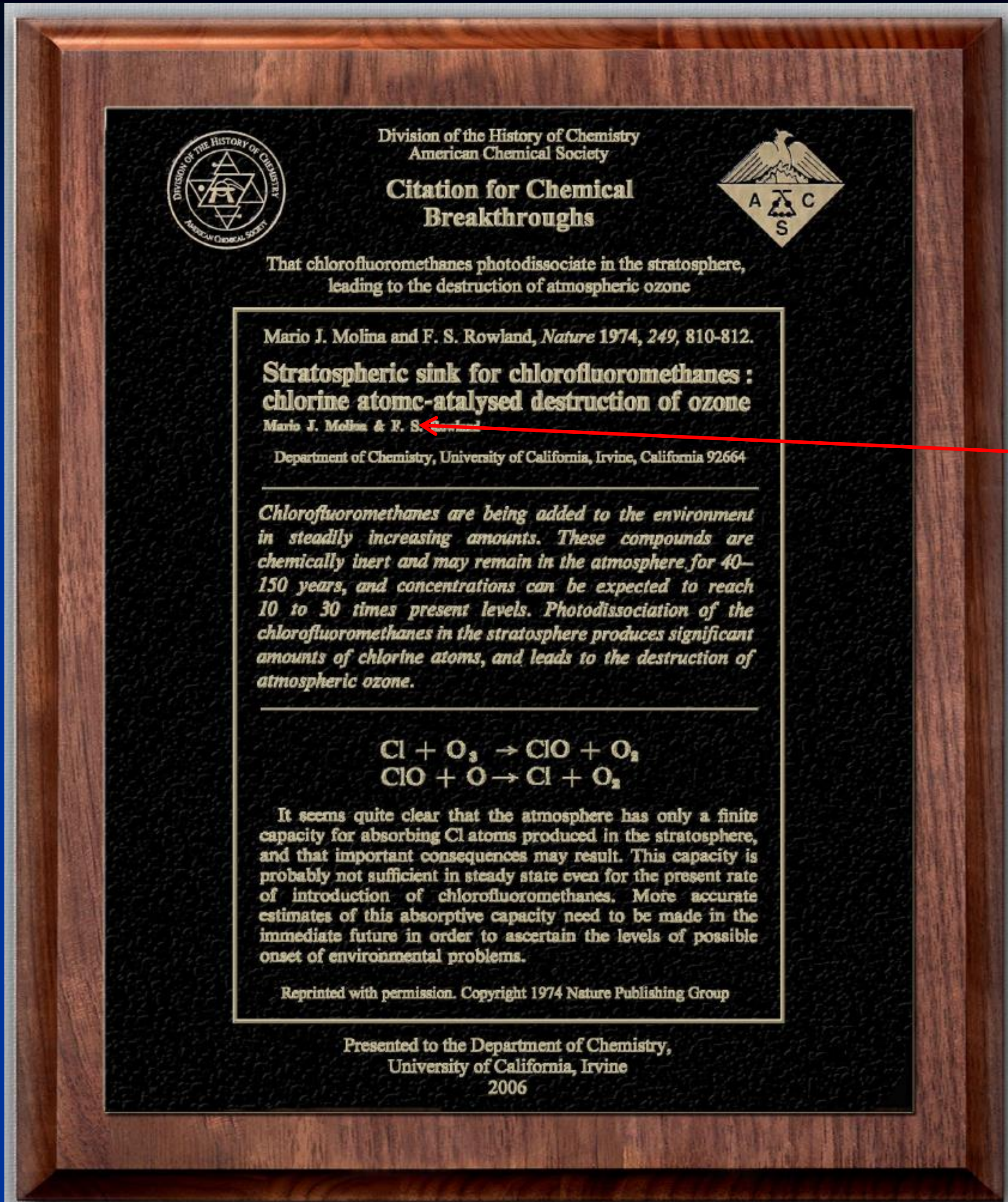
メンデレーエフ：
元素の周期律表

名前のスペルはあえて原著論文のまま
本来はMendeleev



Watson & Crick, Structure of DNA

ワトソンとクリック：
DNAの
二重らせん構造



Molina and Rowland, ozone destruction

As an award in history of science, the plaques do not correct original typographical errors!

モリナとローランド：オゾン層の破壊

原著論文のスペルミスもそのまま盾に

CONGRATULATIONS!

CONGRATULATIONS!

YOUR AWARD!!!!!

Division of the History of Chemistry
American Chemical Society

Citation for Chemical Breakthrough

Journal of the American Chemical Society **1987**, *109*, 5856-5858.

Asymmetric Hydrogenation of β-Keto Carboxylic Esters. A Practical, Purely Chemical Access to β-Hydroxy Esters in High Enantiomeric Purity

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Kamata, Tokyo 144, Japan

Received June 8, 1987

Optically active β-hydroxy carboxylic esters are an extremely important class of compounds for natural product synthesis. Access to such compounds has so far relied mainly on biological or biochemical transformations.[1] Asymmetric hydrogenation of the keto esters is an alternative complementary methodology, and the purely chemical means should allow even easier control of the chiral outcome at will, giving both antipodes with equal ease.

Presented to Nagoya University, the Institute for Molecular Science, and Takasago International Corporation, 2021.